Instructor’s Manual

for Higher Education Mathematics

Advanced Customer Solutions

ALEKS Corporation
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Contents

List of Figures xv
Preface xxi

1 Introduction 1
  1.1 What is ALEKS? .......................................... 1
  1.2 The ALEKS Instructor’s Manual .......................... 2

2 Quick Start 3
  2.1 Obtaining a Class Code .................................. 3
  2.2 Registering Students ..................................... 3

3 Setup Guide for Instructors 5
  3.1 Instructor Preparation ................................... 5
  3.2 System Requirements .................................... 6
  3.3 Instructor Module ....................................... 6
  3.4 Student Orientation .................................... 6
  3.5 Registration ............................................ 7
  3.6 Tutorial ................................................ 7
  3.7 First Assessment ........................................ 8
  3.8 Report Tutorial ......................................... 8
  3.9 Beginning the Learning Mode ............................ 8

4 Assessment Mode 9
  4.1 Assessments in ALEKS ................................. 9
4.2 Guidelines for Assessments ........................................... 10
4.3 How Assessments are Triggered .................................... 10
  4.3.1 Initial Assessment .............................................. 10
  4.3.2 Automatic Assessments ....................................... 11
  4.3.3 Scheduled Assessments ..................................... 12
  4.3.4 Requested Assessments for a Single Student .............. 12
4.4 Answer Editor ....................................................... 13
4.5 Manipulators for Mathematical Expressions .................... 14
  4.5.1 Basic Input .................................................... 14
  4.5.2 Basic Editing Tools ......................................... 15
  4.5.3 Selecting Input ............................................... 15
  4.5.4 Clear and Undo ............................................... 15
4.6 Mathematical Expressions .......................................... 15
  4.6.1 Entering Expressions from the Keyboard .................. 16
  4.6.2 Using the Answer Editor Keypad to Structure Simple Expressions ..... 16
  4.6.3 Entering Complex Expressions ............................. 16
  4.6.4 Alternate Ways of Entering Expressions ................... 16
  4.6.5 Other Mathematical Signs .................................. 17
  4.6.6 The Asterisk for Multiplication ............................ 17
  4.6.7 Mixed Numbers .............................................. 17
4.7 Types of Mathematical Expressions ................................ 17
4.8 Advanced Mathematical Expressions ............................. 19
4.9 The Answer Editor for Graphing ................................ 20
4.10 The Answer Editor for Histograms .............................. 21

5 Learning Mode .......................................................... 23
  5.1 The ALEKS Learning Mode ....................................... 23
  5.2 Interface Features ................................................. 24
  5.3 The Learning Mode Workflow .................................... 24
    5.3.1 Practice Page ............................................... 24
    5.3.2 Explanation Page .......................................... 25
CONTENTS

5.3.3 Wrong Answer Page ........................................... 26
5.4 Feedback in Learning Mode ........................................ 26
5.5 Review .......................................................... 26
5.6 Worksheet ......................................................... 27

6 QuickTables ......................................................... 29
6.1 Setting Up QuickTables for your Class ............................... 29
  6.1.1 QuickTables Sub-Navigation .................................... 29
  6.1.2 Create a Table .................................................. 30
  6.1.3 Edit Tables ...................................................... 31
  6.1.4 QuickTables Class Settings .................................... 31
  6.1.5 Game Settings .................................................. 32
  6.1.6 Retention Assessment Settings ................................ 33
  6.1.7 QuickTables Student Settings .................................. 34
6.2 QuickTables Assignments ............................................ 34
  6.2.1 QuickTables Scheduled Assessments .............................. 34
  6.2.2 QuickTables Quiz ................................................ 35
  6.2.3 QuickTables Worksheets ........................................ 35
6.3 Reporting your Students’ Progress in QuickTables .................... 36
  6.3.1 QuickTables Progress Reports ................................... 36
  6.3.2 QuickTables Quiz Reports ...................................... 37
  6.3.3 QuickTables Scheduled Assessment Reports ...................... 37
6.4 How Your Students Use QuickTables ................................ 38
  6.4.1 QuickTables Keyboard Exercise ................................. 38
  6.4.2 QuickTables Testing Mode ...................................... 38
  6.4.3 QuickTables Learning Mode .................................... 38
  6.4.4 QuickTables Games ............................................. 39
  6.4.5 QuickTables Completion Certificate ............................. 40

7 Instructor Module .................................................. 43
7.1 Navigation ........................................................ 43
7.1.1 Search Box ........................................... 44
7.1.2 Main Navigation .................................... 44
7.1.3 Sub-Navigation ...................................... 44
7.1.4 Dashboard .......................................... 45
7.1.5 Home Button ........................................ 46

7.2 Instructor Account .................................... 46
7.2.1 Account Settings ................................... 47
7.2.2 Message Center .................................... 47
7.2.3 Reference Guides .................................. 48
7.2.4 Customer Support .................................. 48
7.2.5 Training & Resources ............................... 49
7.2.6 Log Out ............................................ 49
7.2.7 Community ......................................... 49
7.2.8 Feedback ........................................... 49
7.2.9 Student Roster (Instructor Level) .................. 49

7.3 Reports .................................................. 50
7.3.1 Available Reports ................................... 51
7.3.2 Download Report Data ............................... 51
7.3.3 Send Message to Selected Students ............... 52
7.3.4 Viewing Student History Across Multiple ALEKS classes .... 52
7.3.5 Interpreting Bar Graphs ............................. 52
7.3.6 ALEKS Pie ........................................... 53
7.3.7 Display Options for ALEKS Pie Report .......... 54
7.3.8 ALEKS Pie Report for a Single Student ........... 57
7.3.9 Objective Report .................................... 57
7.3.10 Progress Reports ................................... 58
7.3.11 Learning Progress Since Latest Knowledge Check .... 59
7.3.12 Most Recent Knowledge Check ..................... 59
7.3.13 Best Performance in Learning Mode Over Time .... 61
7.3.14 Progress in Knowledge Check Over Time .......... 61
7.3.15 Detailed Progress History ......................... 61
<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.3.16</td>
<td>Progress Report for a Single Student</td>
<td>63</td>
</tr>
<tr>
<td>7.3.17</td>
<td>Time and Topic Report</td>
<td>64</td>
</tr>
<tr>
<td>7.3.18</td>
<td>Class Time and Topic Report</td>
<td>64</td>
</tr>
<tr>
<td>7.3.19</td>
<td>Individual Time and Topic Report</td>
<td>65</td>
</tr>
<tr>
<td>7.3.20</td>
<td>Knowledge Per Slice</td>
<td>66</td>
</tr>
<tr>
<td>7.3.21</td>
<td>Assignment Reports</td>
<td>67</td>
</tr>
<tr>
<td>7.3.22</td>
<td>Scheduled Knowledge Check Report</td>
<td>67</td>
</tr>
<tr>
<td>7.3.23</td>
<td>Homework, Quiz, and Test Results</td>
<td>68</td>
</tr>
<tr>
<td>7.3.24</td>
<td>Standards Report</td>
<td>68</td>
</tr>
<tr>
<td>7.3.25</td>
<td>QuickTables Reports</td>
<td>70</td>
</tr>
<tr>
<td>7.3.26</td>
<td>Custom Reports</td>
<td>70</td>
</tr>
<tr>
<td>7.4</td>
<td>Class Creation and Configuration (Class Administration)</td>
<td>73</td>
</tr>
<tr>
<td>7.4.1</td>
<td>Creating a Class</td>
<td>73</td>
</tr>
<tr>
<td>7.4.2</td>
<td>Class Creation Wizard</td>
<td>74</td>
</tr>
<tr>
<td>7.4.3</td>
<td>Save for Later or Cancel</td>
<td>76</td>
</tr>
<tr>
<td>7.4.4</td>
<td>Textbook Integration</td>
<td>76</td>
</tr>
<tr>
<td>7.4.5</td>
<td>Set Objectives / Modules</td>
<td>77</td>
</tr>
<tr>
<td>7.4.6</td>
<td>Objective Completion</td>
<td>78</td>
</tr>
<tr>
<td>7.4.7</td>
<td>Objectives Editor</td>
<td>78</td>
</tr>
<tr>
<td>7.4.8</td>
<td>Edit Objective</td>
<td>79</td>
</tr>
<tr>
<td>7.4.9</td>
<td>Topic Recommendation Tool (TREC)</td>
<td>81</td>
</tr>
<tr>
<td>7.4.10</td>
<td>Post Objective Progress Assessment</td>
<td>83</td>
</tr>
<tr>
<td>7.4.11</td>
<td>ALEKS 360</td>
<td>83</td>
</tr>
<tr>
<td>7.4.12</td>
<td>Content Editor</td>
<td>84</td>
</tr>
<tr>
<td>7.4.13</td>
<td>Section Level Content</td>
<td>85</td>
</tr>
<tr>
<td>7.4.14</td>
<td>Supplementary Textbook Topics</td>
<td>85</td>
</tr>
<tr>
<td>7.4.15</td>
<td>Core Readiness Topics in the Content Editor</td>
<td>85</td>
</tr>
<tr>
<td>7.4.16</td>
<td>Class Summary</td>
<td>85</td>
</tr>
<tr>
<td>7.4.17</td>
<td>Syllabus</td>
<td>86</td>
</tr>
<tr>
<td>7.4.18</td>
<td>Class Content</td>
<td>87</td>
</tr>
<tr>
<td>7.4.19</td>
<td>Class Options</td>
<td>87</td>
</tr>
<tr>
<td>Section</td>
<td>Page</td>
<td></td>
</tr>
<tr>
<td>-------------------------------</td>
<td>------</td>
<td></td>
</tr>
<tr>
<td>7.4.20 Access Options</td>
<td>88</td>
<td></td>
</tr>
<tr>
<td>7.4.21 Student Activity Notifications</td>
<td>88</td>
<td></td>
</tr>
<tr>
<td>7.4.22 Learning Options</td>
<td>89</td>
<td></td>
</tr>
<tr>
<td>7.4.23 Student Assessment Options</td>
<td>89</td>
<td></td>
</tr>
<tr>
<td>7.4.24 Worksheet Options</td>
<td>89</td>
<td></td>
</tr>
<tr>
<td>7.4.25 QuickTables Settings</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>7.4.26 Implementation Information</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>7.4.27 Class Duplicate Settings</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>7.4.28 Gradebook</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>7.4.29 Resources</td>
<td>91</td>
<td></td>
</tr>
<tr>
<td>7.4.30 Incoming and Exiting Student Options</td>
<td>92</td>
<td></td>
</tr>
<tr>
<td>7.4.31 Share Class Access</td>
<td>93</td>
<td></td>
</tr>
<tr>
<td>7.4.32 Student Groups</td>
<td>93</td>
<td></td>
</tr>
<tr>
<td>7.4.33 Class List</td>
<td>94</td>
<td></td>
</tr>
<tr>
<td>7.4.34 Cleanup Tool</td>
<td>94</td>
<td></td>
</tr>
<tr>
<td>7.4.35 Class Roster</td>
<td>95</td>
<td></td>
</tr>
<tr>
<td>7.4.36 Financial Aid Code</td>
<td>96</td>
<td></td>
</tr>
<tr>
<td>7.4.37 Forum</td>
<td>96</td>
<td></td>
</tr>
<tr>
<td>7.4.38 Calendar</td>
<td>96</td>
<td></td>
</tr>
<tr>
<td>7.4.39 Student View</td>
<td>97</td>
<td></td>
</tr>
<tr>
<td>7.4.40 Class Archive</td>
<td>97</td>
<td></td>
</tr>
<tr>
<td>7.4.41 Class Tools</td>
<td>98</td>
<td></td>
</tr>
<tr>
<td>7.5 Assignments</td>
<td>98</td>
<td></td>
</tr>
<tr>
<td>7.5.1 Class Assignments</td>
<td>99</td>
<td></td>
</tr>
<tr>
<td>7.5.2 New Homework</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>7.5.3 Name &amp; Date</td>
<td>101</td>
<td></td>
</tr>
<tr>
<td>7.5.4 Content</td>
<td>102</td>
<td></td>
</tr>
<tr>
<td>7.5.5 Gradebook Settings</td>
<td>103</td>
<td></td>
</tr>
<tr>
<td>7.5.6 Advanced Options</td>
<td>104</td>
<td></td>
</tr>
<tr>
<td>7.5.7 Grading Scale</td>
<td>105</td>
<td></td>
</tr>
<tr>
<td>7.5.8 Edit Homework</td>
<td>106</td>
<td></td>
</tr>
</tbody>
</table>
# CONTENTS

7.9.6 Subscription Management System ........................................ 127
7.9.7 Administrative Reports ...................................................... 127
7.9.8 Student Roster (Institution Level) ......................................... 128

7.10 Master Templates ................................................................. 129
  7.10.1 Master Templates List ...................................................... 130
  7.10.2 Getting Started .............................................................. 130
  7.10.3 Master Template Basic Settings .......................................... 131
  7.10.4 Master Template (Class Summary) ...................................... 132
  7.10.5 Lockout Options .............................................................. 132
  7.10.6 Create Assignments in Master Template .............................. 133
  7.10.7 Create Linked Classes ..................................................... 134
  7.10.8 Classes to beAssigned ..................................................... 135
  7.10.9 Create a Master Template from an Existing Class .................. 136
  7.10.10 Duplicate a Master Template ........................................... 136
  7.10.11 Archive Master Templates ................................................ 137
  7.10.12 Delete Master Template .................................................. 137
  7.10.13 Master Template Reports ................................................ 138
  7.10.14 Effects of Editing a Master Template ................................ 138

7.11 District Features ................................................................. 139
  7.11.1 Account Summary ............................................................ 139
  7.11.2 Learning Management System (LMS) Integration (District Level) .. 139
  7.11.3 Administrator Roster ....................................................... 140
  7.11.4 New Administrator .......................................................... 140
  7.11.5 Class Activity ................................................................. 140
  7.11.6 Student Roster (District Level) ......................................... 140
  7.11.7 Subscription Management System (District Level) .................. 141
  7.11.8 Administrative Reports (District Level) ............................. 141

8 Teaching with ALEKS ................................................................. 143
  8.1 The ALEKS Educational Paradigm .......................................... 143
  8.2 The Instructor and ALEKS ..................................................... 144
APPENDICES

A ALEKS Student User’s Guide

A.1 System Requirements ................................................. 177
A.2 Registration .......................................................... 177
A.3 Tools Tutorial ......................................................... 180
A.4 Knowledge Checks .................................................. 180
   A.4.1 Knowledge Checks in ALEKS .......................... 181
   A.4.2 Knowledge Check Results ................................. 182
   A.4.3 Knowledge Checks and Your Learning .............. 182
A.5 Home ................................................................. 182
   A.5.1 ALEKS Timeline ............................................. 183
   A.5.2 ALEKS Pie and Details ................................... 184
   A.5.3 Primary Guidance Menu ................................. 186
   A.5.4 Main Navigation Menu .................................... 186
   A.5.5 Settings ....................................................... 187
A.6 Learning Mode ...................................................... 187
   A.6.1 Learning Page/Problem Page/Explanation Page .... 187
   A.6.2 Progress Indicator .......................................... 188
   A.6.3 Topic Carousel .............................................. 189
   A.6.4 Classes with Objectives ................................. 191
   A.6.5 Locked Topics ................................................ 191
A.7 Message Center ..................................................... 192
A.8 Reports ............................................................. 192
   A.8.1 Progress History ........................................... 193
   A.8.2 Time and Topic Report ................................... 193
   A.8.3 Objective Details Report ............................... 194
   A.8.4 QuickTables Report ....................................... 194
A.9 Assignments ........................................................ 194
A.10 Gradebook .......................................................... 195
A.11 Student Account Home .......................................... 195
## CONTENTS

A.11.1 Account Management .................................................. 196
A.11.2 Class Management .................................................... 197
A.11.3 Suspend Account ..................................................... 198
A.11.4 Leave of Absence ..................................................... 199
A.12 QuickTables ............................................................... 199

B Syllabi in ALEKS ............................................................. 203

B.1 Basic Math ................................................................. 203
B.2 Pre-Algebra ............................................................... 214
B.3 Pre-Algebra and Introductory Algebra .............................. 225
B.4 Math Literacy ............................................................ 243
B.5 Liberal Arts Math ........................................................ 257
B.6 Beginning Algebra ....................................................... 268
B.7 Intro. to Geometry ........................................................ 283
B.8 Intermediate Algebra .................................................... 287
B.9 Beginning and Intermediate Algebra Combined ................ 301
B.10 Developmental Math ..................................................... 317
B.11 College Algebra ........................................................ 337
B.12 Georgia MATH 0999-MATH 1111 .................................... 354
B.13 New York MAT 117 ...................................................... 368
B.14 Texas DMAT 0093-MATH 1314 ...................................... 385
B.15 College Algebra with Trigonometry ............................... 399
B.16 PreCalculus ............................................................... 419
B.17 STEM PreCalculus ...................................................... 440
B.18 Trigonometry ............................................................. 460
B.19 Intro. to Statistics ....................................................... 476
B.20 Prep. for Beginning Algebra ......................................... 479
B.21 Prep. for Intermediate Algebra ..................................... 482
B.22 Prep. for College Algebra ............................................ 486
B.23 Prep. for College Algebra with Trigonometry .................. 492
B.24 Prep. for PreCalculus .................................................. 498
<table>
<thead>
<tr>
<th></th>
<th>CONTENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.25</td>
<td>Preparation for Calculus</td>
</tr>
<tr>
<td>B.26</td>
<td>Prep. for Calculus with Limits</td>
</tr>
<tr>
<td>B.27</td>
<td>Prep. for Statistics</td>
</tr>
<tr>
<td>B.28</td>
<td>Prep. for Math and Dosage</td>
</tr>
<tr>
<td>B.29</td>
<td>Prep. for the CSU - ELM</td>
</tr>
<tr>
<td>B.30</td>
<td>Florida Math 0018</td>
</tr>
<tr>
<td>B.31</td>
<td>Florida Math 0022</td>
</tr>
<tr>
<td>B.32</td>
<td>Florida Math 0028</td>
</tr>
<tr>
<td>B.33</td>
<td>NCCCS Developmental Math Module 010</td>
</tr>
<tr>
<td>B.34</td>
<td>NCCCS Developmental Math Module 020</td>
</tr>
<tr>
<td>B.35</td>
<td>NCCCS Developmental Math Module 030</td>
</tr>
<tr>
<td>B.36</td>
<td>NCCCS Developmental Math Module 040</td>
</tr>
<tr>
<td>B.37</td>
<td>NCCCS Developmental Math Module 050</td>
</tr>
<tr>
<td>B.38</td>
<td>NCCCS Developmental Math Module 060</td>
</tr>
<tr>
<td>B.39</td>
<td>NCCCS Developmental Math Module 070</td>
</tr>
<tr>
<td>B.40</td>
<td>NCCCS Developmental Math Module 080</td>
</tr>
<tr>
<td>B.41</td>
<td>Math Toolbox</td>
</tr>
<tr>
<td>B.42</td>
<td>Math Prep. for Elementary Education</td>
</tr>
<tr>
<td>B.43</td>
<td>UNLIV Liberal Arts Math</td>
</tr>
<tr>
<td>B.44</td>
<td>Math Placement</td>
</tr>
<tr>
<td>B.45</td>
<td>Tallahassee Community College Math Placement</td>
</tr>
<tr>
<td>B.46</td>
<td>Tarrant Placement Test</td>
</tr>
<tr>
<td>B.47</td>
<td>Math Prep. for College Physics</td>
</tr>
<tr>
<td>B.48</td>
<td>Essential Math Skills for Business</td>
</tr>
<tr>
<td>B.49</td>
<td>Business Math</td>
</tr>
<tr>
<td>B.50</td>
<td>Business Statistics</td>
</tr>
<tr>
<td>B.51</td>
<td>Math Prep. for Accounting</td>
</tr>
<tr>
<td>B.52</td>
<td>Statistics for the Behavioral Sciences</td>
</tr>
</tbody>
</table>
List of Figures

3.1 The ALEKS Website .................................................. 5
3.2 System Requirements ................................................ 6
4.1 The Answer Editor for Mathematical Expressions (Assessment) .... 13
4.2 Mathematical Expressions Produced by the Answer Editor ............ 14
4.3 Using Special Keys in the Answer Editor ............................ 15
4.4 The Answer Editor for Graphing .................................... 20
4.5 The Answer Editor for Histograms .................................. 22
5.1 Practice Page ............................................................. 24
5.2 Explanation Page ....................................................... 25
5.3 Wrong Answer Page .................................................... 26
5.4 Review ................................................................. 27
5.5 Worksheet ............................................................... 28
6.1 QuickTables Menu ..................................................... 30
6.2 Create a Table ......................................................... 30
6.3 QuickTables Class Settings .......................................... 32
6.4 QuickTables Reporting ............................................... 36
6.5 QuickTables Learning Display ...................................... 39
6.6 QuickTables Games .................................................. 40
6.7 QuickTables Games .................................................. 41
7.1 Account Home Screen ............................................... 43
7.2 Search Box ........................................................... 44
<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.3</td>
<td>Main Navigation</td>
</tr>
<tr>
<td>7.4</td>
<td>Sub-Navigation</td>
</tr>
<tr>
<td>7.5</td>
<td>Dashboard</td>
</tr>
<tr>
<td>7.6</td>
<td>Account Drop-Down Menu</td>
</tr>
<tr>
<td>7.7</td>
<td>Account Summary</td>
</tr>
<tr>
<td>7.8</td>
<td>Message Center</td>
</tr>
<tr>
<td>7.9</td>
<td>ALEKS Community</td>
</tr>
<tr>
<td>7.10</td>
<td>Student Roster (Instructor Level)</td>
</tr>
<tr>
<td>7.11</td>
<td>Reporting</td>
</tr>
<tr>
<td>7.12</td>
<td>ALEKS Pie</td>
</tr>
<tr>
<td>7.13</td>
<td>Student Mastery</td>
</tr>
<tr>
<td>7.14</td>
<td>ALEKS Pie Report for a Single Student</td>
</tr>
<tr>
<td>7.15</td>
<td>Objective Report</td>
</tr>
<tr>
<td>7.16</td>
<td>Progress Reports</td>
</tr>
<tr>
<td>7.17</td>
<td>Learning Progress Since Latest Knowledge Check</td>
</tr>
<tr>
<td>7.18</td>
<td>Most Recent Knowledge Check</td>
</tr>
<tr>
<td>7.19</td>
<td>Best Performance in Learning Mode Over Time</td>
</tr>
<tr>
<td>7.20</td>
<td>Progress in Knowledge Check Over Time</td>
</tr>
<tr>
<td>7.21</td>
<td>Detailed Progress History</td>
</tr>
<tr>
<td>7.22</td>
<td>Progress History</td>
</tr>
<tr>
<td>7.23</td>
<td>Progress Report for a Single Student</td>
</tr>
<tr>
<td>7.24</td>
<td>Class Time and Topic Report</td>
</tr>
<tr>
<td>7.25</td>
<td>Individual Time and Topic Learning Log</td>
</tr>
<tr>
<td>7.26</td>
<td>Knowledge Per Slice</td>
</tr>
<tr>
<td>7.27</td>
<td>All Assignment Reports</td>
</tr>
<tr>
<td>7.28</td>
<td>Scheduled Assessment Report</td>
</tr>
<tr>
<td>7.29</td>
<td>Quiz Results</td>
</tr>
<tr>
<td>7.30</td>
<td>Standards Report</td>
</tr>
<tr>
<td>7.31</td>
<td>Custom Report Template</td>
</tr>
<tr>
<td>7.32</td>
<td>Creating the Custom Report Template</td>
</tr>
<tr>
<td>7.33</td>
<td>Scheduling a Custom Report</td>
</tr>
</tbody>
</table>
# LIST OF FIGURES

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.34</td>
<td>New Class</td>
<td>74</td>
</tr>
<tr>
<td>7.35</td>
<td>Class Information</td>
<td>75</td>
</tr>
<tr>
<td>7.36</td>
<td>Resume/Discard</td>
<td>76</td>
</tr>
<tr>
<td>7.37</td>
<td>Objectives Editor</td>
<td>79</td>
</tr>
<tr>
<td>7.38</td>
<td>Edit Objectives</td>
<td>80</td>
</tr>
<tr>
<td>7.39</td>
<td>Topic Recommendation Tool (TREC)</td>
<td>81</td>
</tr>
<tr>
<td>7.40</td>
<td>Tagging Feature</td>
<td>82</td>
</tr>
<tr>
<td>7.41</td>
<td>Class Summary Part 1</td>
<td>86</td>
</tr>
<tr>
<td>7.42</td>
<td>Class Summary Part 2</td>
<td>87</td>
</tr>
<tr>
<td>7.43</td>
<td>Course Content</td>
<td>88</td>
</tr>
<tr>
<td>7.44</td>
<td>Worksheet Options</td>
<td>90</td>
</tr>
<tr>
<td>7.45</td>
<td>Class Duplicate Settings</td>
<td>91</td>
</tr>
<tr>
<td>7.46</td>
<td>Resources</td>
<td>92</td>
</tr>
<tr>
<td>7.47</td>
<td>Class List</td>
<td>94</td>
</tr>
<tr>
<td>7.48</td>
<td>Class Roster</td>
<td>95</td>
</tr>
<tr>
<td>7.49</td>
<td>Calendar</td>
<td>97</td>
</tr>
<tr>
<td>7.50</td>
<td>Class Tools</td>
<td>98</td>
</tr>
<tr>
<td>7.51</td>
<td>Assignments</td>
<td>98</td>
</tr>
<tr>
<td>7.52</td>
<td>Assignment Status</td>
<td>99</td>
</tr>
<tr>
<td>7.53</td>
<td>New Homework</td>
<td>101</td>
</tr>
<tr>
<td>7.54</td>
<td>New Homework (cont.)</td>
<td>104</td>
</tr>
<tr>
<td>7.55</td>
<td>New Homework (cont.)</td>
<td>105</td>
</tr>
<tr>
<td>7.56</td>
<td>Add an Assessment</td>
<td>107</td>
</tr>
<tr>
<td>7.57</td>
<td>Pie Mastery Grade Settings</td>
<td>108</td>
</tr>
<tr>
<td>7.58</td>
<td>Time Grade Settings</td>
<td>109</td>
</tr>
<tr>
<td>7.59</td>
<td>Topic Grade Settings</td>
<td>109</td>
</tr>
<tr>
<td>7.60</td>
<td>Gradebook</td>
<td>110</td>
</tr>
<tr>
<td>7.61</td>
<td>Gradebook Setup</td>
<td>113</td>
</tr>
<tr>
<td>7.62</td>
<td>Assignment Weights</td>
<td>113</td>
</tr>
<tr>
<td>7.63</td>
<td>Grading Scale for Total Grade</td>
<td>115</td>
</tr>
<tr>
<td>7.64</td>
<td>External Assignment Setup</td>
<td>116</td>
</tr>
</tbody>
</table>
# List of Figures

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.65</td>
<td>Student Account Summary</td>
<td>118</td>
</tr>
<tr>
<td>7.66</td>
<td>Move and Unenroll Student</td>
<td>119</td>
</tr>
<tr>
<td>7.67</td>
<td>Edit Extensions</td>
<td>121</td>
</tr>
<tr>
<td>7.68</td>
<td>Request Assessment</td>
<td>121</td>
</tr>
<tr>
<td>7.69</td>
<td>Cancel Current Assessment</td>
<td>122</td>
</tr>
<tr>
<td>7.70</td>
<td>Three levels of hierarchy</td>
<td>123</td>
</tr>
<tr>
<td>7.71</td>
<td>Learning Management System (LMS) Integration</td>
<td>125</td>
</tr>
<tr>
<td>7.72</td>
<td>Instructor Roster</td>
<td>126</td>
</tr>
<tr>
<td>7.73</td>
<td>Student Roster (Institution Level)</td>
<td>129</td>
</tr>
<tr>
<td>7.74</td>
<td>Master Template Sub-Navigation</td>
<td>130</td>
</tr>
<tr>
<td>7.75</td>
<td>New Master Template</td>
<td>130</td>
</tr>
<tr>
<td>7.76</td>
<td>Create Assignments in Master Template</td>
<td>133</td>
</tr>
<tr>
<td>7.77</td>
<td>Create Linked Classes</td>
<td>134</td>
</tr>
<tr>
<td>7.78</td>
<td>Classes to be Assigned</td>
<td>135</td>
</tr>
<tr>
<td>7.79</td>
<td>Create a Master Template from an Existing Class</td>
<td>136</td>
</tr>
<tr>
<td>7.80</td>
<td>Duplicate a Master Template</td>
<td>136</td>
</tr>
<tr>
<td>7.81</td>
<td>Tab Indications</td>
<td>139</td>
</tr>
<tr>
<td>7.82</td>
<td>Account Summary</td>
<td>139</td>
</tr>
<tr>
<td>7.83</td>
<td>Administrator Roster</td>
<td>140</td>
</tr>
<tr>
<td>7.84</td>
<td>New Administrator</td>
<td>141</td>
</tr>
<tr>
<td>9.1</td>
<td>Domain of Basic Math</td>
<td>156</td>
</tr>
<tr>
<td>9.2</td>
<td>Knowledge State</td>
<td>157</td>
</tr>
<tr>
<td>9.3</td>
<td>Learning Path</td>
<td>157</td>
</tr>
<tr>
<td>9.4</td>
<td>Outer Fringe of a Knowledge State</td>
<td>158</td>
</tr>
<tr>
<td>9.5</td>
<td>Inner Fringe of a Knowledge State</td>
<td>159</td>
</tr>
<tr>
<td>10.1</td>
<td>System Requirements</td>
<td>169</td>
</tr>
<tr>
<td>A.1</td>
<td>The ALEKS Website</td>
<td>178</td>
</tr>
<tr>
<td>A.2</td>
<td>Class Code</td>
<td>179</td>
</tr>
<tr>
<td>A.3</td>
<td>Access Code</td>
<td>179</td>
</tr>
<tr>
<td>Figure</td>
<td>Description</td>
<td>Page</td>
</tr>
<tr>
<td>--------</td>
<td>--------------------------------------------------</td>
<td>--------</td>
</tr>
<tr>
<td>A.4</td>
<td>The Answer Editor</td>
<td>180</td>
</tr>
<tr>
<td>A.5</td>
<td>Knowledge Check</td>
<td>181</td>
</tr>
<tr>
<td>A.6</td>
<td>ALEKS Timeline</td>
<td>183</td>
</tr>
<tr>
<td>A.7</td>
<td>Timeline Icons</td>
<td>184</td>
</tr>
<tr>
<td>A.8</td>
<td>ALEKS Pie</td>
<td>185</td>
</tr>
<tr>
<td>A.9</td>
<td>Main Navigation Menu</td>
<td>187</td>
</tr>
<tr>
<td>A.10</td>
<td>Learning Page</td>
<td>188</td>
</tr>
<tr>
<td>A.11</td>
<td>Topic Carousel</td>
<td>189</td>
</tr>
<tr>
<td>A.12</td>
<td>Topic Icons</td>
<td>189</td>
</tr>
<tr>
<td>A.13</td>
<td>Objectives/Ready to Learn Drop-Down Menu</td>
<td>190</td>
</tr>
<tr>
<td>A.14</td>
<td>Report Dashboard</td>
<td>193</td>
</tr>
<tr>
<td>A.15</td>
<td>Assignments</td>
<td>194</td>
</tr>
<tr>
<td>A.16</td>
<td>Student Gradebook</td>
<td>195</td>
</tr>
<tr>
<td>A.17</td>
<td>Student Account Home Main Screen</td>
<td>196</td>
</tr>
<tr>
<td>A.18</td>
<td>ALEKS QuickTables</td>
<td>199</td>
</tr>
<tr>
<td>A.19</td>
<td>QuickTables Learning Display</td>
<td>200</td>
</tr>
</tbody>
</table>
Welcome to ALEKS, one of the most powerful educational tools available for learning mathematics. ALEKS combines advanced learning technology with the flexibility of the Internet, and provides an interactive tutoring system with unmatched features and capabilities.

The innovative features of ALEKS open new horizons for educators and learners alike in any educational context. The ALEKS class management system enables instructors to efficiently monitor student progress and provide focused instruction. With its unprecedented use of Artificial Intelligence, ALEKS determines quickly and precisely what your students know and what they need to learn, guiding them down individualized learning paths to mastery. The syllabi used are customizable, letting you conveniently add or subtract topics. As ALEKS is accessed on the Internet, no complicated technical preparation is needed—and your students can work at any time, from home, from work, or from the classroom! ALEKS can also be integrated with a variety of textbooks and other online learning resources. No setup fees or site licenses are required. It’s a personal tutor for each of your students, at a fraction of what such services normally cost.

The benefits of using ALEKS are dramatic. Students work in a dynamic, interactive learning environment on precisely those materials that they are individually ready to learn, building momentum toward mastery. Students can access their ALEKS account around their own schedules and work on what they are ready to learn now. It is the personalized, “just-in-time” learning system.

ALEKS may be used in a variety of classroom situations—whether in a traditional classroom, or in a self-directed or distance-learning environment.

ALEKS is sold to the student as a subscription. The student purchases a User’s Guide with Student Access Code, usually through a bookstore or online. Using the Student Access Code along with the Course Code provided by the instructor, the student registers on the ALEKS website.

ALEKS can be adopted in one of two ways:

- ALEKS may be adopted as a supplement to a McGraw-Hill textbook. In this case, the student subscription cost is similar to the cost of a traditional print supplement, such as a study guide or student solutions manual. For McGraw-Hill textbooks, ALEKS allows the student to see references to the textbooks and provides links to
the McGraw-Hill book-specific websites. These websites include additional tutorial material and interactive applications that supplement the explanations within ALEKS. Students will need to purchase a McGraw-Hill textbook bundled with the User’s Guide with Student Access Code.

- ALEKS may be adopted as a stand-alone item. In this case, the instructor adopts ALEKS alone, and the students purchase the User’s Guide with Student Access Code for about the cost of a traditional textbook.

This Instructor’s Manual is intended to provide complete information on the functioning of ALEKS. A description of its contents can be found in Chapter 1.

Please also take time to explore the ALEKS website: it is a valuable source of information (https://www.aleks.com, Fig. 3.1). The website includes tours, overviews of ALEKS course products, troubleshooting and support information, training resources, and user guides. It also contains information on the theory and research behind ALEKS, forums for the exchange of ideas with other educators, and brief, recorded on-line training segments. To find the resources specific to the educational field you are in, click on the appropriate link on the ALEKS home page.
Chapter 1

Introduction

1.1 What is ALEKS?

The ALEKS system is the product of years of cutting-edge research into the mathematical modeling of human knowledge (Chap. 9). The creators of ALEKS are cognitive scientists, software engineers, and university professors. In designing ALEKS, their goal was to achieve the utmost simplicity of use without compromising the depth, rigor, or richness of mathematics instruction at its inspirational best. ALEKS is a tool to empower both instructors and learners of math. It opens doors into the assessment and representation of knowledge, and it breaks down barriers to success by recognizing the vast diversity of paths that lead to mastery. The ALEKS system can make a radical difference in how math learning is experienced.

ALEKS is an online system for the assessment and individualized teaching of mathematics. It can be accessed on the Internet from virtually any computer and is designed to allow the monitoring and management of students and classes at the instructor, college, and system levels.

The core of the system is an efficient, adaptive assessment engine that determines quickly and precisely what an individual student knows (an assessment is also called a knowledge check). Based on assessment data, the system is able to offer material that the student is ready to learn.

The ALEKS Learning Mode includes explanations and algorithmically generated practice problems, ongoing assessment of student knowledge, an online math dictionary, and facilities for review and collaborative help. It can be used on an independent basis or as a supplement to classroom instruction.
1.2 The ALEKS Instructor’s Manual

The purpose of the ALEKS Instructor’s Manual is to provide instructors with complete information on the operation of the system. Even though ALEKS is not complex, our goal is to offer instructors a clear idea of everything ALEKS does, how it works, and where to find answers to questions.

**ALEKS is user-friendly, and may be used without help from the Instructor’s Manual.** Feel free to use the system now. If questions arise, or if you want to learn more about ALEKS, this Instructor’s Manual is intended as a convenient and comprehensive reference.

**NOTE.** For a brief, comprehensive overview of ALEKS, turn directly to the “Frequently Asked Questions” in Chapter 10.

- The first chapters are those most likely to be used by instructors new to ALEKS. Chapter 2, “Quick Start,” contains a concise checklist for those new to ALEKS. Chapter 3, “Setup Guide for Instructors,” provides all of the information necessary for preparing to use ALEKS with one or more classes. This ranges from technical and installation requirements through the students’ first ALEKS session (which typically involves registration, tutorial, the Initial Assessment (or Knowledge Check), and entry into the Learning Mode).
- Chapters 4 through 7 contain descriptions of the principal parts of the ALEKS system: Assessment Mode, Learning Mode, and the Instructor Module.
- QuickTables, a tool for mastering math facts, is described in Chapter 6.
- The Instructor Module is discussed in Chapter 7.
- Chapter 8 is a brief guide to teaching with ALEKS, describing a range of scenarios and the ALEKS features that support them.
- Chapters 9 through 11 provide additional information that may be necessary or of interest to instructors using ALEKS. Chapter 9, “Knowledge Spaces and the Theory Behind ALEKS,” explains the history of Knowledge Space theory and its fundamental concepts, along with the evolution of ALEKS itself. Also included is a bibliography for those seeking to understand the theory behind ALEKS in greater depth. Chapter 10 provides answers to frequently asked questions about ALEKS. Chapter 11 gives the information necessary for obtaining technical and other support.
- The ALEKS User’s Guide is available to all students from the ALEKS website. The User’s Guide is reproduced here in Appendix A. Unlike the other chapters of the ALEKS Instructor’s Manual, Appendix A is addressed to student users of the system. It covers technical requirements, installation, registration, the Tutorial, and ordinary use of the system, as well as guidelines for effective use and troubleshooting tips. Appendix A can be used by instructors to obtain a brief but complete picture of how the system is used. Appendix B contains content summaries for ALEKS course products.
Chapter 2

Quick Start

The purpose of this chapter is to provide a summary of the steps involved in starting a class with ALEKS.

2.1 Obtaining a Class Code

In order to use ALEKS with your class, you will need to have at least one Class Code. This code should be given to students to use in registration, together with their Student Access Code (below). When they register, they will receive a Login Name and Password. Students should not use the Student Access Code and Class Code to register a second time, as they will not be able to create a new account this way.

You can have as many classes and sections as you need or want in ALEKS. For each class or section, there is one unique Class Code. Students who register using this code will be enrolled in the corresponding class. Students who accidentally enroll in the wrong class can easily be moved to the right one at any time. (Please note that moving a student from one class to another in ALEKS may trigger a new assessment or knowledge check.)

To obtain the Class Code for any class, log on to your instructor account, on the Instructor Administration menu, select Class List (Sec. 7.4.33). The Class Code will appear in the right-hand part of the screen.

You will normally be provided with an instructor Login Name and Password by ALEKS Corporation; otherwise, a colleague at your college with administrator privileges in ALEKS can also create an instructor account for you. Once you are logged on to ALEKS as an instructor, you can create one or more classes through selecting New Class.

2.2 Registering Students

Students should use the following steps to register.
1. Go to the ALEKS website.

   https://www.aleks.com

2. Click on the **SIGN UP NOW!** link to the left of the page, under the space for Registered Users. (This is the only time they will click on that button.)

3. On the page that follows, enter the Class Code in the spaces provided for “Using ALEKS with a Class?” (to the left of the window). **Do not use the button on the right-hand side.**

4. Confirm enrollment information.

5. Indicate whether you are a new or an existing ALEKS user.

6. Enter the Student Access Code.

7. Enter other information as prompted and choose a password.

8. Record the Login Name provided by the system.

9. Begin using ALEKS by taking the student tutorial and an Initial Assessment (Knowledge Check).

Students will subsequently use their Login Name and Password to enter their accounts.
Chapter 3

Setup Guide for Instructors

3.1 Instructor Preparation

Figure 3.1: The ALEKS Website

ALEKS has been designed to be user-friendly and intuitive. However, taking the time to study all materials provided to you, including the Instructor’s Manual, and trying out the system, can provide valuable insight into the system’s functioning and underlying ideas. The administrator for ALEKS can contact ALEKS Customer Support for assistance at any time (Chap. 11).
3.2 System Requirements

The following table presents the system requirements for ALEKS in summary form.

<table>
<thead>
<tr>
<th></th>
<th>PC</th>
<th>Macintosh</th>
<th>Chromebook</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating System</td>
<td>Windows 7+</td>
<td>MacOS 10.7+</td>
<td>Chrome OS</td>
</tr>
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<td>64+ MB</td>
<td>Any</td>
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<td>Safari 6+, Firefox 25+, Chrome 30+</td>
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<tr>
<td>Screen Resolution</td>
<td>1024x768</td>
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<td>Any</td>
</tr>
</tbody>
</table>

Figure 3.2: System Requirements

**Tablets.** All courses are desktop and tablet compatible with the exception of Intro. to Statistics, Business Statistics, Statistics for the Behavioral Sciences, Prep. for Statistics, Math Prep. for Accounting, Essential Math Skills for Business, and Business Math. These courses are not compatible with tablet devices.

Note that any kind of Internet connection (cable, ISDN, DSL, or wireless) usually available in a computer lab is adequate for use with ALEKS.

3.3 Instructor Module

To enter the ALEKS Instructor Module, log on to ALEKS with your Instructor Login Name and Password. The Instructor Module lets you monitor and manage your ALEKS classes. The Instructor Module is designed for ease of use; it guides users through the steps needed to accomplish tasks in such a way that no separate training is needed and mistakes or confusion are unlikely. See Chapter 7 for a complete description of the Instructor Module.

3.4 Student Orientation

It is strongly recommended that the first ALEKS session be conducted under supervision, perhaps with another instructor on hand, to help your students get started. It is not generally necessary to schedule a separate orientation meeting before the students begin using the system. Students can access the ALEKS User’s Guide from the ALEKS website. Encourage students to familiarize themselves with this brief guide. You should remind your students to bring their Student Access Code to the first session of class. It is also advisable for students to have pencil and paper for assessments...
3.5 Registration

Students register with ALEKS by going to the ALEKS website and clicking on SIGN UP NOW! This will be expedited if the browsers used by the students have Bookmarks or Favorites pointing to the website.

NOTE. In order to register, all students must have both their Student Access Code and the Class Code for the class that you are teaching. The Class Code will either be sent to you by ALEKS Corporation (in your ALEKS Inbox), or be obtained when you create the class (Sec. 7.4.1). You are responsible for giving this code to the students at the time of the first session (Sec. 2.1).

The student registration process is described in detail in the User’s Guide (Appendix A). There are complete online instructions for every step of this simple procedure. Among other information, students can supply their Student ID number (if you wish to have this in the system). Special care should be taken in entering the latter, as the system cannot detect mistyping. The Student ID is optional information.

Near the conclusion of Registration students receive a Login Name and choose a Password. These should be noted carefully, as they will be essential for all further work with ALEKS. Students should choose a password they will remember easily but that will be hard for others to guess. Login Name and Password can be typed with upper or lower-case letters. Neither may contain spaces or punctuation. The Password must contain at least 6 characters.

3.6 Tutorial

Following Registration, the students enter a brief tutorial on the use of ALEKS input tools, also called the Answer Editor Tutorial (Sec. 4.4). There are separate tutorials for different subjects, since the specific tools for them differ somewhat. The ALEKS Tutorial provides ample feedback to ensure that students complete it successfully.
3.7 First Assessment

Immediately after the tutorial, students proceed to their Initial Assessment or Knowledge Check (Chap. 4). To reiterate, no help of any kind should be given to students being assessed, not even rephrasing a problem. It is also advisable for students to have pencil and paper for assessments in ALEKS. A calculator is included in ALEKS when needed.

The ALEKS assessment is adaptive and variable in length. Consistency of effort and concentration may influence the length of an assessment.

NOTE. All students will be assessed on their first use of the system. This will provide you with a baseline picture of your class and of each individual student.

3.8 Report Tutorial

At the conclusion of the Initial Knowledge Check (Assessment), the student is given a brief tutorial on how to interpret the Assessment Report.

3.9 Beginning the Learning Mode

Students enter the Learning Mode by clicking on one of the topics they are ready to learn. If at all possible, the students should be given sufficient time in their first ALEKS session to use the Learning Mode and begin to add concepts to their pie. If they have this experience, their interest in using ALEKS will be more favorable. You should also be present to answer questions regarding the Learning Mode and to help your students familiarize themselves with its varied features. This is particularly important for when they will have to use ALEKS unsupervised.
Chapter 4

Assessment Mode

The Assessment Mode is the heart of the ALEKS system. The program quickly and accurately determines a student’s knowledge, in order to deliver individualized instruction on the exact topics the student is ready to learn. In ALEKS, learning is powered and optimized by assessment. The terms “knowledge check” and “assessment” are synonymous and will be used interchangeably.

4.1 Assessments in ALEKS

The ALEKS assessment (knowledge check) uses open-ended problems (no multiple-choice questions). The assessment uses adaptive questioning, so that problem types are selected based on all the previous answers the student has given. It is impossible to predict which types of problems will appear, or in what order. Moreover, the problems themselves are generated algorithmically, with randomly-selected values (as is the case also in the Learning Mode). Consequently, students cannot “learn the assessment,” teachers are unable to “teach to the assessment,” and some types of cheating are impossible. In the unlikely event that two students sitting next to one another were given the same problem-type at the same time, the problem parameters and values would be different, and so would the correct answer. Certain assessments should be supervised, however, such as the first, midterm, and final assessments in a class. Without supervision, students could use a textbook, receive systematic help, or have someone else take the assessment in their place. (There is no reason for a student who has begun using ALEKS to cheat on a “progress” assessment, as this will simply cause the system to suggest problems that are too difficult, and thus hinder the student’s own work.)

The student will be given an Initial Assessment immediately following completion of the ALEKS Tutorial (Sec. 3.7). The student is clearly informed that the assessment (knowledge check) is beginning. Next, a series of mathematical problems is posed to the student. The student provides the solution to each problem using the Answer Editor (or clicks I don’t know). In Assessment Mode, the system does not inform the student
whether their answer is correct or incorrect. The assessment continues until the system has determined the student’s precise knowledge of the class materials, at which time the assessment ends and a report is presented to the student. The number of questions asked cannot be known in advance, although consistent effort and attention may contribute to shorter assessments.

Information on the reports available to students, including reports on knowledge checks (assessments), can be found in Appendix A.

4.2 Guidelines for Assessments

ALEKS assessments are an important part of the ALEKS program. It is essential that assessments be conducted according to certain guidelines. If there is an atmosphere permitting disturbances or distractions, students may not do their best. If assessment results are inaccurate, the system will give the student inappropriate problems and progress will initially be impaired. The system will recover and find the right level, but the student may still experience a degree of frustration. In order to avoid this, it is strongly recommended that the first assessment be taken under the instructor’s supervision (Sec. 3.7).

All students being assessed need paper and pencil. A basic calculator is part of ALEKS, and will be available when appropriate. It is important that no assistance be given to the student. Explaining or rephrasing a problem should be avoided; this is considered inappropriate help. Students should be instructed to use the I don’t know button only when they are completely unfamiliar with the topic. It is not possible to return to previous assessment questions. Students should not click their browser’s Back or Forward buttons when using ALEKS.

4.3 How Assessments are Triggered

All ALEKS knowledge checks (assessments) work in much the same way, though they are triggered for different reasons, as explained in the following sections.

4.3.1 Initial Assessment

The Initial Assessment takes place at the outset of a student’s use of ALEKS, immediately after Registration and the ALEKS Tutorial (Sec. 3.7). We strongly recommend that students take this Initial Assessment in a supervised computer lab setting, to ensure that they do not receive help or collaborate. In creating or editing a class account, the instructor can stipulate that the Initial Assessment be allowed only from school (Sec. 7.4.23).
4.3.2 Automatic Assessments

Additional assessments (knowledge checks) after the Initial Assessment are triggered automatically by the system based on the student’s rate of progress and on the amount of time the student has spent working in ALEKS. ALEKS triggers the following automatic assessments:

**Progress Assessment**
- when the student has mastered approximately 20 topics in the Learning Mode and spent at least 5 hours working in ALEKS since the last assessment.

**Login Time Assessment**
- when the student has spent 10 hours working in the Learning Mode since the last assessment.

**Periodic Assessment**
- when 60 days have passed since the last assessment.

**Objective Completion Assessment**
- when the student completes the material of a textbook chapter or objective or reaches the assigned Mastery Level (Sec. 7.4.6).

**Goal Completion Assessment**
- when the student has completed the final topic of the pie chart. If the assessment does not confirm the student’s mastery of the class materials, the student will return to the Learning Mode. Consequently, more than one Goal Completion Assessment is possible, but ALEKS will not reassess the student if a only small number of topics need to be relearned.

These are all Progress-style assessments. Some modification of the parameters given above is possible; contact ALEKS Corporation Customer Support for assistance if you would like to adjust them.

Students can see when their next Knowledge Check is coming up by clicking on the Knowledge Check icon on their Home page, next to the Timeline/ALEKS Pie switch. When it is time for the Knowledge Check, they will see a notification, and they will have 24 hours to begin it (the exact period may be different if you set it differently for your class). Before beginning the Knowledge Check, the student should be encouraged to review by clicking on Review for Knowledge Check; this option appears under the Knowledge Check notification and on the student’s Primary Guidance Menu.

Note that a Progress, Login Time, or Periodic Assessment (Knowledge Check) “resets the clock,” so that assessments do not occur one on top of another. In general, ALEKS will avoid triggering unnecessary re-assessments.

Progress made by the student through the Learning Mode, or as the result of an assessment, periodically updates the list of available topics, displaying a new pie chart and new choices of concepts the student is “ready to learn.” The automatic assessments
check the students’ retention of recently learned material, and may also include topics
the student is ready to learn.

**NOTE.** Automatic assessments may be postponed due to a scheduled assignment. This
occurs when the assignment has the **Prevent automatic assessments** box checked
(Sec. 7.5.6). Also, to avoid the over-assessment of students, all automatic assessments
will be prevented for students with 10 or fewer items remaining in an Objective or in
the 48 hours preceding the Objective end date.

For Objectives without end dates, automatic assessments will be prevented for students
with 10 or fewer items remaining to complete the current Objective, regardless of the
mastery levels set (Sec. 7.4.6).

### 4.3.3 Scheduled Assessments

To schedule an assessment for the entire class or for specific students, select a class,
click on the Assignment tab, then again on **Assignments**, and then select Scheduled
Assessment under **New Assignment**. For example, the instructor, department, or
college may wish to have “midterm” assessments under supervision to guarantee reliable results. They have the option of selecting the style of assessment as Progress or
Comprehensive. Progress Assessments are slightly shorter and focus on the student’s
most recent learning history; Comprehensive Assessments are slightly longer and probe
more deeply into the student’s overall knowledge of the class content.

ALEKS allows the instructor to choose the availability of Scheduled Assessments by
specifying a beginning and ending date and time and how students access that assessment when it becomes available. Also among the options for a Scheduled Assessment
is one to prevent automatic assessments within a certain number of days prior to the
Scheduled Assessment. Note that any assessment scheduled by the instructor “resets the
clock” for automatic assessments, so that students will not be assessed too frequently.

For additional information about Scheduled Assessments, see Sec. 7.5.9.

### 4.3.4 Requested Assessments for a Single Student

As an instructor, you can also request an assessment for a single student. To do this,
select the student, and then on the Assignments menu, select **Request Assessment**.
When a Requested Assessment is triggered, the assessment will take place immediately
the next time the student logs in (compared to the Scheduled Assessment, where the
student is only prompted to take the assessment after the date or time specified by
the instructor). Like the Scheduled Assessment, a Requested Assessment for a single
student “resets the clock” for automatic assessments. The results of this assessment
will not be included in the Gradebook.

The style of a Requested Assessment can also be set to Progress or Comprehensive.
Progress Assessments are slightly shorter and focus on the student’s most recent learning
history; Comprehensive Assessments are slightly longer and probe more deeply into the student’s overall knowledge of the class content.

For additional information about Requested Assessments, see Sec. 7.8.9.

4.4 Answer Editor

![Figure 4.1: The Answer Editor for Mathematical Expressions (Assessment)](image)

Input to the ALEKS system is always in the form of proper mathematical expressions and constructions, never multiple choice. A critical reason for this is to check students’ knowledge accurately. Another purpose is to train students in the skills needed for conventional, paper-and-pencil communication of solutions and results. The sophistication of the ALEKS input tools provides additional advantages. The presentation of results is always neat and clear. The ALEKS graphing tools allow students to draw accurate graphs and geometrical constructions. Immediate feedback is provided on the formal completeness of solutions.

The general term for the input tools used in ALEKS is the Answer Editor. This encompasses a variety of actual modes for user input, including: an Answer Editor for mathematical expressions, an Answer Editor for the numberline, and an Answer Editor for graphing in the Cartesian plane (with $x$ and $y$ coordinate axes). A student beginning to use ALEKS is trained in how to use the features of the Answer Editor that are relevant to the subject (Sec. 3.6). Also, context-sensitive help is available on use of Answer Editor through the ? icon next to the buttons on the tool palette.

In much of what follows, emphasis is on the Answer Editor for mathematical expressions, as this is the section which involves the greatest degree of interplay between mouse, keyboard, and on-screen buttons and icons.
4.5 Manipulators for Mathematical Expressions

The Answer Editor for mathematical expressions consists of two parts: a rectangular field where mathematical expressions are entered (the **entry field**) is to the left, and a **keypad** made of buttons with mathematical symbols is to the right (Fig. 4.1). Mathematical expressions are entered and edited using the buttons of the Answer Editor keypad, as well as the basic keyboard, the Left and Right arrow keys, the Tab, Enter, and Backspace keys, and the mouse.

**NOTE.** Buttons are displayed to correspond with the kind of problem being solved. The selection is made in such a way as to avoid giving a hint to the correct answer. Keyboard shortcuts (Fig. 4.2) work only when the corresponding button is displayed.

<table>
<thead>
<tr>
<th>Expression</th>
<th>Answer Editor keypad button</th>
<th>Keyboard equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Square Root</td>
<td>[ ]√[ ]</td>
<td>(none)</td>
</tr>
<tr>
<td>Fraction</td>
<td>[ ]</td>
<td>/</td>
</tr>
<tr>
<td>Mixed Number</td>
<td>[ ][ ]</td>
<td>(none)</td>
</tr>
<tr>
<td>Repeating Decimal</td>
<td>[ ][ ]</td>
<td>(none)</td>
</tr>
<tr>
<td>Absolute Value</td>
<td>[ ][ ][ ]</td>
<td>(none)</td>
</tr>
<tr>
<td>List of Expressions</td>
<td>[ ],[ ],...</td>
<td>,</td>
</tr>
<tr>
<td>Exponent</td>
<td>[ ][ ]</td>
<td>∧ (before exponent)</td>
</tr>
<tr>
<td>Multiplication Expression</td>
<td>[ ]×[ ]</td>
<td>*</td>
</tr>
<tr>
<td>Percentage</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Greater-Than</td>
<td>[ ]&gt; [ ]</td>
<td>&gt;</td>
</tr>
<tr>
<td>Less-Than</td>
<td>[ ]&lt; [ ]</td>
<td>&lt;</td>
</tr>
<tr>
<td>Greater-Than-or-Equal-To</td>
<td>[ ]≥ [ ]</td>
<td>(none)</td>
</tr>
<tr>
<td>Less-Than-or-Equal-To</td>
<td>[ ]≤ [ ]</td>
<td>(none)</td>
</tr>
<tr>
<td>Equal-To</td>
<td>[ ]= [ ]</td>
<td>=</td>
</tr>
<tr>
<td>Not-Equal-To</td>
<td>[ ]≠ [ ]</td>
<td>(none)</td>
</tr>
<tr>
<td>AND</td>
<td>AND</td>
<td>(none)</td>
</tr>
<tr>
<td>OR</td>
<td>OR</td>
<td>(none)</td>
</tr>
</tbody>
</table>

Figure 4.2: Mathematical Expressions Produced by the Answer Editor

4.5.1 Basic Input

When a new page is opened and contains a problem whose solution is a mathematical expression, the entry field initially contains at least one blue box. Each blue box represents a mathematical expression forming part of the complete answer. To enter a mathematical expression the student must first click on a blue box. When this is done, the cursor (or “caret”) appears inside the box. The cursor marks the point at which something is entered. Material can be entered using the basic keyboard or the buttons
4.6. **MATHEMATICAL EXPRESSIONS**

<table>
<thead>
<tr>
<th>Key</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right arrow -</td>
<td>moves the cursor one place to the right</td>
</tr>
<tr>
<td>Tab - Enter -</td>
<td>(ahead)</td>
</tr>
<tr>
<td>Spacebar</td>
<td></td>
</tr>
<tr>
<td>Left arrow</td>
<td>moves the cursor one place to the left (back)</td>
</tr>
<tr>
<td>Backspace</td>
<td>deletes input immediately preceding (to the left of) the cursor and</td>
</tr>
<tr>
<td></td>
<td>moves the cursor one place to the left (back) OR deletes selected</td>
</tr>
<tr>
<td></td>
<td>input</td>
</tr>
</tbody>
</table>

Figure 4.3: Using Special Keys in the Answer Editor

of the keypad. Individual digits can be entered only from the keyboard. Symbols can be entered using the buttons of the keypad or sometimes from the keyboard (Fig. 4.2).

4.5.2 **Basic Editing Tools**

The cursor, showing the point at which material is entered, can be moved using the Left and Right arrows, the Tab and Enter keys, as well as the Spacebar. It can also be positioned using the mouse. Input can be deleted using the Backspace key (Fig. 4.3).

4.5.3 **Selecting Input**

It is possible to select a continuous portion of input by dragging the pointer with the mouse button held down. A segment that has been selected by dragging in this way can be deleted by pressing Backspace, replaced by typing, or replaced by clicking the buttons of the Answer Editor keypad. It can also be inserted into a mathematical expression such as a fraction or a square root (the selected portion is placed in the numerator position or under the square root sign, respectively).

4.5.4 **Clear and Undo**

After material has been entered, the field can be returned to its empty state by clicking **Clear**. Clicking **Undo** cancels the most recent action. Clicking **Undo** a second time restores the effect of the canceled action (including a **Clear** command).

4.6 **Mathematical Expressions**

The purpose of the Answer Editor for mathematical expressions is to process user input in the form of correct mathematical expressions. One important way in which the Answer Editor guides the user in constructing such expressions is by means of the blue
boxes. If a blue box remains on the screen, you know that the input typed so far is not yet complete.

4.6.1 Entering Expressions from the Keyboard

For expressions that do not require the use of the Answer Editor keypad, the user can place the cursor within a blue box and enter the mathematical expression from the keyboard. For many expressions, however, the Answer Editor keypad must be used. Some types of expressions can be entered by either keypad or keyboard (Fig. 4.2).

4.6.2 Using the Answer Editor Keypad to Structure Simple Expressions

To form a simple mathematical expression, the user places the cursor in an empty blue box and clicks on the appropriate button from the Answer Editor keypad. The initial blue box disappears and new blue boxes may appear (depending on the button), accompanied by all of the necessary signs. The user can now fill in the new boxes.

4.6.3 Entering Complex Expressions

Sometimes it is necessary to enter more complex mathematical expressions, where multiple boxes are used. By placing the cursor in one of these boxes, an expression can be entered from the keyboard, or, by clicking on a button of the Answer Editor keypad, replace it with the structure of a new mathematical expression. Expressions of any degree of complexity can be created in this way.

NOTE. The Answer Editor does not supply parentheses automatically. The user must know when they are necessary. In particular, when there is an expression consisting of more than one symbol that must be raised to a power, the student may need to enclose it in parentheses, just as in writing; otherwise, only the final symbol (the one just before the exponent) will be raised to the given power.

4.6.4 Alternate Ways of Entering Expressions

The buttons of the Answer Editor keypad can be used in other ways as well. In particular, users can select some portion of the input in the entry field which constitutes a complete mathematical expression, and then click on a keypad button. This will create a new mathematical expression within which the expression selected is one component. The same basic rule applies: the minimum unit of manipulation is a complete mathematical expression.
4.7. TYPES OF MATHEMATICAL EXPRESSIONS

4.6.5 Other Mathematical Signs

The following mathematical signs can be entered only from the keyboard:

- The plus sign (+).
- The minus sign (-), both for connecting the two parts of a subtraction expression and for designating a negative number.
- The period (.) used in decimals.
- The comma (,) used to punctuate numbers of more than three places.

4.6.6 The Asterisk for Multiplication

This is a special case. The “x” character on the keyboard cannot be used to enter a multiplication sign. Only the asterisk (*) serves this purpose. (The multiplication sign on the Answer Editor keypad, however, is the traditional x-shaped symbol.)

4.6.7 Mixed Numbers

This is another special case. Although fractions can be entered from the keyboard using the front slash character (/), mixed numbers cannot be entered this way. In other words, the Answer Editor does not automatically regard a whole number followed by a fraction as a mixed number. The mixed number button on the Answer Editor keypad must be used to enter mixed numbers.

4.7 Types of Mathematical Expressions

The following set of directions is intended to illustrate the variety of ways in which mathematical expressions can be entered using the Answer Editor.

Here, Button will always refer to a button on the Answer Editor keypad. By select we mean drag the mouse over the expression to be selected with the mouse button depressed.

| Percentage | 48% |

Here you can use either the Answer Editor keypad or the regular keyboard to enter signs:

- Enter the expression you wish to express as a percentage and click on the percent button; OR
- Enter the expression you wish to express as a percentage and then enter the (keyboard) percent sign.
Fraction

Fractions can be entered in at least three ways:

- Enter the numerator, enter a (keyboard) forward slash character, and enter the denominator; OR
- Enter the numerator, click on the fraction button, and enter the denominator; OR
- Click on the fraction button, enter the numerator, then click on the blue square in the position of the denominator and enter the denominator. You can also advance the cursor to the position of the denominator using the keyboard.

Mixed Number

Mixed numbers can be entered in more than one way, but each way requires use of the mixed number button:

- Enter the whole number part, click on the mixed number button, enter the numerator, press Enter, and enter the denominator; OR
- Click on the mixed number button, enter the whole number part, press the right arrow, enter the numerator, move the cursor to the denominator position, and enter the denominator (i.e., fill in the boxes).

Repeating Decimal

- Enter all digits that precede the repeating pattern, including the decimal point (a period on the keyboard) and any decimal places preceding the pattern, click on the bar button, and enter the repeating pattern; OR
- Enter all digits, including the decimal point (a period on the keyboard) and all decimal positions following it, select the repeating pattern only, and click on the bar button.

Fraction in square root followed by multiplier

For this example only one input method is given, but others could be suggested:

- Click on the square root sign button, click on the fraction button, enter the numerator, tab, enter the denominator, then tab, enter an asterisk (from the keyboard), and enter the multiplier.

List

For the purposes of the following example, assume that there is a list consisting of three components to be entered:

- Enter the first expression, click on the list button (or press the keyboard comma), enter the second expression, click on the list button, enter the third expression, click on the list button, and enter the fourth expression; OR
- Click on the list button (or press the keyboard comma) twice, click on the first blue box, enter the first expression, move the cursor right, enter the second expression, move the cursor right, and enter the third expression.
4.8 Advanced Mathematical Expressions

Answers with Units

There are also some cases where the Answer Editor does part of the formatting. For example, in problems where answers must be expressed in some kind of units, such as dollars or meters, the unit expression needed may appear in advance.

Square Root

\[ \sqrt{81} \]

- Click on the square root button and enter the expression into the square root sign; OR
- Enter the expression you wish to appear under the square root sign, select it, and click on the square root button.

In the simple example just given the second method reverses the sequence of steps of the first method. Such complementary methods are typical.

Absolute Value

\[ | - 6| \]

Another pair of complementary methods:

- Click on the absolute value button and enter the expression whose absolute value you wish to express; OR
- Enter the expression whose absolute value you wish to express, highlight the entire expression, and click on the absolute value button.

Exponent

\[ 3^2 \]

- Enter the expression you wish to raise to a power, click on the exponent button, and enter the exponent; OR
- Click on the Exponent button, enter the base, then move the cursor to the exponent box and enter the exponent.

NOTE. If the number you wish to raise to a power is more complex, it may need to be enclosed in parentheses (Sec. 4.6.3).

Square Root Preceded by Multiplier

\[ 2\sqrt{6} \]

With more complex expressions, you can use the mouse to place the cursor in the needed position, as in the second method:

- Enter the multiplier, click on the square root button, and enter the expression you wish to be under the square root sign; OR
- Click on the square root button, click to the left of the square root sign, enter the multiplier, tab (or press the right arrow, or press Enter, or press the Spacebar, or click on the blue box under the square root sign), and enter the expression you wish to be under the square root sign.

4.8 Advanced Mathematical Expressions

The following types of mathematical expressions occur in more advanced subjects.
To create a matrix, click on an icon corresponding to the dimensions desired (2 × 2, 2 × 3, etc.), then fill in the cells with appropriate values.

For topics involving set notation, there will appear icons for each of the special symbols required, such as curly braces, “belongs to,” “such that,” the real numbers, the integers, and so forth.

### 4.9 The Answer Editor for Graphing

The Answer Editor for graphing consists of a Cartesian plane with \(x\)- and \(y\)- coordinate axes and a selection of other tools for graphing lines and regions of the plane (Fig. 4.4).

To graph a line, use the pencil tool to plot two points. Then, align the straightedge (ruler) on the two points (it is a “grabby” tool and will jump to a point when it is near it). Then use the pencil tool to draw the line. Note that the effect of the straightedge continues past its ends, so there is no need to move it to make a line.
4.10. THE ANSWER EDITOR FOR HISTOGRAMS

going from edge to edge of the depicted plane. The line should be started within the graph area, however.

To fill in a region, first, draw all the lines defining the region. Then use the region tool and click in the desired region of the plane. In order for one or more of the lines defining a region to be dotted (as in the graph of a system containing one or more strict inequalities), click on the line with the dotted line tool. This may be done before or after the region is filled.

To draw a graph, use the pencil tool to plot a point. Then, click on the Plot point button twice.

To plot a point where the coordinates are non-integers, use the Plot point button. Using the keyboard, type the numerical values into the coordinate boxes and click Plot point.

To draw a graph requiring an asymptote, use the asymptote tool (broken horizontal or vertical line) to place the asymptote as needed. A slanted asymptote may be placed by first drawing two points and then using the tool with a broken diagonal line. Plot the additional points needed for the graph, and then click on the graph button (curved line connecting “X”s).

For each type of conic section, there is a special tool allowing the construction of its graph. Normally, the user clicks once with the tool to establish the center or vertex of the graph, and then one or more additional times to determine its final form.

As with the numberline, select the eraser tool and click on any part of a line, arc, or other component to remove it.

4.10 The Answer Editor for Histograms

The Answer Editor for histograms consists of a space for drawing histograms and icons (buttons) for creating and adjusting bars (Fig. 4.5).

Initially, the histogram appears with a small number of bars (e.g., two). The height of the bars is adjusted by clicking on the top edge of each and holding the mouse button down while dragging to the desired height. To add bars, click on the icon with the plus sign; to subtract bars, click on the icon with the minus sign. Each bar has a space beneath it where an appropriate label can be typed in.
CHAPTER 4. ASSESSMENT MODE

Any bar may be set to any integer height by dragging. To set the height of a bar at a non-integer value, enter the value in the white area to the upper right of the histogram, then click on the icon with the broken horizontal line. This will place a broken line on the histogram at that height. Any bar may then be dragged to the height of any broken line that has been placed.
Chapter 5

Learning Mode

5.1 The ALEKS Learning Mode

The purpose of the Learning Mode is to assist students in mastering mathematical concepts. Students using ALEKS choose which concepts they wish to work on from the pool of available topics in the pie slices. This list of available topics is constantly being updated through progress made by the student in Learning Mode or as the result of an assessment. As students are only presented with material the system has determined they are most ready to learn, the benefit of their work is maximized.

In the Learning Mode students always work on one concept at a time. The Learning Mode provides students with a rich array of resources to help in mastering concepts. This includes explanations, references to a textbook if one has been integrated with ALEKS, links to supplemental tutorial material and interactive applications, practice problems, diagnostic feedback on problem solutions, and access to a student mathematical dictionary. Moreover, the Learning Mode is designed to monitor the progress made by students toward mastery of a given concept and advise them on continuing or changing concepts. A student is required to solve an appropriate number of practice problems correctly before the system will conclude that the concept has been mastered. (If the student makes mistakes, additional practice will be required.) Once the concept has been mastered, the student is encouraged to choose a new concept from the (updated) pie chart, but more practice is available if desired.

If the student has difficulty, the system may suggest that the student pay closer attention to the explanations. A new selection may also be encouraged. The student continues to work in the Learning Mode until a new assessment is triggered, either by the instructor or automatically. Automatic assessments are triggered when the student has either spent a certain amount of time in ALEKS or made a certain amount of progress since the last assessment (Sec. 4.3.2).
5.2 Interface Features

The features of the Learning Mode interface allow the student to edit personal information related to their account, view reports and gradebook information, and access helpful tools such as the ALEKS Dictionary, Calculator, and Review.

Students also have the ability to print certain screens in ALEKS. The Print feature will be available when the student generates a worksheet, views their reports, or utilizes the Explain page in Learning Mode. More detailed explanations of these options can be found below.

For a detailed description of the features of the student interface in ALEKS, please see Appendix A, the User’s Guide.

5.3 The Learning Mode Workflow

The ALEKS Learning Mode allows students to practice topics they are ready to learn. When students successfully solve a series of problems of the same type, ALEKS will add this problem type or “topic” to the student’s pie chart. If a student experiences difficulty with a topic, ALEKS will attempt to help the student in several ways. Students receive immediate feedback on their answers. Examples of how to solve the problems will be displayed on the “Explain” pages. The “Explain” pages link to definitions of terms and a comprehensive dictionary.

5.3.1 Practice Page

When a student chooses to begin work on a topic, ALEKS will display a page containing an instance of the problem, followed by the Answer Editor. This is where a solution to the problem can be attempted (Fig. 5.1). All practice problems are generated by algorithms, with randomly selected numerical values, so that the variety of problem instances for any topic is very high.

![Practice Page](image)
5.3. THE LEARNING MODE WORKFLOW

Below the Answer Editor are buttons labeled **Explanation** and **Check**. Clicking on **Check** has the same effect as described for the Assessment Mode: it submits the answer. Here, however, the user is given immediate feedback on their answer (Sec. 5.4). If correct, the student will receive a congratulatory message.

When the student clicks **Next**, a new problem is presented. In the case where the topic is considered mastered, the student will receive a congratulatory message and the system will offer to suggest new topics.

When the student enters an incorrect answer, ALEKS will return the presentation of the original problem with feedback on the student’s error. Students can then click the **Explanation** button.

### 5.3.2 Explanation Page

![Figure 5.2: Explanation Page](image)

The Explanation Page (Fig. 5.2) begins with the title of the current item and an instance of that item. The answer to the problem is given at the end of the explanation.

When ALEKS is used with textbook integration, an icon will appear on the right of the Explanation page, linking to a reference or to an online textbook. Additional tutorial material and interactive applications may also be found through other icons at the right of the Explanation Page.

Certain parts of the Explanation may be expanded by clicking on a **More** icon. Here again, mathematical terms are linked to dictionary definitions. The system may suggest looking up certain key terms to help with the explanation (especially if the explanation has already been visited). At the bottom of the page is the **Start** button. Clicking on this button produces a new instance of the same problem-type. Sometimes there may also be a button for **Additional Explanation** or **Detailed Explanation**.
5.3.3 Wrong Answer Page

![Wrong Answer Page](image)

The Wrong Answer Page will appear only after an incorrect answer has been submitted on the practice page (Fig. 5.3). The system may explain why the answer is incorrect and offer advice on the error. Underlined words (hypertext links) may also appear on the screen for students to look up in the Dictionary.

The old, incorrect answer appears in the Answer Editor, where it can be corrected and resubmitted. Again, clicking on **Explanation** is an option that leads to an explanation of the problem. Please note that the system may also take the student directly to the “Explain” page if an item has been missed too many times.

5.4 Feedback in Learning Mode

In the Learning Mode, feedback is integrated into a sophisticated system of guidance for the student. Some errors prompt ALEKS to give specific hints and suggestions (Fig. 5.3). For example, it may say that a fractional answer needs to be reduced or that a list of expressions is incomplete. After a correct answer, the system will ask a limited number of questions for the same concept before judging that it has been mastered. If an item is missed too many times, however, a new topic will be suggested. If a concept has been left without mastery being attained, the system may suggest returning to it after one or two other topics have been covered.

5.5 Review

A student using ALEKS can review topics recently mastered in the Learning Mode or Assessment by selecting the **Review** filter in the topic carousel (Fig. 5.4). Clicking on any of these topics provides the chance for additional practice; this is particularly useful when the student knows that a new assessment (knowledge check) is imminent.
5.6 Worksheet

Clicking the **Worksheet** button in the Main Navigation Menu (upper left) lets the student generate an individualized, printable homework sheet (in PDF format) containing a number of questions based on the student’s most recent work in ALEKS (Fig. 5.5). When the student does this, a sheet containing answers for this individual worksheet (labeled with the student’s name and the date) is sent to the instructor via the ALEKS message system (Sec. 7.2.2). The instructor may permit students access to their worksheet answers.

A record will be kept on the Worksheet page of all worksheets produced by the student. The student can click on the link for any past worksheet in order to obtain that worksheet again. If the instructor has permitted access to worksheet answers, there will also be links on this page to answer keys for each of the worksheets.

**NOTE.** In order to view or print documents in PDF format, such as the ALEKS worksheet, Adobe Acrobat or Adobe Acrobat Reader must be installed on your computer. Most computers have this software. If for any reason your computer does not, there is a link on the ALEKS Worksheet page to download it. Also, because the worksheet is opened in a new browser window, it may be necessary to disable your pop-up blocker temporarily in order to view or print the ALEKS worksheet.
Review Questions

1. Estimate $21,535 - 11,566$ by first rounding each number to the nearest thousand.

2. Shade a region whose area is $\frac{2}{3} \times \frac{2}{5}$.

    Then use the figure to compute $\frac{2}{3} \times \frac{2}{5}$.

3. Evaluate.

    $4 - 4^2 \div 8$
Chapter 6

QuickTables

QuickTables is a special tool for mastery of Arithmetic facts (Addition, Subtraction, Multiplication, Division). It is available as part of some ALEKS course products. QuickTables uses individually configured, progressive, paced-response drills to develop mastery of the math facts, in a supportive, colorful interactive environment. Among many other features, it offers a series of games which the students “earn” through the progress that they make toward mastery of the various fact tables.

6.1 Setting Up QuickTables for your Class

In any ALEKS class where you choose to include QuickTables, you can select one or more of the following tables: Addition, Subtraction, Multiplication, and Division. The selection may be changed at any time; for example, you may start out with only Addition, then add Subtraction and the others one at a time as the students work their way through these tables.

Some ALEKS course products have QuickTables enabled by default, others not. Depending on the selected class, you will be prompted to add QuickTables at different times during the setup.

When creating a class in ALEKS, if the class has QuickTables included by default, you can add the QuickTables tables as part of the class creation process. If the class does not have QuickTables included by default, you will need to create and save the class before adding the QuickTables via the Class Summary (Sec. 7.4.16) and then Set QuickTables (Sec. 6.1.2).

6.1.1 QuickTables Sub-Navigation

From the QuickTables sub-navigation for the given class, instructors can add tables, modify existing tables, view or update the QuickTables settings, and view reports
CHAPTER 6. QUICKTABLES

The available options are:

- Create a Table (Sec. 6.1.2)
- Edit Tables (Sec. 6.1.3)
- QuickTables Class Settings (Sec. 6.1.4)
- QuickTables Game Settings (Sec. 6.1.5)
- QuickTables Retention Assessment Settings (Sec. 6.1.6)
- QuickTables Student Settings (Sec. 6.1.7)
- QuickTables Assignments (Sec. 6.2)
- QuickTables Reports (Sec. 6.3)

6.1.2 Create a Table
To create a table for the selected class, from the QuickTables sub-navigation, select Create a table.

On the Create a new table page (Fig. 6.2), you will need to:

1. Select the operation for the table (Addition, Subtraction, Multiplication, Division).
2. Select the range of numbers to be used.
3. Make the table available to all students in this class (the default) or only to selected students.
4. Click Save & Activate Table.

After you have clicked to confirm your choice, the table will be listed under Tables Currently Active for this Class. If you wish to make changes to the table(s), select Edit tables (Sec. 6.1.3).

NOTE. A student’s QuickTables records move with the account, regardless of the class. In order for the records to appear, however, the new class needs to have the same QuickTables configuration as the original class.

6.1.3 Edit Tables

To edit a table, from the QuickTables sub-navigation, select Edit Tables.

On the Edit Tables page, instructors can do the following:

- Reassign Students to a table(s).
- Delete a table.
- Create a table.

6.1.4 QuickTables Class Settings

The QuickTables Class Settings affect all QuickTables use for the given class. After you gain some experience using QuickTables, you may decide to change some of the default settings (Fig. 6.3).

The available options are:

- The daily time limit for the entire QuickTables session (default 15 minutes).
- The maximum number of days QuickTables can be used each week (default 3 days).
- The tutor character.
- The Game Settings (Sec. 6.1.5).
- The Retention Assessment Settings (Sec. 6.1.6).
6.1.5 Game Settings

As an incentive and teaching tool, QuickTables offers several short games in which students practice the facts they have been learning.

To access the Game Settings, from the QuickTables sub-navigation, select Class Settings.

Minimum time to spend on a daily session before games are available

This is the minimum time students must spend in QuickTables before games become available. Please note that if this is set to a length of time greater than the
6.1. **SETTING UP QUICKTABLES FOR YOUR CLASS**

daily time limit for QuickTables (first setting at the top of the QuickTables Course Settings screen), the student will never have access to the games.

**Maximum number of games per daily session**

As students progress in QuickTables, they are given access to a greater variety of games. You can limit the number of times a student can play the games in a daily QuickTables session (default 6).

**Reset high score chart**

The final option for the Game Settings, is to reset the “high score chart” at regular intervals. Playing QuickTables games, students earn numerical scores that are compared with the scores of other students in the class. The current “high score” is reset at the interval that you choose (default weekly), to establish a regular period of competition among students for added motivation.

6.1.6 **Retention Assessment Settings**

To access the **Retention Assessment Settings**, from the **QuickTables** sub-navigation, select **Class Settings**.

Retention Assessments are given to students when they complete a table in QuickTables. Their goal is to assess the student’s long-term mastery of the table. QuickTables does not have Progress Assessments. By default, the number of Retention Assessments per table is two. Additionally, by default, the number of days between when a student completes a table and a Retention Assessment is 30 days. Both these settings can be adjusted, as can a location setting for the Retention Assessment. When a Retention Assessment is triggered, QuickTables will force the student to take it so that they are not able to work in any other table until the assessment is completed.

After a Retention Assessment, the system behaves as it would after an Initial Assessment: if the result of the Retention Assessment is 100%, ALEKS displays the congratulations screen. If not, the student can continue in the Learning Mode. The system will use the result of the Retention Assessment as a starting state for the Learning Mode. The student does NOT have to work in this table and can choose another available table.

**NOTE.** By default, ALEKS gives two Retention Assessments per table 30 days after completion, no matter the result of the previous assessment. (Even if the student scored 100% after the first Retention Assessment, the student will have another one 30 days later.) Selecting **None** means that there will be no Retention Assessment for the class. Please be aware that if this option was set to one or more, and a Retention Assessment has been triggered, it cannot be canceled. Switching the option to **None** will not cancel a Retention Assessment that has already started.
6.1.7 QuickTables Student Settings

To modify student settings, from the QuickTables sub-navigation, select Student Settings.

- **On-screen keypad** is a numeric keypad that appears and is controlled using the mouse. You can hide or show this keypad. It can be made available for students who have trouble using the keyboard.
- **On-screen timer** is the display of the time elapsed for a problem. You can hide or show this timer.
- **Timer setting** is the time that the student is given to input a correct answer. For effective practice, this number should be as low as reasonable. The Timer setting, for an individual student, cannot be modified until the keyboard exercise is completed.

6.2 QuickTables Assignments

Like the regular ALEKS course products, instructors can create assignments for QuickTables such as assessments, quizzes, and worksheets for the class. QuickTables Assessments and Worksheets are individualized to each student’s current progress. Instructors can also produce customized Worksheets on selected facts from the tables.

6.2.1 QuickTables Scheduled Assessments

In addition to automatic Retention Assessments, instructors can schedule new assessments for an individual student or for the entire class, to assess students on their most recent knowledge of any tables.

**To schedule an assessment:**

1. From the QuickTables sub-navigation, select New Assessment.
2. Complete the Basic Options and Advanced Options for the quiz and click on Save & Continue.
3. Click Done to confirm the information.

**To edit an assessment:**

1. From the QuickTables sub-navigation, select Edit Assessment.
2. Select the assessment you would like to edit.
3. On the screen that follows, make your changes or create extension. You can also cancel the assessment by clicking on Cancel this Assessment.
4. Click Done to confirm the information.
6.2.2 QuickTables Quiz

Instructors can create a QuickTables quiz for a single student or for the entire class.

**To schedule a Quiz:**
1. From the QuickTables sub-navigation, select New Quiz.
2. Choose the table operation and math fact range, and then click Next.
3. On the following page, click on a math fact to add it to the quiz and then click Next >>. (Please note that you will need to add a minimum of 10 math facts for each quiz.)
4. Complete the Basic Options and Advanced Options for the quiz and click on Save & Continue.
5. Click Done to confirm the information.

**To edit a Quiz:**
1. From the QuickTables sub-navigation, select Edit Quiz.
2. Select the quiz you would like to edit.
3. On the screen that follows, make your changes or create extension. You can also delete a quiz by clicking on Delete this Quiz.
4. Click Done to confirm the information.

**NOTE.** Students that joined the class after a QuickTables quiz was created will not be prompted to take the quiz.

6.2.3 QuickTables Worksheets

Instructors can provide additional practice offline by generating QuickTables worksheets for the students.

To access QuickTables worksheets, from the QuickTables sub-navigation, select Worksheets.

**View/Create Worksheets for a Single Student**
This option allows you to choose a table and automatically create a customized worksheet for a single student, or view all such worksheets created so far.

**View/Create Worksheets for all Students**
This option allows you to choose a table and automatically create a customized worksheet for each student based on the student’s progress, or view all such worksheets created so far.

**View/Create Selected Math Fact Worksheets**
This option allows you to choose one or more tables and design your own worksheet by selecting facts from the tables, or view all such worksheets created so far.
CHAPTER 6. QUICKTABLES

6.3 Reporting your Students’ Progress in QuickTables

Reports for QuickTables may be accessed via the QuickTables sub-navigation. Three types of report are available in QuickTables:

- Progress
- Quiz
- Scheduled Assessments

6.3.1 QuickTables Progress Reports

To view QuickTables Progress Reports:

1. From the QuickTables sub-navigation, select Progress.
2. Use the drop-down menu to select either All Tables or a specific table.

The Progress Report view for QuickTables shows, for each student (Fig. 6.4):

- The total time spent in QuickTables since completion of the typing tutorial.
- The last login date.
- The assessment date, which is the date the assessment was completed.
• The bar graph, which is a representation of the student’s progress in QuickTables. The bar graph displays percent mastery of the table contents in blue for the most recent assessment, with an additional segment in green showing what was added since that assessment (blue plus green equals the student’s total current mastery). A grey bar indicates that the student has not yet been assessed on the table.

To print the QuickTables progress report, use the ALEKS Print button to upper right; to download its contents in Excel format, use the Download Excel Spreadsheet link. To see separate bar graphs for all of your students’ assessments, use the link beneath the report marked Display Past Data. The student data may be ordered by any of the green clickable column headings. To see more details such as the date the student completed the table, click on the percentage under the Progress column.

6.3.2 QuickTables Quiz Reports

To view QuickTables Quiz Reports:

1. From the QuickTables sub-navigation, select Quiz.
2. Use the drop-down menu to select a quiz.

The Quiz result view for QuickTables shows, for each student:

• The date the quiz was submitted.
• The timer setting, meaning how long the student has to answer each question.
• The total time spent in the quiz.
• The percentage score. (You can click on the link to the right of a student’s score to see the results in greater detail.)
• The letter grade.

The student data may be ordered by any of the green clickable column headings. To download the results in Excel format, click the link below the chart.

6.3.3 QuickTables Scheduled Assessment Reports

To view QuickTables Scheduled Assessment Reports:

1. From the QuickTables sub-navigation, select Scheduled Assessments.
2. Use the drop-down menu to select a scheduled assessment title.

The QuickTables Scheduled Assessment report view shows, for each student:

• The date of the assessment.
• The time spend on the assessment.
• The results of the assessment.

Clicking on the percentage link to the right of a student’s bar graph will display the results in greater detail. This view will display a table of the assessment results or learning, showing their level on each of the math facts.

Like other reports in QuickTables, the order of student data for scheduled assessment may be ordered by any of the green clickable column headings. The class data may be downloaded to an Excel format by clicking on the link below the chart.

6.4 How Your Students Use QuickTables

When students log in to an ALEKS class where QuickTables is enabled, they see the QuickTables option in the top bar menu. Clicking on this option will switch them into the QuickTables environment.

6.4.1 QuickTables Keyboard Exercise

The first time students enter QuickTables, they are given a brief training on how to enter numbers quickly. The goal of the initial keyboard exercise is to increase the students’ typing speed and accuracy. The keyboard exercise is parallel to the Tutorial that students experience when using ALEKS for the first time, but focused exclusively on typing and entering numbers smoothly and promptly. Numbers can be “entered” by using the Enter key or the Space Bar on the keyboard.

6.4.2 QuickTables Testing Mode

Following the introductory training, students select an operation and then take a brief test to determine their current knowledge of the math facts in the particular table. (Where there is more than one table, a test will be taken for each new table.) This is parallel to the Initial Assessment taken in regular ALEKS. This initial assessment test must be finished in one login session. Logging out before it is complete will require restarting the test.

6.4.3 QuickTables Learning Mode

When the student completes the test, the color-keyed Learning Display is presented, showing their current knowledge of the table. The student is then able to choose how they will work toward complete mastery of the table facts (Fig. 6.5). This display has a function similar to that of the pie chart in regular ALEKS.
To choose a math fact to work on, the student clicks on the corresponding cell in the table. If the student simply presses Enter or the Space Bar, a fact will be chosen from those available. There is a brief introduction to the fact, and then a paced drill sequence in which review of previously-learned facts is mixed in with reinforcement of the new fact. Sequences are kept short so that the student’s concentration remains high. If there is a mistake, the drill is halted while the student reenters the correct answer, with help from QuickTables; also, if the student takes too long in answering, there is a similar halt while the student catches up with the drill. Once the student shows mastery of the new fact, there is a pause before the next cycle of learning.

Students can view a report of their work in QuickTables by clicking on Options located in the upper right of the screen. Clicking on view your latest QuickTables report link will display their QuickTables assessment results and QuickTables quiz results.

**NOTE.** The drill provided by QuickTables is paced, in the sense that students need to enter their answers within a specified “Target Time.” QuickTables seeks to develop quick, “automatic” response to questions on math facts. The actual time interval for answering is subject to customization (Sec. 6.1.7).

As the student progresses in mastery of new facts, the colors in the table flow across the report to show the changing area of mastery. This provides the student with direct, tangible evidence of progress, building the student’s motivation. At the same time, the thermometer graphic to the right of the table also indicates the percentage of the table contents that the student has worked through. Gold stars next to the thermometer indicate levels of progress where new games become available to the student.

### 6.4.4 QuickTables Games

Students can click on the Games option in the top bar to take a break from drill and play any of the games that they have earned (Fig. 6.6), subject to the limits chosen by the instructor (Sec. 6.1.5). The games provided in QuickTables are designed to reinforce
the students' knowledge of the math facts that they have just learned. The activation of games is based on progress made in a single table. If a student works in multiple tables during a single session, the progress may not be enough in any one of them to cause a new game to appear.

**NOTE.** When students have spent the maximum daily amount of time allowed in QuickTables, they will receive a message, “You have used up all your QuickTables time today. Please come back another day.” The maximum daily amount of time is subject to customization (Sec. 6.1.4).

### 6.4.5 QuickTables Completion Certificate

Students who complete a QuickTables table can print a certificate of completion by logging into their account, entering QuickTables, and pressing the tab of the mastered table. The certificate will appear, and a **Print** link will be available (Fig. 6.7).
6.4. HOW YOUR STUDENTS USE QUICKTABLES

Figure 6.7: QuickTables Games

Carly Palmer

completed the
ALEKS
Addition
table
on 06/25/2015

Congratulations!

ALEKS®
QuickTables
Chapter 7

Instructor Module

![Figure 7.1: Account Home Screen](image)

The ALEKS Instructor Module features a streamlined interface, based around a system of organizational levels and dynamic dashboard tiles. The Instructor Module makes class management simple, and allows instructors to spend less time with administrative tasks and more time directing student learning.

7.1 Navigation

There are several ways to navigate the Instructor Module. They include using the search box, main navigation, sub-navigation, or the dashboard. These navigation techniques are described below.
7.1.1 Search Box

Figure 7.2: Search Box

The search box can be found at the top of any page in the Instructor Module (Fig. 7.2). It can be used to search all pages in the Instructor Module with the exception of the ALEKS Community and the Class Forum. To search for a class, student, or assignment type in a search query and then select the Enter key. Alternatively, you can type in a search query and then click the search icon next to the search box.

7.1.2 Main Navigation

Figure 7.3: Main Navigation

Instructors have access to a two-level hierarchy: class and student (Fig. 7.3). The navigation structure is tab-driven for easy navigation and starts with the CLASS tab on the left. This tab contains all classes taught by the instructor.

Instructors begin by opening the drop-down menu and selecting a class, or by typing into the open box to bring up matches from the menu.

Once a class is selected, the CLASS tab becomes the active tab (current level in the hierarchy), and instructors have access to class-related menus and the class dashboard.

Instructors can remain at the class level or make a selection in the STUDENT tab to move down to that level. The STUDENT tab contains all the students enrolled in the selected class. As with the CLASS tab, selections can be made by clicking on a student’s name or by typing in the search field to bring up a match. After selecting a student, instructors will have access to student-related menus and that specific student’s dashboard.

7.1.3 Sub-Navigation

The sub-Navigation displays menus related to the selected item in the main navigation (class or student) (Fig. 7.4). To return to the tab level, click on the top of the appropriate tab to make it active again.
7.1.4 Dashboard

The Dashboard displays quick overviews of important data applicable to the level currently selected (Fig. 7.5). Each Dashboard consists of dynamic tiles that update when the Dashboard is opened. The Dashboard displays six tiles at a time; additional tiles can be found by clicking the navigational arrow button to the right or left of the Dashboard. The display order of the dashboard tiles can be changed by moving the tiles around on the screen.

To rearrange dashboard tiles on a tablet:

1. Press and hold your finger on the tablet screen over the title of the dashboard tile.
2. Drag the tile to the desired location.
3. Remove your finger from the screen to drop the tile in place. The rest of the tiles will automatically update their position relative to the moved tile.
To rearrange dashboard tiles on a computer or laptop:

1. Move the mouse over the title of the dashboard tile.
2. Click and hold. You will see the tile become slightly larger.
3. Move the tile to the desired location.
4. Unclick the mouse to drop the tile in place. The rest of the tiles will automatically update their position relative to the moved tile.

Many of the dashboard tiles are interactive. For example, moving the mouse around the pie chart on the ALEKS Pie Mastery dashboard tile will display the mastery levels for that particular slice. Additionally, many tiles will have links to other areas of the Instructor Module, including Reports, Class Summary, and the ALEKS Gradebook, to name a few.

You can return to the Dashboard for the level currently selected at any time by clicking the Dashboard Button to the left of the sub-navigation.

7.1.5 Home Button

The Home button, located to the left of the main navigation windows, can be used at any time to return to the home screen for the currently active account.

7.2 Instructor Account

Account settings and helpful resources can be found in the Instructor account drop-down menu by clicking on your name in the upper right corner of the Instructor Module home page (Fig. 7.6). Details for each option are given below.
7.2. **INSTRUCTOR ACCOUNT**

7.2.1 **Account Settings**

The **Account Summary** page contains your account settings, contact information, and email preferences (Fig. 7.7). You can access this screen by selecting **Settings** from the account drop-down, or by clicking **Account Summary** under Instructor Administration on the main page.

7.2.2 **Message Center**

Figure 7.7: Account Summary

Figure 7.8: Message Center
The **ALEKS Message Center** is where messages can be sent from instructor to student and to ALEKS Customer Support (Fig. 7.8). This is also where you will find messages sent to you by your students. The message center can be accessed by clicking on the envelope icon next to the search box, or by selecting Message Center from the instructor account drop-down menu.

The Message Center resembles an email program in most of its features, although the exchange of messages takes place within the ALEKS system. Also, the Message Center is equipped with special symbols and tools appropriate to communication about subject matter used in ALEKS.

The Message Center contains a full range of tools for using mathematical symbolism, constructions, and expressions in your messages. The tools are like those used in ALEKS itself in the Answer Editor. Moreover, students sending you messages in the Message Center can attach a graphic representation of the problem they are currently working on, to facilitate discussion of mathematical questions.

To compose a new message, click on the **Compose** button. After clicking on the appropriate “To:,” “Cc:,” or “Bcc:” button, use the expandable folder list to select the recipient(s) of the message. As with traditional email programs, messages can be saved as drafts for later editing, they can be marked as urgent, and attachments can be included (up to 2 MB in size).

To check for new messages received while the ALEKS Message Center is open, you can click on the **Check Inbox** button to refresh the inbox.

### 7.2.3 Reference Guides

The following online documents are accessible directly from the ALEKS instructor and administrator account drop-down menu:

- **Quick Start Guide** outlines the most important features and functions within ALEKS so instructors can easily began working in ALEKS.
- **New SM Reference Guide** provides an overview of the new Student Module and its features.

### 7.2.4 Customer Support

Clicking on **Customer Support** in the instructor or administrator account drop-down menu opens an ALEKS customer support form.
7.2.5 Training & Resources

Training & Resources in the instructor or administrator account drop-down menu opens a window to the Training and Resources section on the ALEKS website. You can schedule a training session with an ALEKS specialist, register for an upcoming ALEKS overview session, and view On-demand videos of popular ALEKS features and tasks.

7.2.6 Log Out

To end your ALEKS session, select Log Out from the account drop-down, or simply close your browser window.

7.2.7 Community

The ALEKS Community is an online community where instructors can share ideas and discuss best practices with ALEKS colleagues (Fig. 7.9). All ALEKS educators are members of the ALEKS Community and can post new topics or comment on existing discussions.

7.2.8 Feedback

Feedback allows you to send feedback to ALEKS regarding the Instructor Module.

7.2.9 Student Roster (Instructor Level)

From the Instructor Administration, instructors can access the ALEKS Student Roster for all students that are registered in classes under their account (Fig. 7.10). Instructors can use the following filters to display various groups of students:

Active

All students currently in the class are tagged as active and displayed by default.
CHAPTER 7. INSTRUCTOR MODULE

Figure 7.10: Student Roster (Instructor Level)

**Former**

Students are tagged with this status when they were in this class and have moved out of the class into another class, but their records still appear in this class.

**Hidden**

These students are hidden from reports and drop-down menus.

**Old Classes (available only at Instructor level)**

Students who were in a class that is inactive or archived.

The default roster settings will display information for Active students. Instructors can use the Class Roster to view students information in a selected class (Sec. 7.4.35). ALEKS administrators have access to the institution Student Roster to view all students registered at the school (Sec. 7.9.8).

### 7.3 Reports

The Report menu displays the ALEKS reports that are available for the current class. Each report is represented by an icon (Fig. 7.11). Instructors can access the Reports by selecting a class and clicking on the desired report in the Reports menu.
7.3. REPORTS

7.3.1 Available Reports

ALEKS offers a wide range of dynamic, automated reports that display individual student and class data. Instructors can use these reports to track usage, progress, grading, and attendance. The reports are organized by the following report types:

- ALEKS Pie (Sec. 7.3.6)
- Progress (Sec. 7.3.10)
- Time and Topic (Sec. 7.3.17)
- Knowledge Per Slice (Sec. 7.3.20)
- Assignments (Sec. 7.3.21)
- Standards (Sec. 7.3.24)
- QuickTables (Sec. 7.3.25)
- Custom Reports (Sec. 7.3.26)

NOTE. The report icons will not appear on the Reports menu when they are not applicable to the class.

To run a class report, select the Class from the dropdown list. To run an individual student report after selecting a Class, select a student, then select the desired report from the Reports menu.

7.3.2 Download Report Data

Reporting data can be printed or downloaded from any of the report styles. Use the printing options in your browser. To download a report, use the link marked Download Excel Spreadsheet on the upper right side of the report. Or, locate Download, click on the down arrow, and then select XLS.
7.3.3 Send Message to Selected Students

Instructors can send messages to selected students from within most class reports, the class roster, and the Gradebook as follows:

- To select specific students, click on the numbered icon or checkbox next to students’ names. The icons will change from grey to yellow, while the checkbox will contain a mark. Re-clicking on the icon or checkbox will deselect the student.
- By clicking on All or the checkbox next to Name, instructors can select all students in the list.
- Clicking on the Send Message to Selected Students link or Send Msg icon opens a message in the ALEKS Inbox. The students’ names will be pre-filled in the “Bcc” field of the email message (thus recipients of a group message do not know who the other recipients are).

7.3.4 Viewing Student History Across Multiple ALEKS classes

This feature allows administrators and instructors to view student history across multiple ALEKS classes. The comprehensive view can be used to identify each student’s progress history and preserve a record of their work after they have been moved to a new ALEKS class. This feature can be found in the following reports:

- ALEKS Pie Report for a Single Student (Sec. 7.3.8)
- Progress Report for the Class (Detailed Progress History) (Sec. 7.3.15)
- Progress Report for a Single Student (Sec. 7.3.16)

NOTE. Depending on the options selected by the administrator at the school, instructors are able to see report history only for the classes they have taught or for all classes taken by the student (Sec. 7.9.1). Administrators can see all report history for all students. This feature will display student history from August 1, 2012 through the present; performance prior to this date may appear as a grey bar.

7.3.5 Interpreting Bar Graphs

Bar graphs appear in several of the ALEKS report styles. Although the meanings of the bar graphs vary by report style, there are some common features.

Bar Graph Colors

The colors used to fill the bar indicate the level of mastery of the class contents at a particular time. The bar is filled from left to right.

Blue

Means that mastery was shown on a knowledge check.
Light Blue
Means that tentative mastery was achieved in Learning Mode.

Grey
Indicates the part of the course material not mastered.

Blank (white)
Indicates a knowledge check is in progress.

Aquamarine
Shows progress made between the first and latest knowledge check.

Asterisk
Appearing by a greyed-out bar graph or any other color indicates, in some reports, that a new knowledge check is underway.

Values underneath Bar Graphs
Underneath the bar are percentages corresponding to the like-colored portion of the bar graph; for example, a “25%” in blue under the bar graph indicates that the blue portion of the bar is 25% of its total length. You can also view student progress by the number of topics. Simply click on the Percent or Topics link in the Course Progress column to toggle between the two views.

Multiple Bar Graphs
Where there is more than one bar graph per student, the bar graphs represent different points in the student’s learning history associated with knowledge checks taken by the student. Bar graphs showing a segment of the student’s learning history are stacked, with the earliest on the bottom and the most recent at the top.

More Features
There are several ways of accessing student data using reports:

- The list of students in a bar-graph report can be sorted on any of the report columns by clicking on the text in the header for that column. Clicking on the text in the header section of the column will bring up an ascending or descending arrow, used to sort the column.
- You can also navigate to other kinds of reports by clicking on hyperlinked names or dates. Clicking on a student’s name takes you to the detailed learning history for that student (Sec. 7.3.16).
- Clicking on the date for a knowledge check takes you to a detailed (pie chart) report for that knowledge check (Sec. 7.3.8).

NOTE. On some reports, if students have previously been in a different class, it is possible to toggle between viewing their total time in ALEKS and their total time in the current class. This toggle will appear below the report. For students who have only been in one ALEKS class, the displayed time will be the total time in the current class.

7.3.6 ALEKS Pie
The class report shows the average learning for the class and a detailed view of topic mastery (Fig. 7.12).

This report only includes results for students who have completed at least an Initial Knowledge Check. The ALEKS Pie Mastery for all students in the class and the number of topics completed are initially displayed in the top right.

Instructors can use this report to determine where students are in the class, specifically, what topics they have mastered, have not mastered, are ready to learn, have lost in knowledge check, or have attempted but not mastered (Fig. 7.13). This information can be used to plan classroom instruction, group students based on their knowledge and level of readiness, and communicate directly with these groups.

### 7.3.7 Display Options for ALEKS Pie Report

Instructors can use the Show drop-down menu to filter the report by **Current Progress**, **Most Recent Knowledge Check**, or **Initial Knowledge Check**.

- In the **Current Progress** view, the main Ready to Learn Topics for the entire pie are listed to the right of the pie.
- In the **Most Recent Knowledge Check** view, the main Topics Lost in Recent Knowledge Check for the entire pie are listed. This shows data based on the most recent knowledge check results.
- In the **Initial Knowledge Check** view, the main Topics Mastered in Initial Knowledge Check for the entire pie are listed.
Figure 7.13: Student Mastery

These views of student results may be filtered by slice, by selecting a slice from the pie. Clicking on a pie slice will make that slice “sticky,” so that the topics for this slice are displayed and do not change. The average class mastery for this slice is also displayed. Hovering over a slice with the mouse will display the name of that slice.

Topics with the highest numbers of students **Ready To Learn** are the ones most ready for classroom presentation. Trying to teach topics with low numbers in this display is more likely to produce boredom and frustration, because most students either have learned the topics already or are not yet ready to learn them.

Below the pie the results are broken down further by ALEKS Table of Contents (slice), objectives (when in use), or by any applicable standards. These sections can be broken down further, and instances of problems may be seen by clicking on individual topic links. A new instance of the problem type will be generated each time you click on the topic link.

The columns in this report have different meanings, depending on the current view:

**Under Current Progress**, you see:

- **Mastered**
  - These are topics added to the pie after knowledge check in learning mode.

- **Remaining**
  - These are topics the students have not shown mastery of, whether they have attempted them or not.

- **Ready to Learn**
  - This is a subset of the not mastered category, and are the topics the students are ready to learn now.

- **Attempted, not mastered**
  - This is a subset of the Remaining category, and are the topics the students have attempted but not mastered.

**Under Most Recent Knowledge Check**, you see:
Mastered
These are the topics known based on the most recent knowledge check.

Remaining
These are the topics the students do not know, based on the most recent knowledge check.

Ready to Learn
This is a subset of the not mastered category, and are the topics the students are ready to learn now, based on the most recent knowledge check.

Lost in Recent Knowledge Check
These are topics the students knew at one point but have lost, because the most recent knowledge check determined that the students did not know the topic anymore.

Under Initial Knowledge Check, you see:

Mastered
These are the topics known based on the Initial Knowledge Check.

Remaining
These are the topics the students do not know, based on the Initial Knowledge Check.

Ready to Learn
This is what the students are ready to learn now, based on the Initial Knowledge Check.

Other features:

- If you click on the percent link for a topic, you will see a breakdown of student mastery of that topic.
- You can send messages to students directly from this report.
- You can view additional topics that a group of students is ready to learn.
- The objectives tab (when present), will contain prerequisite topics if the TREC tool added items to the class (Sec. 7.4.9).

Excel downloads. Students who have not taken an Initial Knowledge Check will not be shown in this report, but they will be shown in the Excel spreadsheets. Spreadsheets available to download include the following: Pie View, Pie and Slice View, Topic Summary by Slice, Objective View, and Topic Summary by Objective. Please note that the latter two spreadsheets are only available if objectives are set up in the class.
7.3.8 ALEKS Pie Report for a Single Student

This report displays a pie chart for a single student, which by default will represent the most recent period of Knowledge Check and Learning (Fig. 7.14). Reports for other periods may be chosen by selecting dates from the drop-down menu at the top of the page. The report will show the results of the most recent Knowledge Check, along with any progress made in Learning subsequent to that Knowledge Check.

The shading on the pie chart indicates the level of the student’s mastery in each area: the shaded portion represents what the student has mastered, and the unshaded portion represents what the student has yet to learn. To the right of the pie chart are tiles for each individual pie slice, showing a breakdown of what material the student has mastered, learned, and has left to learn. To see a complete list of the topics in each category, click on the View All Topics toggle below the tiles. The list will update based on which tile the user has selected. Click on a topic to generate a unique instance of the problem and an explanation of the instance.

7.3.9 Objective Report

The Objective Report is a scrollable list of tiles for each objective in the course (Fig. 7.15). Each tile summarizes the student’s progress for a particular objective at the time the report is generated. The tiles display the due date of the objective (future objectives) or the date the student completed the objective (past objectives), the score achieved, the number of items making up the objective, and the number of goal topics remaining. Beneath the tiles are expandable lists of topics, broken down by category: Ready to Learn, Learned, Mastered, and Locked. (“Locked” topics are those for which the student...
has prerequisite topics left to complete.) To see a full list of topics, click on the View All Topics toggle. Double-click on a topic to see a sample question and corresponding explanation.

### 7.3.10 Progress Reports

Using the Progress Reports, instructors can view student progress on knowledge checks and in Learning Mode at various time intervals (Fig. 7.16). These reports allow instructors to track student progress and ensure students can get intervention when they need it the most. Instructors can change the report view by making a selection in the Show drop-down menu. A description of the report selected will be displayed below the drop-down menu.

In class-level Progress reports, clicking on a student’s name will take the instructor to the individual progress report for the student (Sec. 7.3.16). Clicking on an knowledge check date link will take the instructor to the individual student’s pie report, displaying the student’s progress at that point in time (Sec. 7.3.8).
NOTE. If you navigate away from a Progress report and return at a later time, the report that was last selected will remain in effect.

7.3.11 Learning Progress Since Latest Knowledge Check

This report shows each student’s progress in Learning Mode since the most recent knowledge check (Fig. 7.17). It includes total hours spent in ALEKS, the last login date, the last knowledge check start and end date, total time in knowledge check, course performance displayed in a bar graph, and learning rates. There are several ways this report can be used:

- Identify which students are ahead, on pace, or behind in the class.
- Determine learning rates to use in assigning performance grades or for data tracking purposes.
- Recognize inconsistencies in student usage and progress to identify students needing individual instruction.

NOTE. If objectives are used in the class, the percentage of completion for the current objective is also displayed. For additional information on the interpretation of the bar graphs, see Sec. 7.3.5.

7.3.12 Most Recent Knowledge Check

This report can be used to view each student’s mastery based on the most recent knowledge check taken (Fig. 7.18).
Figure 7.18: Most Recent Knowledge Check

Figure 7.19: Best Performance in Learning Mode Over Time
7.3.13 Best Performance in Learning Mode Over Time

This report can be used to view each student’s best class mastery in Learning Mode within any date range up to one year in the past (Fig. 7.19). Set the date range using the Change link, then click Apply.

7.3.14 Progress in Knowledge Check Over Time

![Figure 7.20: Progress in Knowledge Check Over Time](image)

This report can be used to view each student’s progress between the first and last knowledge checks within any date range up to one year in the past (Fig. 7.20). Set the date range using the Change link, then click Apply.

7.3.15 Detailed Progress History

This report is an expanded version of Learning Progress Since Latest Knowledge Check (Fig. 7.21). It shows a segment of the student’s learning history, including knowledge checks and Learning Mode progress for each student within the specified date range. Set the date range using the Change link, then click Apply. Clicking on the All Progress tab will display all students’ current and previous class progress results (if applicable) (Fig. 7.22). The current class can be distinguished by the (Current Class) label.

- Each bar graph represents an knowledge check taken by the student.
- The bar graphs are stacked, the earliest on the bottom and the most recent at the top.
- The date and reason for the knowledge check are to the left of each bar graph.
CHAPTER 7. INSTRUCTOR MODULE

Figure 7.21: Detailed Progress History

Figure 7.22: Progress History
7.3.16 Progress Report for a Single Student

This report is obtained by selecting a student and then moving to the Reports menu. Click on the Progress icon. The Progress Report for a single student in this class displays a list of bar graphs for the single student chosen (Fig. 7.23). There is one row for each knowledge check that the student has taken, with dates (linked to the Report page for that knowledge check). Clicking on the All Results tab will display the student’s current and previous class progress results (if applicable). Clicking on an knowledge check date link will take the instructor to the individual student’s pie report, displaying the student’s progress at that point in time (Sec. 7.3.8).

- The blue portion of each bar graph measures the student’s mastery as of the given knowledge check.
- The light blue portion of the bar measures progress made in the Learning Mode subsequent to that knowledge check (but before the next knowledge check, if there is one).
- The percentage values beneath the bars for the blue and light blue portions represent the knowledge check mastery, and subsequent progress in Learning Mode respectively. For example, 57+9% means that the last knowledge check showed 57% mastery, and that subsequent work in the Learning Mode added another 9% mastery for a total of 66%.
- Information on each knowledge check and total hours spent subsequently in the Learning Mode (up to the time of the next knowledge check) is also provided, with average numbers of items gained per hour.
7.3.17 Time and Topic Report

Using this report, instructors can quickly view the summary graph at the top of the report. Instructors can also see the amount of time spent by each student daily in ALEKS, as well as the topics the student has attempted and mastered each day. The report can be generated for the entire class or for individual students. (The number of topics attempted does not include topics the student worked on in Review mode.)

7.3.18 Class Time and Topic Report

The following points describe the features of the class Time and Topic Report (Fig. 7.24):

- The report can be viewed in intervals ranging from 1 week up through 20 weeks. The time period can be adjusted by clicking on the Change Date Range link.
- The graph shows for each day the total time, average time, total topics, or average topics.
The report displays the number of students enrolled in the class, the number of students logged in to ALEKS, and the amount of time each student has spent working in ALEKS on a daily basis.

The number of topics mastered versus the number attempted is displayed below the daily time log.

If a student has spent some time on an ALEKS knowledge check during that day, the session will be marked with a blue triangle in the upper right-hand corner.

The total amount of time shown for a specific day includes time spent in Learning Mode, as well as any quizzes, homework, review problems, or knowledge check the student has done. Work done in QuickTables is not included in the report.

Clicking on an individual student name will take you to the Individual Time and Topic report for that student (Sec. 7.3.19).

7.3.19 Individual Time and Topic Report

Figure 7.25: Individual Time and Topic Learning Log

The Individual Time and Topic report gives detailed information on the topics each student has attempted and mastered (Fig. 7.25). To see the student’s Learning Sequence
Log on a certain date, click on the grey column above the date. The Learning Sequence Log will display the time and result of the attempted topic. By clicking on the **Result** icon below the name of the topic (Wrong, Correct, or Success), you can see specific problem the student worked on, along with their answer and the solution.

A wider date range can be chosen for the individual report, up to six months at a time. This report also includes for the student, the last login date, the enrollment date, and hours worked per week.

Students can view their Time and Topic Report by clicking the **Report** link at the top of their page and selecting the appropriate tab.

### 7.3.20 Knowledge Per Slice

![Figure 7.26: Knowledge Per Slice](image)

This report shows each student’s current mastery for each ALEKS pie slice in the class and can be generated for the entire class or for individual students (Fig. 7.26). It includes overall class mastery, followed by a breakdown of progress in each pie slice.

Instructors can use this report to determine whether more emphasis should be placed on certain areas of the class, or to compare overall progress in the class with progress in particular slices.

Instructors can download a PDF summary of data from the class report. Clicking the **Download Summary** link just above the report will generate a PDF that displays time spent in ALEKS, average topic mastery, and a comparison between the beginning knowledge state (based on the Initial Knowledge Check) and the current knowledge state for each pie slice. The report shows this data for both the class and individual student.
7.3.21 Assignment Reports

With the class selected, go to the Reports menu. Clicking on the **Assignments** icon will display a list of all assignments included in the currently selected class (Fig. 7.27). The **Show** drop-down menu can be used to filter the assignments by Homework, Quiz, Test, or Knowledge Check. Clicking on an assignment name will show the detailed class results for that assignment.

7.3.22 Scheduled Knowledge Check Report

This report shows the results of the most recent assessment that has been scheduled for the class, in the form of a series of bar graphs (Fig. 7.28).
- A menu at the top of the display can be used to choose earlier scheduled assessments.
- The blue portion of each bar graph shows the student’s knowledge as measured by the assessment.
- If the instructor has chosen to grade the assessment, grades for the assessment are shown (Sec. 7.5.9).

NOTE. Progress in Learning Mode is not shown in this view.

7.3.23 Homework, Quiz, and Test Results

![Figure 7.29: Quiz Results](image)

This report shows the results on any given quiz and can be generated for the class or for individual students (Fig. 7.29). Clicking on the Date Submitted for any particular quiz will give the individual results of that quiz by question. It is also possible to see individual questions and answers submitted by each student. The option to view quiz results on a per-question basis may be useful for identifying specific class strengths and weaknesses.

7.3.24 Standards Report

Some ALEKS course products are aligned with external standards. For these classes, reporting will be available based on the applicable standard (Fig. 7.30).

The principal display of the Standards Report is a set of vertical bar graphs, showing the class average mastery of each of the main strands of the standard. The bars are labeled with the names of the strands, and below each there is a ratio showing the specific level of mastery for that strand. For example, “9.4 of 11” under Real Numbers...
7.3. REPORTS

and Linear Functions means that the class has mastered 9.4 out of the 11 substrands belonging to this strand.

The following options are available for the Standards Report:

Mastery

By default, a student shows “mastery” of a substrand of the standard by showing knowledge of 50% of the supporting topics in ALEKS. This has proven to be the most meaningful percentage to use in this report, due to extensive overlap in ALEKS’s coverage of the substrands (i.e., the same ALEKS topics tend to support multiple substrands). The instructor has the option, however, of raising the percentage required for “mastery” to 60% or 70%. The level of mastery for each strand is the average of the levels of mastery of individuals in the class.

Display Mode

By default, the report is based on knowledge shown by the students of the class in their most recent ALEKS Knowledge Check. This can be changed to reflect only the students’ Initial Knowledge Check: this shows the level of mastery at which they began their work in the class. It can also be changed to show the results of their most recent work in the Learning Mode: this will tend to represent a higher level of mastery for all students.

Select Students

By default, the work of all students who have been active in ALEKS is represented. This option can be changed to require certain minimum amounts of time spent in
the system (e.g., 10 hours, 20 hours, etc.). For example, if 20 hours is selected from this menu, the report will only reflect the work of students who have spent 20 hours or more working in this ALEKS class. Trying different values from this menu may be a good illustration of the effect of students’ work in ALEKS on their math knowledge, as the students spending more time will tend to have significantly higher levels of mastery.

Changing the values for these options will affect various parts of the Standards Report.

**Breakdown by standard**

Underneath the bar graphs is a breakdown of the percentage of students who have mastered particular substrands. For example, “87% mastery” following the name of a substrand indicates that 87% of the students in the class have shown mastery of this substrand (see above for the meaning of “mastery”). Clicking on this link opens a list of the students with mastery, along with other detailed information about the substrand, including the specific topics in ALEKS that support it.

**Breakdown by student**

If you click this link, the bottom of the display will change to show the individual levels of mastery of the entire standard for all of the students in the class. For example, “15%” after a student’s name indicates that the student has mastered 15% of the strands of the standard. Clicking on this link will open a list of specific substrands mastered and not mastered by the student.

### 7.3.25 QuickTables Reports

QuickTables reports can be generated for both the class and for individual students. These reports can also be accessed by clicking directly on the QuickTables menu. For a full description of the reports available for QuickTables, see Sec. 6.3.

### 7.3.26 Custom Reports

ALEKS administrators and instructors can create custom reports for their district, school, and classes with the Custom Reports feature. This feature has many options to suit advanced reporting needs across classes and instructors. Administrators and instructors can select data from existing ALEKS reports and export the combined data into a single customized Excel report. Additionally, reports can be scheduled ahead of time. Reports can be generated at multiple levels (e.g., district, school, instructor, class, and multi-class) based on the user’s ALEKS account type. There are three main steps to creating a custom report: 1) Create Template, 2) Review and Save, and 3) Schedule Report. See below for further instruction.
What Are Custom Reports?

The Custom Reports feature allows you to tailor a report specific to your reporting needs. You can schedule a one-time report, or automate a report so that it runs daily, weekly, or monthly to ensure that you not only save time, but also receive the most up-to-date information.

How Does It Work?

- Start by creating a template and customize it to include the data fields that are available across the standard ALEKS reports.
- Schedule how often to run the report and select the specific students or classes to retrieve information on.
- After the report is generated, check your ALEKS inbox for your customized Excel report.

![Create New Custom Report Template]

Figure 7.31: Custom Report Template

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**STEP 1. Create Template**

**Basic Information**

**Name:**

- Type: Class report

**Select Data**

Browse through the categories on the left and select the data you want to include in your report template. Each selected data field will represent a column in the report. Data fields will appear on the downloaded Excel report in the order they are listed in the "Report Selections" window.

![Select Data]

---

**Add Data**

- Student Information
- Assessment Performance
- Topic Mastery
- Gradebook
- Time and Topic

**Report Selections**

![Report Selections]

---

Figure 7.32: Creating the Custom Report Template
NOTE. Data for the Custom Reports feature is available beginning from August 1, 2012.

When first accessing the feature, administrators and instructors will see the introductory screen (Fig. 7.31). To begin creating the template, click on **Create New Custom Report Template** or the **+ New Report Template** on subsequent visits.

**STEP 1: Create Template**

By first creating a template, administrators and instructors can determine the foundation for their custom report, and then schedule multiple reports to run off the template. Templates can be re-used and duplicated to save time.

The following information must be selected when creating the template:

**Basic Information**

A name must be entered for the template.

**Select Data**

The data must be selected from the categories listed on the left of the screen (Fig. 7.32).
STEP 2: Review and Save
In this step, users will confirm and save their custom report parameters.

STEP 3: Schedule Report
Administrators and instructors can run multiple iterations of their template, modifying the date range and student/class/instructor data to focus on.
The following information must be selected when scheduling the report (Fig. 7.33):

Report Name
A name must be entered for the report, and choices made for the Excel format, and duration display.

Scheduling Options
You can choose whether to schedule a recurring report, or a one time report (the default).

Student Options
The options in this section are displayed based on the selected level of the report.

After a report has been scheduled, a confirmation message is displayed. A custom report may take up to 30-60 minutes to process depending on its size, and will be sent to the ALEKS inbox of the person who scheduled it.

7.4 Class Creation and Configuration (Class Administration)

Classes can easily be created through the class creation wizard. From the Home page, select Instructor Administration then New Class. Alternatively, the instructor can choose a class then select Class Administration followed by New Class. There are various options for creating a class, as described below (Sec. 7.4.1).

The procedure for creating and editing a class includes the setup of Textbook Integration and content customization (if desired). It does not include creating Homework, Quizzes, Tests, or Scheduled Assessments, but these steps may be completed later.

7.4.1 Creating a Class

Selecting New Class displays the following options to create a class (Fig. 7.34):

Create a New Class
This option allows an entirely new class to be created.

Copy a Class at This Institution
This option allows the instructor to duplicate one of his or her own classes or a class from another instructor at the same institution.
CHAPTER 7. INSTRUCTOR MODULE

Figure 7.34: New Class

Copy a Class by Class Code at Any Institution

This option allows an instructor to duplicate a class from another instructor at any institution (if the Class Duplicate Setting, for the class to be copied, has been set to Public).

Create a Class Linked to a Master Template

Master Templates must exist at this institution for this option to appear. This option enables a linked class to be created from a Master Template.

NOTE. ALEKS Administrators can duplicate any class.

7.4.2 Class Creation Wizard

Clicking on Create a New Class will display the class creation wizard (Fig. 7.35).

Class Information

Administrators can assign the class to another instructor when setting up the class. In the Class Information section the only optional field is the section name. The course product should not be changed after the class has begun unless absolutely necessary, as doing so will be disruptive to the students’ learning and to the class reports and records. Other values on this page can usually be changed without disruption.
7.4. CLASS CREATION AND CONFIGURATION (CLASS ADMINISTRATION)

75

Figure 7.35: Class Information

The class dates are used to configure the Calendar, and should include the entire period of time that the students will be using ALEKS (Sec. 7.4.38). By default, the class will be automatically archived after the class end date unless this option is deselected (Sec. 7.4.40).

QuickTables
QuickTables may be added to the class during the creation process or at a later time. For full details about QuickTables, see Chap. 6.

Course Specific Settings
These are any specific settings that apply to this class, such as providing ALEKS graphing calculator functionality.
Accessibility mode for visually impaired students can be set at the class level or student level. Turning on this setting will allow a visually impaired student to use JAWS screen reader technology with ALEKS.

Continue to Class Summary or Customize This Class
The class will be created when you click on the Create Class Now button. The instructor can choose to see the Class Summary or Customize This Class.

To edit the Class Information and Course Specific Settings sections at a later time, select Class Summary, follow by Class Information, and then Edit.
7.4.3 Save for Later or Cancel

Save for Later and Cancel links have been added to the class creation wizard in order to improve the workflow for instructors. These links provide a way to save the data on each page throughout the wizard, so that class customization may be stopped midway and resumed at a later time. These links appear at the bottom of the wizard pages that follow the initial Class Information page.

Note that using the Save for Later or Save and Exit options saves the data, but that changes are not applied until class customization is complete. Instructors will see a confirmation message on the Class Summary page that allows them to Resume or Discard these changes (Fig. 7.36).

Selecting Discard will discard all changes made, and Resume will take instructors back to the last page they were working on during class customization.

When instructors log out of ALEKS and log back in, they can easily resume or discard their class customization through the dashboard message or through the Class Summary message.

In the event that another user concurrently makes changes to a class with customizations that are “Saved for Later,” messages will be shown indicating who was editing the content, and will provide an opportunity for these changes to be resumed or discarded. If changes have been made and saved by another user, the messages will indicate this also.

NOTE. The Save for Later link is not available in Master Template linked classes.

7.4.4 Textbook Integration

If an instructor chooses to customize the class after it has been created, the next page presented will be the Class Content Customization. Here, several choices can be made about the structure of the class, the first being whether to integrate a textbook or not. If a textbook is chosen from the list of available choices using the dropdown menu, ALEKS will automatically place chapter and section references to this textbook on the students’ explanation pages.

Textbooks appearing in the list with “ALEKS 360” after the name are available with an optional eBook (Sec. 7.4.11).
One choice in the list of textbooks is the ALEKS Curriculum, which is a division of the topics based on the slices of the ALEKS Pie rather than chapters of a textbook. This choice enables student learning to be structured without the use of a specific textbook.

7.4.5 Set Objectives / Modules

Instructor can choose to configure the class with a textbook or without textbook integration.

With Textbook Integration. The instructor can use chapter-based objectives with optional custom objectives, custom objectives alone, or no objectives.

Chapter-Based Objectives with Optional Custom Objectives
If this option is selected, you will be able to choose entire chapters from the textbook as objectives for your class, and set end dates or mastery levels for these objectives (Sec. 7.4.6). This is the most efficient way of directing student learning in ALEKS. You can also create custom objectives that combine chapter material freely into new units.

Both types of objectives will include all ALEKS topics that correspond to the chapter.

Custom Objectives
If this option is selected, you will need to create all of the objectives for your class manually. This option provides the instructor with the greatest control over the class structure.

Textbook Integration - No Objectives or Modules
If this option is selected, students will see references to the textbook, but the textbook will not direct their learning.

NOTE. If you choose any of the options for structuring objectives in your class, whether by textbook chapters, custom objectives, or a combination of the two, topics will not be included in the class unless they are included in one of your objectives, or are a prerequisite topic. It will be possible, however, to remove topics after they have been included as part of a chapter or custom objective (Sec. 7.4.8). If only custom objectives are used, it will not usually be necessary to do any further customization of the content.

No Textbook Integration. If no textbook is integrated within the class, no textbook will be referenced in ALEKS, and you will only have the choice of the following two options:

Objectives / Modules
If this option is selected, you will need to create all of the objectives for your class manually.

No Objectives or Modules
If this option is selected, student learning will be guided by ALEKS without objectives.
See the following sections for additional details about the choices outlined above.

7.4.6 Objective Completion

When setting up objectives for your ALEKS class, you can choose either to define end dates or to set a mastery level for each objective. When using mastery level for objective completion (objectives without end dates), instructors select a final day when all objectives will be due (usually around the end of the course).

Objectives / Modules with End Dates

When an end date is assigned to an objective, students should do their best to complete the objective before this date. After this date, students will be moved to the next objective, and the material in the past objective will not be available unless it is prerequisite for current learning. If students finish an objective before the due date, instructor has the option to move students to the next objective or open all objectives so students have the option to work on Ready to Learn topics in an objective until the next objective begins.

- To choose an end date, click in the box in the end date column. Each chapter/objective included must have an end date unless objectives are being used with mastery levels.
- The start date for the first chapter/objective is always the start date of the class. The start date for any other chapter/objective is one day after the end date of the previous chapter/objective.
- Start dates cannot be set manually, and each chapter included must have an end date. If you want objectives to overlap, you must make the end dates the same. Please keep in mind that objectives with the same end date are combined as a single column in the Gradebook.

Objectives without End Dates (mastery levels for Objectives)

If you choose this option, students will be moved to the next objective when they meet the mastery level set for the current objective (the default is 90%). Students will still be able to access the remaining unmastered topics from all previous objectives through the Topic Carousel by selecting the downward arrow tab in the upper left corner of the screen. A final due date must be set for all objectives, this is the date when scores for all objectives will be sent to the gradebook. The default setting for this date is the end date of the class.

7.4.7 Objectives Editor

Initially, all textbook chapters appear in their normal, order and all are checked for inclusion in the class (Fig. 7.37).

- Remove chapters by unchecking the box to the left of the objective.
7.4. CLASS CREATION AND CONFIGURATION (CLASS ADMINISTRATION)

- Reorder chapters (or custom objectives) by dragging and dropping the chapter to a different position. Chapters can also be reordered by using the arrows in the **Order** column.

- Edit an objective/chapter by clicking on the **Edit** link below the objective name. This will open the **Edit Objective** page described below (Sec. 7.4.8).

- Check the box next to each chapter/objective to enable a post objective progress assessment (Sec. 7.4.10)

- To create an objective that does not correspond exactly to a textbook chapter or ALEKS slice, use the button marked **+New Custom Objective**, located below the list of textbook chapters/objectives.

NOTE. ALEKS permits you to order chapters freely, but a reasonable and conventional ordering of the materials should be used. ALEKS will move topics among chapters in order to maintain prerequisite relations among specific topics, with the result that an unusual ordering of the chapters may not produce the best results for your course structure. Only minor adjustments should be made to the content once students have begun working, to avoid disruption of the students’ work.

To return to the Objective Editor at a later time, select **Class Summary**, locate **Class Content**, follow by **Objectives Editor**, and select **Edit**.

7.4.8 Edit Objective

Any objective content can be edited and deleted inside the **Edit Objective** window (Fig. 7.38), found by clicking on the **Edit** link below the objective name in the **Objective Editor** page. Custom objectives can also be deleted from the **Edit Objective** window.
Using this tool, chapters (or ALEKS curriculum slices) can be divided into parts or material can be combined across multiple chapters.

The Textbook View allows you to select content based on the structure of the textbook. The Slice View allows you to select content based on the structure of the ALEKS Pie Chart.

A specific textbook is integrated with the class
For chapter-based objectives there will be a Textbook View of items. When editing chapter based objectives, it will be possible to add topics only to the chapter in which they belong. For custom objectives there will be a Textbook View and a Slice View of items.

The ALEKS curriculum is integrated with the class
For slice-based objectives and custom objectives there will be a Slice View of items.

No Textbook Integration is in use
Custom objectives will present items from the Slice View.

Topics may be added or removed from objectives as follows:

- Click on the plus sign (+) to the left of each folder to view its contents.
- Check the box to the left of a topic name to include that topic in your objective.
- To see a sample problem for any topic, double-click on the topic name.
- Check the box to the right of a folder icon to include all topics in that folder.
A running count of the number of included topics will be displayed just above the directory window.

- Use the **Custom Objective Name** field to change the name assigned to the objective.
- Click the **Done** button when you have finished customizing the objective.

The new objective will appear in the table of objectives. An end date or mastery level should be entered, depending on the objective completion method in use (Sec. 7.4.6). This procedure can be repeated to create additional custom objectives.

**NOTE.** In classes that are configured with objectives, the Objective Editor will only display topics contained and structured according to those objectives. If an instructor removes a substantial number of fundamental topics from the class, the Topic Recommendation Tool will calculate whether any prerequisite topics are missing, and allow the instructor to add them back for optimal learning (Sec. 7.4.9).

When objective customization is complete, click on the **Continue** button to review the settings. Click on **Save** to finalize the setup.

### 7.4.9 Topic Recommendation Tool (TREC)

![Image of the ALEKS Topic Recommendation Tool (TREC)](image)

**Figure 7.39: Topic Recommendation Tool (TREC)**

The ALEKS Topic Recommendation Tool (TREC) provides instructors with a way to add prerequisite topics to their class content that may have been omitted during the creation/editing process (Fig. 7.39).
The TREC tool is only displayed when necessary. For example, if an instructor only changes objective due dates, without changing any actual content, TREC will be skipped.

The TREC Tool displays one or more columns of recommended prerequisite topics, and instructors must select a column before being able to continue. Selecting the Details link will allow you to see how a topic relates to other topics.

Adding Topics to a Class
Clicking on the Options link will display more information about the topic and allow you to add the topic to an existing objective. Adding a prerequisite topic to an objective makes the topic a goal topic in that objective.

Topics may also be added to the course content, that are not added to an objective. These topics when completed will not count toward objective grades, if the gradebook has been enabled for the course.

The Class Content section of the Class Summary page will contain a breakdown of goal topics and prerequisite topics if applicable (Sec. 7.4.18). There will also be a link to edit the prerequisites in the TREC tool on the Class Content section. This breakdown of goal and prerequisite topics will also be included on the Course Syllabus (Sec. 7.4.17).

Currently in Class
After the class content has been edited, a Currently in Class column will appear. These topics are prerequisite topics that are currently in the class content but not part of any particular objective.

Recommended
These topics are recommended prerequisite topics that support instructional scaffolding and optimal learning. This selection should be used with typical classes that have some students who need additional review.

Minimum
These prerequisite topics are the minimum number of topics required for students to complete goal topics. This selection should only be used for classes where all the students do NOT need review of prerequisite topics.
7.4. CLASS CREATION AND CONFIGURATION (CLASS ADMINISTRATION)

No Prerequisites
Instructors can choose not to add any topics. This selection will not retain prerequisite topics; all previously added prerequisite topics will be removed.

New Tagging Feature
On subsequent visits to the TREC tool, topics not previously recommended to the instructor will be identified as new (Fig. 7.40).

7.4.10 Post Objective Progress Assessment

When students complete an objective assignment before the scheduled end date or reach the assigned mastery level (for objectives without end dates), they can either be assessed automatically on their mastery of this material or be moved to the next objective without an assessment.

Students who do not complete the objective material before the due date, or who do not meet the mastery level, will not have an assessment triggered by this option.

As with all assessments, once the student has started the assessment, they must complete it, even if the due date for the objective has passed.

- The assessment score will not affect the student’s score for the objective completion in the Gradebook.
- This assessment will reset the assessment clock so that the student will not have two assessments in quick succession.
- To avoid the over-assessment of students, ALEKS will prevent all automatic assessments for students with 10 or fewer items remaining in an objective, or in the 48 hours preceding the end date of the objective.
- If there is no end date for the objective, automatic assessments will be prevented for students with 10 or fewer items remaining to complete the current objective, regardless of the mastery levels set.

7.4.11 ALEKS 360

ALEKS 360 is a complete class solution that combines personalized learning in ALEKS with a fully integrated, interactive eBook. The eBooks featured in ALEKS 360 are much more than just PDF versions of the textbooks: they are high-quality, interactive versions of their physical counterparts, with robust virtual features such as highlighting and note-taking, as well as access to multimedia assets such as images, video tutorials, and Homework exercises.

To create a new class using ALEKS 360, select Yes, integrate textbook to use a textbook with ALEKS. Select your textbook from the drop-down menu. (Textbooks with eBooks include “ALEKS 360” in the title.) Not all ALEKS classes offer an eBook option.
After selecting an eBook, choose one of the following options:

**Mandatory**
Instructors will have the eBook visible in the interface at all times. Students must purchase an ALEKS 360 subscription to use this class.

**Optional**
Instructors will have the eBook visible in the interface at all times. If students purchase a regular ALEKS subscription (without eBook) they will not see the eBook. They will be able to upgrade their non-ALEKS 360 account to ALEKS 360 through the Hamburger menu. If students purchase the ALEKS 360 subscription, they will have access to the eBook.

**Disabled**
Instructors and students will not see the eBook. Students use a regular ALEKS access code or subscription.

### 7.4.12 Content Editor

The Content Editor is mainly for use in classes where objectives are not in use. If an instructor removes a substantial number of fundamental topics from the class, the Topic Recommendation Tool will calculate whether any prerequisite topics are missing, and allow the instructor to add them back for optimal learning (Sec. 7.4.9).

To access the Content Editor from the Class Summary, locate the Class Content section, and then click on Edit next to Content Customization. On the page that follows, click Continue to arrive at the Content Editor.

**In the Content Editor:**

- All topics that are checked are currently included in the class.
- Unchecked topics are excluded from the class.
- Topics may be checked to include them in the class, or unchecked to remove them.
- To see a sample problem for any topic, double-click on the topic name.

In classes that are configured with objectives, the Content Editor will only display topics contained and structured according to those objectives. The class content can be modified through the Objectives Editor (Sec. 7.4.7) and (Sec. 7.4.8).

Textbook integration tailors the contents of the ALEKS class to the content of the textbook, so that some topics normally included in a given ALEKS course product may be omitted. Even though ALEKS allows relative freedom to determine the content of your class, caution should be used regarding deep cuts to the content, as these may cause ALEKS to function incorrectly. Only minor adjustments should be made to the content once students have begun working, to avoid disruption of the students’ work.
7.4.13 Section Level Content

For certain textbooks, the ALEKS items displayed in the Content Editor are organized not only by chapter, but also by section, making it more convenient to customize content on the basis of the textbook structure. Where available, section-level organization is also visible when you are choosing topics to include in Homework, Quizzes, and Test assignments.

7.4.14 Supplementary Textbook Topics

When textbook integration is used, you can also choose to include supplementary class topics available in ALEKS for certain textbooks. These supplementary topics are not specifically covered in the textbook, but can logically be associated with particular chapters. These supplementary topics are excluded from the class by default and must be manually included. Not all ALEKS classes have supplementary topics.

7.4.15 Core Readiness Topics in the Content Editor

For some textbooks integrated with ALEKS, there is an initial chapter, preceding Chapter 1, that may be called a “Readiness Chapter.” (The exact name of the Readiness Chapter can vary from one book to another.) This chapter contains material that is not strictly part of the class coverage, but is important as foundational material.

If you would like the Readiness/Review chapter to be a distinct unit in the student’s work, it should be assigned a completion date, like other chapters. If no separate completion date is assigned to this chapter, its core material will still be included, but as part of the first chapter.

For classes not using textbook integration, these topics will be listed in the Content Editor under the section “Core Readiness Topics”; you may remove as many of these topics as you wish. The other (non-core) topics coming from the Readiness Chapter are also shown in the Content Editor under the section “Other Topics,” but these topics will not be included in the class.

**NOTE.** If custom objectives are used, ALEKS will automatically include core material if at least 50% of the topics from the first regular chapter (or from the second pie slice) are included in the class coverage.

7.4.16 Class Summary

A summary of the class is presented at the end of the customization process (Figs. 7.41 and 7.42). This **Class Summary** can also be found under **Class Administration**.

Many options to edit the class are provided on the **Class Summary** page, including the following:
Click on Edit for any area to go back and revise your choices, or use the available links.

7.4.17 Syllabus

On the Class Summary page there is a link to download the ALEKS Class Syllabus. Two formats are available, an HTML webpage or a PDF document. The ALEKS Class
Syllabus contains a detailed summary of the class configuration. This syllabus can be printed as a convenient reference or as documentation of the class setup.

### 7.4.18 Class Content

This section on the **Class Summary** page contains the class customization options previously chosen such as textbook integration, objectives, and the objective settings (Fig. 7.43). These selections can be revisited by clicking on the **Edit** links in this section. Clicking on the **Edit Prerequisites** link (if available) will allow you to change prerequisite choices in the TREC tool (Sec. 7.4.9).

### 7.4.19 Class Options

Many options to edit the class settings are provided in the **Class Options** section of the **Class Summary** page, including the following:

- Access Options (Sec. 7.4.20)
- Student Activity Notifications (Sec. 7.4.21)
• Learning Options (Sec. 7.4.22)
• Class Forum (Sec. 7.4.37)
• Student Assessment Options (Sec. 7.4.23)
• Worksheet Options (Sec. 7.4.24)

Click on Edit to revise any of these options.

7.4.20 Access Options

From the Class Summary page under Class Options, click on Edit to find the Access Options. In this section the following access options are available:

• Student Enrollment Status can be set to Open or Closed, to allow or prevent students from enrolling this class.
• Class Access can be set to Regular or Denied, to allow or prevent currently enrolled students from accessing this class.
• The Archive Status may be set to archived or unarchived (Sec. 7.4.40).

7.4.21 Student Activity Notifications

From the Class Summary page under Class Options, click on Edit to find Student Activity Notifications. In this section the instructor can request to be notified (and
the student be notified) when a student completes an objective. The instructor can also choose to be notified when students assess at certain percentages of the syllabus or when students reach a specific level of learning progress.

7.4.22 Learning Options

From the Class Summary page under Class Options, click on Edit to find Learning Options. In this section, instructors can choose to allow students to see a Learning Page first before being given a problem to solve, show learning resources on problem page, or show the Send Message to Instructor button inside the learning module. These options are on by default.

7.4.23 Student Assessment Options

From the Class Summary page under Class Options, click on Edit to find Student Assessment Options. If the school has IP addresses in place at the school level in ALEKS, the locations that assessments can be taken from may be restricted to these IP addresses. This setting may be differentiated for the Initial Assessment and all subsequent assessments.

Instructors can also delay progress assessment. This feature allows students to finish other assignments or goals before taking the assessment. The assessment delay feature will apply to subsequent or future assessments, not if the assessment is either current or in the past.

7.4.24 Worksheet Options

From the Class Summary page under Class Options, click on Edit to find Worksheet Options (Fig. 7.44). Worksheets consist of 16 questions; by default, these are drawn from the student’s recent learning history, but optionally four of the 16 may be chosen from material that the student may be working on soon (Ready to Learn Questions). Instructors can also manually select their own worksheet combination by using the drop-down menus to specify the number of Review Questions or Ready to Learn Questions, to include in the worksheet. By default, the instructor always receives messages in ALEKS with the answers to worksheets that students have generated independently. This option can be turned off.

Other options are:

- Remind the students to print a worksheet at the end of an ALEKS session.
- Allow students see the answers to their worksheets.
- Always generate a new worksheet; by default, this only occurs after the student has done some work in Learning Mode.
7.4.25 QuickTables Settings

From the Class Summary page there are links in this section that enable instructors to edit and create QuickTables and adjust class settings. For more information, see Sec. 6.1.3.

7.4.26 Implementation Information

From the Class Summary page there is a link to an Implementation Information page where instructors are encouraged to enter information about their setup and use of ALEKS. This information helps enable effective training and identify best practices.

7.4.27 Class Duplicate Settings

From the Class Summary page there is a link to the Class Duplicate Settings (Fig. 7.45). In this section instructors can adjust class settings that allow other instructors to duplicate this class. To duplicate a class belonging to another instructor, the instructor will need the class code (Sec. 7.4.1).

NOTE. ALEKS Administrators at the institution can always duplicate any class.

7.4.28 Gradebook

From the Class Summary page, instructors may access the Gradebook Setup page. For full details about the Gradebook, see Sec. 7.6.
7.4.29 Resources

From the **Class Summary** page there is a link to the **Resources** feature. This feature can also be accessed from **Class Administration** and the **Class Tools** icon.

Resources can be added in ALEKS at the class or individual topic level. With this feature, instructors can share files, links, and notes to aid student learning. Students can access these resources through the Resources page and/or Explain pages of ALEKS based on the accessibility options selected by the instructor. An example of a resource is an online video that relates to a particular topic in ALEKS.

Instructors can begin by adding resources or by creating folders to organize the resources. Resources and folders can be added at any time and in any order, and folders can be further organized by creating subfolders.

Below are the resource requirements (Fig. 7.46):

- Three types of resources can be added: files, links, or text-only notes (250 characters or fewer).
- Valid URLs must begin with **http://**, **https://** or **www**.
- There is no limitation on the number of resources that can be uploaded per topic.
The file upload size is limited to 4MB per file, and the total amount of resources that instructors can upload in any class is limited to 100MB. Many file extensions are accepted for upload.

### 7.4.30 Incoming and Exiting Student Options

These settings determine the rules for assessments, objective grades, and student data when they switch from one class to another within the same course family or course product. These settings can be customized at the Institution, Master Template, and class level.

**Incoming Students** from a class using the same Course Product:

- **Students Will Pick Up Where They Left Off**
  - Students’ pie progress will be carried over to this class. Optional Settings for these students are to trigger a progress assessment, or carry over objective grades. Students whose last initial assessment was more than a certain number of days may be given an initial assessment.

- **Fresh Start**
  - All students will be given an Initial Assessment.

**Exiting Students**, regardless of what course product they are going to:

- **Always keep a record of student data in my class, regardless if they exit my class (Recommended)**
  - These students will appear as “Former” students in class rosters.
Keep a record of student data if the student was enrolled for more than a certain number of days
These students will appear as “Former” students in class rosters.

Never keep a record of student data in my class
There will be no record kept of the student’s work in the first class, as though he or she had not been in that class.

NOTE. At the school level, there is a Lock option, to prevent individual instructors from changing these options at the class level. Please also note that the settings above do not apply to students switching classes within the same Master Template.
Note also that these settings do not all apply when the student is moving between courses linked to the same Master Template (Sec. 7.10).

7.4.31 Share Class Access

From the Class Summary page there is a link to the Share Class Access feature. This feature can also be accessed from the Class Administration.
Instructors can share access to their classes with TAs (Teaching Assistants) and other instructors by assigning access levels. Only TAs and Instructors who have been set up in ALEKS will be included in the list of instructors to share the class with.
The instructor of the class will have the following options for assigning an access level:

- No Access
- Full
- Gradebook
- Read Only
- Assign per Student

A shared class will be listed for shared instructors with a “S” next to the name in class lists.
NOTE. ALEKS Administrators always have full access to all classes within the school.

7.4.32 Student Groups

From the Class Summary page there is a link to the Student Groups feature. This feature can also be accessed from the Class Administration.
Instructors can divide their classes into Student Groups for filtering reports and Gradebook scores. Students can be added to more than one Student Group; in other words, Groups can overlap. The Student Groups Filter can also be accessed at the Class Level Dashboard.
7.4.33 Class List

Under **Class Administration**, select **Class List**. This feature can also be accessed from the **Instructor Administration**. A list of the instructor’s classes will be displayed (Fig. 7.47). ALEKS Administrators will see all ALEKS classes for each instructor at the college.

When one or more classes are selected by checking the box to the left of a class, the following actions will become available (when applicable):

- New Class (Sec. 7.4.1)
- Class Summary (Sec. 7.4.16)
- Dashboard (Sec. 7.1.4)
- Duplicate (Sec. 7.4.1)
- Archive (Sec. 7.4.40)
- Delete (only available if no students are enrolled in the class)

7.4.34 Cleanup Tool

From the **Class Administration**, select **Cleanup Tool**. This feature is used to clear statistics and records at the class level. The tool should be used with **extreme caution**. The action is irreversible and may cause great disruption to your class.

**Clear Statistics**
This will clear time logged by students in this class.

**Clear Statistics and Records**
This will clear time and data accumulated in this class. Students will be prompted to complete a new Initial Assessment.
7.4.35 Class Roster

From the Class Administration, select Class Roster. A list of the students enrolled in the class will be displayed (Fig. 7.48).

When one or more students are selected by checking the box to the left of a student, the following actions will become available (when applicable):

Dashboard
To display the student’s Dashboard (Sec. 7.1.4).

Account Summary
To display the student’s Account Summary.

Send Msg
To send a message to the selected student(s).

Move
To move the student to a new class.

Unenroll
To unenroll the student from the current class.

Hide
To hide the student from the class.

Disable
To disable the student from accessing the current class.

Students are tagged as Active, Former, or Hidden. For information about filtering students in the roster, see Sec. 7.2.9.
7.4.36 Financial Aid Code

A Financial Aid Access code can be requested to allow students enrolled in the class free temporary access to ALEKS. The code is valid for a period of 2 weeks. If the class is set for 6-week access codes only, the Financial Aid Access Code is valid for 2 days after activation. The Financial Aid Access code is designed to assist students experiencing financial aid delays. This feature is only available for classes set up to use access codes.

To request a Financial Aid Access Code for your class, from the Class Administration, click on Financial Aid Code. Next, click on the Request a Financial Aid Code button; you will receive a message in your ALEKS Message Center Inbox containing your class code, Financial Aid Access Code, and instructions for the students on how to register with ALEKS. It is recommended that you print out the email or forward it to the students who need it. The code can be used by any number of students in the class, but only for that class. This process should be completed for each class where the Financial Aid Code is needed.

NOTE. When students purchase their access code, the time used in ALEKS with the Financial Aid Access code will be subtracted from the time available on the purchased access code; in other words, using the Financial Aid Access code does not add two weeks to the total length of an account.

7.4.37 Forum

From the Class Administration or from the Class Tools icon, select Forum. The Forum can be used to facilitate meaningful discussions with students in the class. The Forum will have to be enabled the first time the instructor accesses it. To disable the Forum, deselect the option on the Class Options page (Sec. 7.4.19).

7.4.38 Calendar

The Calendar can be accessed either from the Class Administration or from the Class Tools icon (Fig. 7.49). Instructors can view and schedule assignments through the Calendar by clicking on the Create New Assignment button. Instructors can create a new assignment from the beginning or select Duplicate from Another Class to resuse the same content. The Calendar shows all assignments in the class, one month at a time, with their start and end dates. Hovering over either a start date or an end date will highlight the start and end dates for the assignment.

All assignments appearing in the Calendar may be included in the class grading scheme. Assignments do not have to be graded, however, to appear in the Calendar. All assignments, graded or not, will appear in the Calendar unless deliberately excluded.

It is also possible to add arbitrary notes to the Calendar by clicking the link, Add note to Calendar (upper right).
7.4.39 Student View

The Student View can be accessed either from Class Administration or from the Class Tools icon. The student view can be used to experience exactly what a student experiences in ALEKS. The Student View for an instructor behaves as it would for student: instructors complete the ALEKS tutorial and Initial Assessment, view their pie chart, enter Learning Mode, and can complete assignments if any have been created and assigned to the class. The Reset the Student View checkbox can be used to reset the Student View to the beginning of the Student Module (i.e. the ALEKS tutorial); this will delete any previous work logged by the instructor in the Student View.

7.4.40 Class Archive

Archiving can be used to simplify the list of classes displayed from the Class tab. Class archiving (and unarchiving) can be done in several ways. Individual classes can be archived from the Class Summary page (Sec. 7.4.16), whereas multiple classes can be archived from the Class List page (Sec. 7.4.33). Classes can be set to archive automatically after their end date has passed (Sec. 7.4.2).
7.4.41 Class Tools

After selecting a class, the Class Tools link will be available in the upper right area of the page (Fig. 7.50). Clicking on this link will display icons for quick access to the following for the current class:

- Forum (Sec. 7.4.37)
- Calendar (Sec. 7.4.38)
- Resources (Sec. 7.4.29)
- Student View (Sec. 7.4.39)

7.5 Assignments

The following kinds of assignments can be created in ALEKS: Pie Progress Goal, Time Goal, Topic Goal, Homework, Tests, Quizzes, and Scheduled Assessments (Fig. 7.51). All are optional: ALEKS can be used without any of these, but they may enhance the effectiveness of ALEKS in certain instructional contexts. Pie Progress Goal, Time Goal, and Topic Goal are similar in setup and will be addressed briefly below. Homework, Tests, and Quizzes are similar in how they are configured. The process of creating a Homework assignment will be described below in full detail; Scheduled Assessments
7.5. ASSIGNMENTS

will be treated more briefly, focusing on how they differ from Homework, Quizzes, and Tests.

All assignment types are separate categories in the ALEKS Gradebook (Sec. 7.4.28).

7.5.1 Class Assignments

Assignments that have been created for a class can be viewed by clicking on the Assignments option. The Assignments link will display a table showing all assignments in the class (Fig. 7.52). By default the list is sorted by end date, then the name of the assignment. The list can also be sorted based on other columns as well. The table includes the following information: Assignment Name, Type of assignment, Start Date, End Date, Goal Details, Status of the assignment, and a Report option to display the results of the assignment per student.

Possible Status values are:

- **Current**
  - The assignment is currently available.

- **Upcoming**
  - The assignment will be available at a future date.

- **Completed**
  - The assignment due date has passed.

- **Disabled**
  - The assignment has been set up as Disabled in Step 1 on the assignment setup screen.
Clicking on the box next to one of the assignments will display a list of Actions available for that assignment. Clicking on more than one assignment at a time will limit the actions available.

Available Actions are:

**Edit**
Instructors can modify an existing assignment in the class.

**Quick Edit**
Instructors can adjust the Assignment Name, Start Date and Time, End Date and Time, and Status.

**Print**
Instructors can print up to five different instances of this assignment (Homework, Test, or Quiz).

**View Report**
Instructors can view a report showing each student’s result on the assignment.

**Duplicate**
Instructors can make a duplicate copy of an existing assignment in the current class.

**More**
Selecting the More action will display additional options.

**Shift Start and End Dates**
Instructors can adjust the selected assignment Start and End Dates forward or backward by a selected number of days.

**Set Start and End Dates**
Instructors can set the selected assignment start date and time and end date and time.

**Delete**
Instructors can delete the selected assignment.

### 7.5.2 New Homework

Instructors can create a new Homework assignment by clicking on the Assignments tab then the New Homework link. (Fig. 7.51). Alternatively, instructors can create a new Homework assignment by using the Duplicate option from the Assignment List.

The following steps are needed to complete the assignment creation process (Figs. 7.53 and 7.54):

**STEP 1: Name & Date**
Basic information about the Homework assignment is entered including a name and the dates when it will be available (Sec. 7.5.3).
7.5. ASSIGNMENTS

7.5.3 Name & Date

**STEP 1.** This step allows the instructor to select a name for the assignment and the start date and time and end date and time for the Homework. The Homework will be available to the students during this period. By default, the start date and time is when you begin creating the Homework; the end date and time is 11:59 PM of the same day. This section additionally includes other accessibility parameters that can be selected.

**STEP 2: Content**

In this step content is added to the assignment (Sec. 7.5.4).

**STEP 3: Gradebook Settings**

Instructors can specify when students can see their grades, or if multiple attempts are permitted for the assignment (Sec. 7.5.5).

**STEP 4: Advanced Options**

In this step instructors can control student access to the assignment (Sec. 7.5.6).

**STEP 5: Grading Scale**

A grading scale can be set for the assignment and parameters are available to optionally allow this score to be visible to students (Sec. 7.5.7).

Figure 7.53: New Homework
Name
A sequential name for the Homework will be generated (e.g., Homework 1, Homework 2, etc.), or the instructor can choose a name.

Status
Normally, the Homework will be left Enabled; if you wish to keep it hidden for the time being, change the Status to Disabled using the drop-down menu.

Start Date and End Date
Enter the Start Date and Time and the End Date and Time defining the period when the assignment will be available to students.

Location
If IP addresses are used to restrict access to assignments to within the college, a Location drop-down menu will be available (Sec. 7.9.1).

Time Limit
By default, there is no time limit on a Homework, but one may be assigned.

Allow students to save this assignment for later and go back to Learning Mode
By checking this box, instructors can allow students to start an assignment and then save it to complete later. A Save for Later button will be available for students to click when taking the assignment. This will permit students to work in Learning Mode or on other assignments before finishing the assignment. This option is not available for timed assignments.

Publish this Homework to the student calendar
The assignment is normally published to the student calendar, but this can be disabled.

Allow student access to the eBook while doing this Homework
If the class is integrated with an ALEKS 360 textbook, you will have the option of allowing students access to the eBook while working on the Homework assignment.

Allow student access to Worked Example while working on this Homework
Instructors have the option to activate the Worked Example for any given homework.

7.5.4 Content

STEP 2. There are several ways to select the topics that the Homework assignment will cover.

Selecting Specific Topics
Using the directory on the left-hand side of the Selector window, select the topics you wish to include, and click on the Add button underneath the Selector. Shift and Ctrl can be used for easy selection of multiple topics. If Textbook Integration
is used (Sec. 7.4.4) the directory may be organized by the textbook. If Textbook Integration is not used then the topics will be organized using ALEKS’s own categories, or the instructor can select to organize the topics by Standard if this option is available. If TREC items were added to the class, there will be an extra folder available that contains prerequisite topics (Sec. 7.4.9).

Select the All Assignments tab to create a Homework that contains the same topics used in another Homework, Quiz, or Test.

Selecting Random Topics

Another way to add questions is to specify the number of questions and the chapter from which they are to be taken, then click Add above the Selector window. The questions will be chosen at random from the chapter or standard you specify. You can also do this for different sections, then Shuffle (randomize) them if desired. The total number of questions on the Homework cannot be less than 1 or greater than 60.

To remove topics from the Homework, select them on the right-hand side and click the Remove button. The order of topics can be changed by dragging them in the list, or by selecting them and using the up and down arrows. Or, you can randomize the order by clicking the Shuffle button.

Instructors can modify the points assigned to each topic, ranging from 1 point up to 99 points. This allows some topics to be weighted more heavily on the assignment than others.

To see a sample question for a topic, double-click on the name of the topic. This is not the question that your students will see; the actual questions appearing on the assignment will be generated algorithmically at the time the Homework is taken. Each student will see a different question, but it will be equivalent to the sample question in topic and difficulty.

7.5.5 Gradebook Settings

STEP 3. You can choose whether the students will see their scores and grades immediately (default), or only after the end date (Fig. 7.54). Next is a box that can be checked to have ALEKS automatically assign partial credit for multi-part problems on the Homework. You can also specify whether the assignment may be taken once or multiple times. If you click the option “This Homework can be taken multiple times,” a window will open in which you can select a number of attempts, as well as options for which score should appear in the Gradebook (the best score, the final score, or the average of all attempts). Also, in this window you can choose one of the following retake options:

Full Retake

Students must retake all problems (default).
Quick Retake

Students retake only the problems that were answered incorrectly.

7.5.6 Advanced Options

**STEP 4.** The **Prevent automatic assessments** option allows you to postpone automatic assessments for up to 7 days prior to the beginning of the assignment (defaults to 2 days). Postponed automatic assessments will occur as soon as the assignment is completed or its end date passes. **Objective completion assessments will only be delayed up until the start date of the assignment. Extensions are not taken into account** (Sec. 7.5.8).

The instructor can choose whether to assign the Homework to the entire class or only to some students in the class (including a single student, or no students). If you click the option for “specific student(s),” you will see a list of the names of students in the class with checkboxes.

**NOTE.** When an assignment is scheduled for some students, rather than the entire class, the assignment will be considered extra credit in the ALEKS gradebook. This ensures that the assignment will not hurt any student’s grade.

Next, you will be given the choice of how your students will access the Homework assignment. There are two options:

**Students choose when to start Homework assignment after it is available**

Students have the flexibility to choose when to start the Homework assignment so that they can continue to work in other parts of ALEKS without being forced into the assignment.
Included in this option is the ability to password-protect the Homework assignment, providing more control of when and where the Homework assignment can be taken.

**Students must begin the Homework assignment as soon as it is available**

Students are “forced” into the Homework assignment as soon as they log in, once it becomes available. With this option, students will not be able to work in any other areas of ALEKS until they have completed the Homework assignment. See Sec. 7.5.10 for examples of how ALEKS will behave when this option is used.

## 7.5.7 Grading Scale

![Grading Scale Image](image)

**Figure 7.55: New Homework (cont.)**

**STEP 5.** By default, no grading scale is used, and the students see only a percentage score. If the grading scale is used, its default is a conventional scale (A, B, C, etc.) using standard percentage breakpoints (Fig. 7.55). The sliders on the scale can be moved and renamed, and you can add or remove sliders to set practically any scale desired. The labels on the sliders, which are used as grade notations, are limited to a few letters or numbers; to set the label, click on the existing label, type in the new label, then press Return.

Use the **Display Options** under the grading scale to set whether the scale will be used. Even if the scale is not used, the graph will be populated as a histogram once the students begin taking the Homework, giving a useful illustration of the students’ performance on that assignment.

**NOTE.** You can choose to apply the settings on this screen to all future assignments created in this category, in the class by checking the box underneath the display options. This will not include the name, content, and start and end dates.
To complete the process, click **Save** at the bottom of the New Homework page. After you click the **Save** button, the Homework assignment can be edited if changes are required (Sec. 7.5.8). If you do not wish to save the Homework Assignment, click the **Cancel** button.

### 7.5.8 Edit Homework

To edit a Homework assignment, click on the Assignment List link. Next, check the box next to the Homework name that you want to edit. Click the **Edit** action to edit the assignment. Homework can be modified up to the moment when the first student begins to take it; extensions can be created at any time.

**STEP 1** through **STEP 5** can be edited on this screen. Also, at the bottom of the Edit Homework screen is a **Delete this homework** button. Clicking this button will delete the Homework assignment.

**Create Extension.** When students are enrolled in a class, the **Create Extension** feature is available on the Edit Homework page. Extensions can be created for one or more students. To create the extension, click on the **Create Extension** button, select the date and time through which the extension will be in effect, choose the student(s) who will be given the extension, and click the **Create Extension** button.

### 7.5.9 Scheduled Assessments

Scheduled Assessments have many of the same options as Homework, Quizzes, and Tests (Fig. 7.56). The fundamental difference is that you do not specify the content of an assessment; the assessment is produced by ALEKS automatically, as with all other assessments (Sec. 4.1).

Here are some noteworthy features of Scheduled Assessments:

- When creating a Scheduled Assessment, the instructor has a choice between a “Progress”-style assessment and a “Comprehensive”-style assessment. Progress Assessments are slightly shorter and focus on the student’s most recent learning history; Comprehensive Assessments are slightly longer and probe more deeply into the student’s overall knowledge of the class content.

- Scheduled Assessments will not allow access to worked examples, integrated eBooks, or multiple attempts.

- It is helpful to block automatic assessments for a number of days prior to the Scheduled Assessment, using the Prevent automatic assessment option. A Scheduled Assessment will “reset the clock” for automatic assessments, so that the “blocked” assessments do not kick in when the assessment is completed.

**Assessments and Grading.** The score for all ALEKS assessments, including those scheduled as assignments, is always a percentage representing the student’s knowledge.
of the entire class contents. Assessments do not measure the students’ knowledge exclusively of a particular chapter, unit, or other portion of the class contents. Many instructors prefer not to use Scheduled Assessment results as part of the grading scheme. If Scheduled Assessments are used for grading the grading scale should be set carefully, to reflect your expectation of what the students will have learned at the time the assessment is taken. For more information on setting a goal percentage for a Scheduled Assessment, see Sec. 7.6.2.

7.5.10 Scheduled Assignment Behaviors

The following are several examples of how the ALEKS system will behave when a student must begin a scheduled assignment as soon as it becomes available in ALEKS.

- If a student is working on any kind of assessment (except Initial Assessment), and a Scheduled Test or Scheduled Quiz becomes available, the system will interrupt the assessment, and the student will be prompted to take the Scheduled Test or Quiz immediately. After the student completes the Scheduled Test or Quiz, the assessment will continue where the student left off.
• If a student is working on any kind of assessment, and a Scheduled Assessment becomes available, the system will stop and **discard the current assessment**. The student will see a message that says the assessment was canceled. The student will be prompted to take the Scheduled Assessment immediately.

• If a student is working on a Homework, Quiz, or Test, and another Homework, Quiz, Test, or Scheduled Assessment becomes available, the system will not interrupt the student’s work. The system will wait until the student has completed the current assignment before prompting the student to take the scheduled assignment.

### 7.5.11 Pie Mastery, Time, and Topic Categories

The following categories require specific components to be added via the Gradebook Setup Page, to be included in the Gradebook.

**Pie Mastery**

The Pie Mastery category is used to grade students based on their mastery of a percentage of the ALEKS Pie by a specified due date and time (Fig. 7.57).

**Time**

The Time category is used to grade students based on the amount of minutes/hours spent in ALEKS for a specified date range (Fig. 7.58).

**Topic**

The Topic category is used to grade students based on the number of topics mastered in the ALEKS Pie for a specified date range (Fig. 7.59).
7.6. GRADEBOOK

Figure 7.58: Time Grade Settings

Figure 7.59: Topic Grade Settings
7.6 Gradebook

The Gradebook records student grades for assignments in the categories selected in the Gradebook Setup.

The following types of assignment categories can be used by the Gradebook:

- Pie Progress
- Time
- Topics
- Objectives (Chapter Completion)
- Scheduled Assessments
- Quizzes
- Tests
- Homework
- External Assignments

When configuring the Gradebook for a class, the instructor can choose any selection of these assignments. Also, it is possible to use these kinds of assignments and not include them in the Gradebook configuration; for example, the instructor may choose to set up a series of Homework assignments for the class to prepare students for Quizzes or Tests, but not make the Homework assignments part of the grade.

The External Assignment category assignments require specific components (goals or assignments) to be added via the Gradebook Setup page, in order to be included in the gradebook (Secs. 7.5.11 and 7.6.5).
7.6. **GRADEBOOK**

NOTE. The full benefit of the ALEKS Gradebook will be obtained if the configuration is thought out carefully before the beginning of the class, and then left unchanged while the class is in progress. In particular, if the students have begun to complete assignments, and grades for the assignments appear in the Gradebook, changes to the configuration may be confusing to students when they check their Gradebook data.

7.6.1 Gradebook Interface

To see the Gradebook for a class select **Gradebook** from the sub-navigation menu and then select **Class Gradebook** (Fig. 7.60). Several options are available for this display. By default, all gradebook assignment types are displayed, but the **Show** menu allows the gradebook data to be filtered by assignment type. Each assignment is color-coded by category. If student groups have been set up, gradebook data can be filtered by group.

**Send Message to Selected Students**

Instructors can send a message to students while viewing the Gradebook without having to navigate to the ALEKS Message Center. The default is to sort students by name, but by sorting on a grade column instructors can send messages to groups of students who have high or low values for that column.

**Display Options**

Grading information may be displayed in terms of points (based on the points allotted for each category in the Gradebook configuration) or by percentage of the total points possible. A date range can also be set for the display. After making any changes to the display, click the **Update Display** button.

**Full Screen View**

Click on the link to view the Gradebook in an expanded screen.

**Download to Excel**

As with other reporting displays in ALEKS, the contents of the Gradebook can be downloaded into an Excel spreadsheet for use outside of ALEKS. It is recommended that you download the Gradebook into Excel on a regular basis in order to have a backup file on hand. This can be useful in the event of a discrepancy or if edits need to be made to student scores.

**Student Information**

Students are listed in the left-hand column; there are also options to show their ALEKS Login Names or student ID numbers instead of names.

**Total Grade**

The Total Grade column will be displayed when **All** is chosen from the **Show** drop-down menu. This column computes the student’s current grade based on assignments completed or for which the due date has passed. This grade predicts the student’s grade for the class based on any work completed to date. For example,
if the class is half completed and a student has 70% in this column, it means that
if the student’s work continues at the same level for the remainder of the class, the
final grade will be around 70%. If a particular category (e.g. Quizzes) is chosen
rather than All, a total grade (Quiz Grade) will be displayed, based only on that
category of assignments. If a date range is specified other than the entire period
of the class, the display will use only the assignments whose dates fall within that
range.

**Student Grades**

In the Gradebook, student grades for specific assignments are ordered chronologi-
cally by due date. As the students complete the assignments, values are inserted
into the corresponding cells as follows:

- **Empty cells**
  The student has not completed the assignment.

- **Zero**
  The due date has passed.

- **Grey**
  the student has completed the assignment but the due date has not passed
  (the value will not be used in computing the current Total Grade).

For some types of assignments (e.g., Homework with multiple attempts), students have
the option of redoing or retaking the assignment, so that values in grey may change
before the due date.

Clicking on the [Edit] link in any column, for a specific assignment, will open a box
containing options to view and edit student results.

### 7.6.2 Gradebook Setup

After selecting a class, select Gradebook followed by Gradebook Setup to access the
setup page. Gradebook Setup can also be found by selecting Class Administration
followed by Class Summary.

For each of the grading assignment categories, a category weight percentage can be
assigned (Fig. 7.61). To include that category in the Gradebook, you must set this
percentage greater than 0. The total percentage weight of all categories combined must
equal 100%, or an error message will display when attempting to save the Gradebook
Setup page.

**Assignment Weights**

The assignments within each Gradebook category can also have different weights.
The weight of each individual assignment can be assigned by clicking on the Edit
link found below the category name. When you are entering the weight for each
assignment, there is a toggle link to Show or Hide the details of the weight of
each assignment. These details include the percent value of each assignment within
the category and the percent value as a component of the total grade (Fig. 7.62).
7.6. GRADEBOOK

Figure 7.61: Gradebook Setup

Figure 7.62: Assignment Weights
Dropping Low Scores

On the assignment weighting page there is a drop-down menu that allows the instructor to specify how many (if any) of the lowest scores will be dropped from the gradebook (Fig. 7.62). Only regular (non-extra credit and non-zero weight) assignments can be dropped. Suppose that 10 ALEKS Quizzes have been set up for the term and the 2 lowest quiz scores have been set to be dropped. ALEKS will not drop any scores until the 9th Quiz has been completed by the students. At that time, the lowest of the 9 scores is determined, and it is dropped when ALEKS computes the overall score for the Quiz category in the Gradebook. When the 10th Quiz has been completed by the students, the 2 lowest of the 10 scores are determined, and they are dropped when ALEKS computes the overall score for the Quiz category in the Gradebook. **ALEKS recommends that you wait until the end of the class to drop the lowest score(s).**

Extra Credit

Also on the assignment weighting page, there is a check box that can be used to designate the assignment as extra credit (Fig. 7.62). Students who do not complete the extra credit assignment will not be penalized. (Students who do complete the assignment can only improve, never hurt, their grades.) Extra credit assignments are differentiated from regular assignments in the gradebook by a + next to the score.

**NOTE.** In ALEKS, assignments not assigned to the entire class are automatically flagged as Extra Credit. This ensures that the assignment to only some students will not hurt the grades of other students.

Assessments

In the Gradebook, assessments refer only to Scheduled Assessments; results from other assessments cannot be used in the Gradebook (Sec. 4.3). Each Scheduled Assessment in the class can be assigned a goal percentage. The **Goal** is the percentage of the class that grades on the assessment are based on. For example, midway through the class, the goal for an assessment might be set at 50%. Then, a student who assessed as knowing 40% of the entire class would get a score of 80% on the assessment. (Meeting or exceeding the goal percentage gives a score of 100% for the assessment.)

Disable Gradebook

The Gradebook can be disabled by clicking **Disable the Gradebook for this Class** on the **Gradebook Setup** page. Disabling the Gradebook for the class will hide the class Gradebook from you and the students in the class. The Gradebook can be reactivated at any time by clicking on the link **Enable the Gradebook for this class** link.

Total Grade Display Settings

By default, the option **Show total grades to students** will be selected in this section of the Gradebook setup. If desired, you can elect to hide the total grades from students by selecting **Hide total grades from students.**
7.6.3 Grading Scale for Total Grade

This feature allows the instructor to assign a grading scale for the total class grade (Fig. 7.63). By default, no grading scale is used, and the students see only a percentage score. The default grading scale is a conventional scale (A, B, C, etc.), using standard percentage breakpoints. The sliders on the scale can be moved and renamed, and you can add or remove sliders to set practically any scale desired. The labels on the sliders, which are used as grade notations, are limited to a few letters or numbers; to set the label, click on the existing label, type in the new label, then press your Enter key.

Use the options above the grading scale to set whether the scale will be used or not, and who will see it. Even if the scale is not used, the graph will be populated as a histogram, giving a useful illustration of the distribution of students’ overall scores.

7.6.4 Chapter or Objective Completion and the Gradebook

Scores for the Objective category will be calculated in one of the following two ways, based on the class setup:

Chapter or Objective completion with End Dates

Each chapter or objective has a due date by which students are expected to complete the material in that unit. If a student completes the chapter or unit before the due date, a grade of 100% is entered into the student’s cell for that assignment. The score will appear in grey, and it will not be used to compute the Total Grade until the due date has passed. It is not, however, subject to change; even if the student loses material in a subsequent assessment, the 100% score will remain. If the student does not complete the unit by the due date, the percentage of goal topics that the student did complete will appear in the cell as the student’s score. If multiple objectives have the same end date, they will be treated as a
single objective, and there will only be one column for these objectives in the gradebook.

Chapter or Objective completion without End Dates

All chapters or objectives have a single end date by which students are expected to master all objectives. This feature includes a mastery level completion percentage for the objectives. The mastery level completion defaults to 90% but can be adjusted. Students must master this percentage of the topics in an objective before they can advance to the next objective. The student’s score is entered into the student’s cell for that assignment and will appear in grey until after the end date has passed. When students meet the mastery level they will be moved to the next objective and will be able to access the remaining unmastered topics from all previous objectives. The **Total Grade** column will not include the chapter or objective assignment score until after the end date for the class has passed (Sec. 7.4.6).

Students using ALEKS have access to Gradebook information for their own work, similar to the information described in this chapter.

### 7.6.5 External Assignments

![PreCalculus - Gradebook - Edit External Assignment](image)

**Figure 7.64: External Assignment Setup**

The External Assignment feature is ideal for including student scores on assignments or
exams completed outside of ALEKS. These assignments must be added to the Gradebook in the Gradebook Setup page.

External Assignments can be created in Gradebook Setup as follows (Fig. 7.64):

1. Click on Add External Assignment in the External Assignment Category.
2. Enter the name of the assignment.
3. Adjust the assignment date if necessary.
4. Assign a maximum score.
5. Click on the Set Maximum Score button.
6. Enter student scores either by typing or paste from a spreadsheet and click Save.

Instead of recording all non-ALEKS assignments in the catch-all External Assignments category with a single weighting, you can create an unlimited number of External Assignment categories, each with its own weight. New External Assignment categories can be created in Gradebook Setup as follows:

1. Click on the Add New Row link in the Gradebook External Assignment Category.
2. Enter a name for the category.
3. Assign an overall weight to the category and click Save.

If you wish to delete an external assignment category, either delete any assignments in the category, or set the category weight to zero.

7.6.6 Adjust Student Scores

Instructors can adjust student scores for ALEKS assignments and external assignments directly through the Gradebook, as follows:

1. Click on Class Gradebook.
2. Click on Edit for the assignment you want to adjust.
3. Click on Edit Student Scores.
4. Edit the scores as necessary.
5. Click the Save button.

7.6.7 Gradebook Log

From the class Gradebook sub-navigation, select Gradebook Log to access this feature (Fig. 7.60). The Gradebook Log is a record of any adjustments made to student scores in the ALEKS Gradebook. Adjustments may be made to Gradebook scores
by you, the primary instructor, teaching assistants, or other instructors who have edit privileges for the class Gradebook. This feature can also be used to monitor adjustments made to the Gradebook by anyone with Share Class Access (Sec. 7.4.31).

7.7 QuickTables

This menu allows instructors to manage their QuickTables settings, and QuickTables-related features including creating tables, assessments, worksheets, quizzes, and viewing reports. For full details about QuickTables, see Chap. 6.

7.8 Student Administration

Student Administration allows the instructor to manage individual student accounts and progress. Selecting a student account will display the student-related menus and actions in the sub-navigation.

7.8.1 Account Summary

![Figure 7.65: Student Account Summary](image)

Student Account Summary allows instructors to make corrections or changes to a student’s name, email address, ID, and account status (Fig. 7.65). For each student, instructors can add a parent/guardian contact information. In addition, instructors can view Student Groups and Share Class Access information (Sec. 7.4.31). To edit a student’s account preferences, click Edit next to the corresponding category.
7.8.2 Move and Unenroll Student

Selecting a student account and clicking on Student Administration displays Move/Unenroll (Fig. 7.66). This feature allows you to move or unenroll the selected student from the class.

**Move Student**

To move a student from the current class to another class:

1. Select **Move Student To:**.
2. Use the drop-down menu to select a new class.
3. Click on **Confirm** to save your action.

**Unenroll Student**

To unenroll a student from the current class:

1. Select **Unenroll**.
2. click on **Confirm** to save your action.

To move or unenroll multiple students at once, see Sec. 7.4.35.

**NOTE.** See Sec. 7.4.30 for more information on what happens to students’ records when they are moved to a new class.

7.8.3 Student Cleanup Tool

Selecting a student account and clicking on Student Administration displays Cleanup Tool. This feature allows you to clear statistics for an individual student. For the class level Cleanup Tool, see Sec. 7.4.34.
7.8.4 Student Gradebook

Selecting a student account and clicking on Gradebook displays the following information:

- Student Gradebook information
- Class Gradebook (Sec. 7.4.28)

7.8.5 Student Reports

Selecting a student account and clicking on Reports displays the following information:

- ALEKS Pie (Sec. 7.3.8)
- Progress (Sec. 7.3.16)
- Time & Topic (Sec. 7.3.19)
- Knowledge Per Slice (Sec. 7.3.20)
- Assignments (Sec. 7.3.21)
- Objective (Sec. 7.3.9)
- Time Line
- Standards (Sec. 7.3.24)
- QuickTables (Sec. 6.3)

All reports listed here are links to other parts of the Instructor Module.

7.8.6 Student Assignments

Selecting a student account and clicking on Assignments displays the following options (Fig. 7.67):

- Edit Extensions (Sec. 7.8.7)
- Worksheet (Sec. 7.8.8)
- Class Assignments (Sec. 7.5.1)
- Request Assessment (Sec. 7.8.9)
- Cancel Assessment (Sec. 7.8.10)

Please see each section referenced for more details.

7.8.7 Edit Extensions

Selecting a student account and clicking on Assignments displays Edit Extensions. Instructors can give individual students extensions for class objectives and Assignments, which includes Scheduled Assessments, Homeworks, Tests, and Quizzes.
7.8. **STUDENT ADMINISTRATION**

### 7.8.8 Student Worksheets

Selecting a student account and clicking on **Assignments** displays **Worksheet**. You can create a new worksheet or view previously created worksheets for the student. For a description of the Worksheets feature, see Sec. 7.4.24.

### 7.8.9 Request Assessment

Selecting a student account and clicking on **Assignments** displays **Request Assessment** (Fig. 7.68). This feature allows you to request a "Progress"-style assessment or a "Comprehensive"-style assessment for a single student, effective immediately. Via the...
drop-down Action menu, you can choose between Request new assessment (taken in Institution only) or Request new assessment (taken anywhere). If your college has IP addresses in place at the school level, you can restrict the assessment to be taken on campus by selecting the option marked "Institution Only." The comment box allows the instructor to type a message that the student will see when they log in to take the assessment.

7.8.10 Cancel Current Assessment

Figure 7.69: Cancel Current Assessment

Selecting a student account and clicking on Assignments displays Cancel Current Assessment (Fig. 7.69). This feature allows you to cancel any current or pending assessment for the student, until midnight of that day. An automatic reassessment that is cancelled in this way will become active again on the following day.

7.8.11 Student QuickTables

Selecting a student account and clicking on QuickTables displays the following options:

- Worksheets (Sec. 7.8.12)
- Progress Report (Sec. 6.3.1)
- Quiz Report (Sec. 6.3.2)

Please see each section referenced for more details.
7.9. Administrator Features

7.9.12 Student QuickTables Worksheet

Selecting a student, clicking on QuickTables, and then Worksheet displays the following options:

- Select a table from the list (if tables have been created) to create a QuickTables Worksheet for that student.
- View a previously created Worksheet for that student.

7.9 Administrator Features

![Three levels of hierarchy](image)

Figure 7.70: Three levels of hierarchy

ALEKS administrators have access to three account levels: instructor, class, and student (Fig. 7.70). This section will focus on the Instructor level. The class and student levels are described earlier in detail (Sec. 7.1.2). Administrators begin with the INSTRUCTOR tab on the far left and then can make selections in the succeeding tabs until the desired level is reached. To move between levels, they need to click on the tab they want to make active again. Features from this menu allow administrators to perform actions such as updating their institution’s settings, creating new instructor accounts, and managing all classes and instructors at the institution, creating Master Templates, managing subscriptions, and other features.

7.9.1 Institution Account Summary

Selecting Institution Administration and clicking Account Summary displays the following options:

**Account Information**

Administrators can modify the state and time zone settings for the institution under the Account Information section. Usually, these are set correctly when the institution account is first created and do not need to be changed. The institution and billing address can also be modified in this section.

**Important Contacts**

Administrators can add important contacts such as the school’s Billing Contact, Technical Contact, Implementation Specialist, and Course Product/Feature Upgrade Contact under this section.
Settings

The Institution Network Information section allows you to enter an IP range or Internet Protocol for the computers in your institution. They will be used if you wish to restrict student access to assessments, Homeworks, Quizzes or Tests to the campus network (Sec. 7.5.3). Single IP School Assignment will require students to complete all assessments from the same IP address where they began them. This reduces the flexibility of access that students usually have to their ALEKS accounts, but in some cases it may be desired.

Incoming & Exiting

The Incoming and Exiting Student Options allow you to select whether incoming students from a class within the same course family or same course product should pick up where they left off or start fresh with a new Initial Assessment. See Sec. 7.4.30 for more information about this option.

Administrators and Instructors

Administrators can view a list of administrators and instructors under this section. All accounts are regular instructor account types unless they include one of these labels: (A) for Administrator or (TA) for Teaching Assistant. There is a link to the Admin/Instructor Roster under this section.

7.9.2 Schedule Domain Upgrade

ALEKS Corporation periodically releases new versions of its class products. When this occurs, there is an announcement to users explaining the nature of the upgrade, window of time during which users may upgrade, and the default date on which the upgrade will occur if no action is taken. If the college wishes to schedule the upgrade earlier than the default date, the administrator can use this tool to select the desired date.

NOTE. If an update is available, the changes in the upgrade will be described in detail on this page. Schedule Domain Upgrade can be found under Institution Administration on the main page.

7.9.3 Learning Management System (LMS) Integration

You can set up Single Sign On (SSO) by integrating ALEKS with your school Learning Management System (LMS). This will allow instructors and students to link from your LMS to ALEKS without having to remember separate login names and passwords. It will also remove the need to share Class Codes by letting the LMS feed class information directly to ALEKS. LMS integration is available for all regular ALEKS Higher Ed classes.

ALEKS is a Learning Tools Interoperability (LTI) 1.1 compliant Tool Provider. Your school can integrate ALEKS with any LTI compliant LMS. It is a two-part process, which involves (1) logging into ALEKS to obtain the LTI parameters (2) logging into the school’s LMS to input the parameters.
Part 1: Obtain Parameters

After logging into ALEKS, under the **Institution Administration**, select **Integration**. You will arrive at the Learning Management System (LMS) page (Fig. 7.71). To obtain the parameters for the college, use the drop-down menu to select the LMS that the college is using or the mode of integration. If your LMS is not listed, you can integrate ALEKS with any LTI compliant LMS by selecting “Basic LTI/LTI 1.1” from the list as your mode of integration. If you wish to integrate your LMS with ALEKS using McGraw-Hill (MH) Campus, a service that allows instructors using a LMS to have access to McGraw-Hill educational materials within their LMS, select MH Campus from the list.

After making a selection in the drop-down menu, the parameters for the selected LMS or mode of integration will appear on the screen. Enabling LMS Gradebook Integration will allow instructors to synchronize the overall score for each student in their ALEKS gradebook with their LMS gradebook. Review the parameters carefully and then click on the **Save** button. This will complete the first part of the integration.

Part 2: Configure a School’s LMS with ALEKS

Administrators now log into their college’s LMS to configure the integration with ALEKS using the parameters obtained from the ALEKS “LMS Integration” page. Some of the LMS selections will show one or more “?” icons on the page. Clicking on a “?” will open a pop-up with additional instructions.

Once the setup between the LMS and ALEKS is complete, instructors and students can pair their LMS accounts and classes with their ALEKS classes. For detailed instructions on institution, instructor, class, and student pairing, visit the ALEKS Training Center.
7.9.4 Instructor Roster

Administrators can view a roster for all instructors at the school by selecting Instructor Roster from Institution Administration. The Instructor Roster displays detailed instructor information (Fig. 7.72). The roster can be used to manage other instructor’s account settings, including permission levels, viewing dashboards, sending messages, and archiving or deleting accounts. Multiple instructor accounts can be updated at the same time through the Instructor Roster, and individual instructor accounts can be edited through each instructor’s Account Settings from their Account Summary. There are features in the Instructor Module that can be used to manage ALEKS subscriptions, register students, and manage student accounts. Some features consume purchased ALEKS subscriptions; therefore, administrators can limit instructors’ access to these features by enabling or disabling permissions per Instructor. Edit Multiple Permissions can be done from the Instructor Roster under Institution Administration. To edit a specific instructors’s permissions, select the instructors’s account summary.

NOTE. Archiving can be used to simplify the Instructor Roster so that only current instructors appear in the roster. Archived accounts can be accessed and un-archived at any time; archiving does not impact the instructors’ ability to access their accounts.

7.9.5 Create New Instructor Account

Frequently, instructor accounts are created by ALEKS Corporation for the college. Administrators, however, are able to create them independently by selecting Institution Administration and clicking New Instructor. Note that new instructors may be set up with administrator privileges.
7.9. **ADMINISTRATOR FEATURES**

### 7.9.6  Subscription Management System

This page does not show the use of access codes at the college. Many institutions use only access codes; in such cases, no information will appear on this page.

For some purposes, it may be preferable to use “subscriptions” (or virtual account inventory) rather than access codes for creating student accounts in ALEKS. If the college has used subscriptions for any of its students’ access to ALEKS, a summary of subscription activity will appear on this page.

Administrators can monitor the number of available subscriptions for student registration. When subscriptions are purchased at the district level, the Administrator can move subscriptions between institutions, put subscriptions on hold, or move subscriptions from one institution to another for their districts and schools through the Subscription Management System (SMS). District administrators will see subscriptions for the district and for schools within the district.

Using the SMS system, school administrators can put subscriptions on hold at their school. School administrators will see only the subscriptions for their school. To access the SMS, the school administrator clicks **Subscriptions**, and then clicks on **Subscription Management**.

There are three tabs in the SMS:

- **Subscription Management**
  
  The subscription information will be displayed for the district or school. This includes the subscriptions type or length and whether the subscriptions are “Usable Now” or “On hold.”

- **Orders**
  
  The Orders tab displays a detailed history of the ALEKS subscriptions purchased at the school or district. The information includes the purchase date, invoice number, subscription type, quota purchased, number used, and number remaining. At the bottom of the screen is a link that administrators can use to send an Excel document to their ALEKS Message Center inbox containing a list of subscriptions used within a specified date range. There is also an option to exclude expired subscriptions from the report.

- **Activity Log**
  
  The Activity Log tab displays the history of subscription movements and holds performed via the Subscription Management tab. Each entry contains detailed information about the action.

### 7.9.7  Administrative Reports

There are a variety of reports available to administrators. These reports help monitor the institution’s progress in terms of student and class performance across applicable standards. To access the reports, click on **Reports** and then select a report.
**Custom Reports**

Is a powerful tool that can help administrators gather important metrics to show how institutions, instructors, and classes are performing in comparison with each other. To access the report, make a selection in each tab until the level of the desired report is reached, click **Reports**, and then click **Custom Reports**. See Sec. 7.3.26 for more details about this feature.

**Enrollment/Activity**

Shows the total number of students ever enrolled in ALEKS at the institution, and the numbers of students active in the system during the last week, the last month, and the last three months (optionally 12 months). For each of these intervals, it also shows the average number of hours spent weekly by the students who were active in ALEKS.

**Class Activity**

Shows the number of students who worked in ALEKS or QuickTables each month and the average hours worked each week.

**Common Core Report**

Details student performance against applicable standards, for all students at the college who have taken an Initial Assessment between specified dates. Additional selection criteria are Mastery Criterion, the percentage used by ALEKS to determine that a standard has been mastered, and the “Hours cut off,” the amount of time used to compare two groups of students. For example, if the “Hours cut off” is set to 30 hours, the performance of students who have used ALEKS for less than 30 hours will be compared with that of students who have used ALEKS for at least 30 hours.

**Server Stats: Page Hits**

Presents a graph of page hits over time by users of ALEKS at the college. The “Data Range” menu can be used to set the time period that is graphed. Beneath the graph a range of summary statistics may appear, depending on the time span chosen.

**Server Stats: User Hour**

Is similar to the “Server Stats: Page Hits” report, but graphs the number of user-hours over time.

### 7.9.8 Student Roster (Institution Level)

Administrators can view a roster for all students at the school by selecting **Student Roster** from the **Institution Administration**. This default roster setting shows all active classes that students are currently enrolled in (Fig. 7.73). If students have more than one ALEKS class, their classes are grouped under the Class column. Select the “Plus” icon to see more rows.

Administrators can use the following filters to display various groups of students in the roster:
7.10. MASTER TEMPLATES

The Master Templates are one of the most powerful features in ALEKS. They provide an efficient way to create and control class instances based on a master class (Fig. 7.74). Instructors who have administrator privileges can create a Master Template, add assignments, and create any number of linked classes based on the Master Template. Instructors teaching the linked classes can edit their individual class settings and assignments and add their own assignments (unless “Lockout” is used; see Sec. 7.10.5). Changes made subsequently to the Master Template will propagate to the linked classes, overriding previous settings as well as any changes made by individual instructors.
7.10.1 Master Templates List

The Master Templates List displays all Master Templates at the institution. When one or more Master Templates are selected, the following actions may become available:

- New Master Template (Sec. 7.10.2)
- Master Template (Class Summary) (Sec. 7.10.4)
- Duplicate (Sec. 7.10.10)
- Archive (Sec. 7.10.11)
- Delete (Sec. 7.10.12)
- Reports (Sec. 7.10.13)

7.10.2 Getting Started

Selecting **New Master Template** displays the following options (Fig. 7.75):

**Create a New Master Template**

This option allows you to customize your own class settings and assignments. Select this option to go through the Master Template creation wizard (Sec. 7.10.3).
Create a Master Template from an Existing Class

This timesaving option allows you to copy all class settings and assignments from an existing class into the new Master Template (Sec. 7.10.9).

Duplicate a Master Template

This timesaving option allows you to copy all class settings and assignments from an existing Master Template into a new one (Sec. 7.10.10).

After the Master Template is created, administrators can view it under the the Master Templates List.

7.10.3 Master Template Basic Settings

Clicking on Create a New Master Template displays the following basic settings:

Master Template Basic Information

- Select the ALEKS Course Product for the template. The ALEKS Course Product should not be changed after the class has begun, as doing so will be disruptive to the students’ learning and to the class reports and records.
- The Master Template is required to have a name; this name can be the name appearing in your institution’s class catalogue or anything else you wish. The Master Template name will be a part of the linked classes’ names.
- Class Dates are used to configure the Class Calendar, and should include the entire period of time that the students will be using ALEKS. All linked classes created with this Master Template will have the same Start and End dates. The option to automatically archive the Master Template is also available in this step.

QuickTables

QuickTables may be added to the template during this step or at a later time. For complete details about QuickTables, see Chapter 6.

Class Specific Settings

These are specific settings that apply to this class template, such as providing ALEKS graphing calculator functionality.

Accessibility mode for visually impaired students can be set in the Show Accessibility Options area. The link will appear for any class where accommodations for visually impaired students is available.

To edit the Master Template Basic Information and Course Specific Settings sections at a later time, select Master Template List, select the desire Master Template, and then select Class Summary, followed by Edit next to the Master Template Information section.

Administrators will click Create Master Template Now to generate the template.

On the page that follows, Administrators have the following choices:
• Continue to Master Template Summary (Sec. 7.10.4) to view setup details; or select
• Customize This Master Template to set objectives, edit content, or integrate a textbook. For complete details, see Secs. 7.4.4 and 7.4.5.

7.10.4 Master Template (Class Summary)

The Master Template Summary displays all settings and options for the template. Administrators can view and edit any section by selecting Edit.

The available options are:

• Master Template Information (Sec. 7.10.3)
• Syllabus (Sec. 7.4.17)
• Class Content (Sec. 7.4.18)
• Class Options (Sec. 7.4.19)
• QuickTables Settings (Sec. 7.4.25 and Chap. 6)
• Implementation Information (Sec. 7.4.26)
• Resources (Sec. 7.4.29)
• Lockout Options (Sec. 7.10.5)
• Gradebook (Sec. 7.4.28)
• Assignments (Sec. 7.10.6)
• Linked Classes (Secs. 7.10.7 and 7.10.8)
• Incoming and Exiting (Sec. 7.4.30)

7.10.5 Lockout Options

This feature allows administrators to prevent instructors from editing the class content or assignments in classes linked to the Master Template.

Class Content

If this option is selected, instructors of linked classes cannot edit the class content for their linked classes. Additionally, if administrators use textbook integration or objectives with the Master Template, instructors of linked classes can edit the due dates for each objective, but not edit the content within an objective.

Assignments

If this option is selected, instructors of linked classes cannot edit or delete their assignments linked to the Master Template. They can adjust the dates for these assignments and also create additional assignments for the linked classes.

Incoming and Exiting Student Options

If this option is selected, instructors of linked classes cannot edit Incoming and Exiting Student Options.
7.10.6 Create Assignments in Master Template

To create assignments in a Master Template:

1. In the Master Templates List, click on the name of the template to view the Master Template Summary. Alternatively, you can check the box next to the template and then click Class Summary.

2. Locate the Assignments section, and click Edit.

At the Create Assignments Introduction page, you will see two options for creating an assignment (Fig. 7.76):

Create a new assignment
   This option takes you through the ALEKS assignment creation process (Sec. 7.5.2).

Duplicate an existing assignment
   This option allows you to duplicate an existing assignment (Sec. 7.5.1).

Select the assignment type that you wish to create or duplicate: Homework, Quiz, Test, or ALEKS Assessment.

After creating assignments, you will see an Assignment list with the assignments created in the Master Template. You will also have options to modify or add additional assignments on this page. For more complete details about the Assignments List, see Sec. 7.5.1.

NOTE. If administrators want to create External assignments in the Master Template, they can do this from the Gradebook Setup page. Only the assignment name and date can be set at the Master Template level; the students’ grades and maximum point values are set at the linked class level.
7.10.7 Create Linked Classes

After you have defined the Master Template settings, content, and created assignments, you can create linked classes and assign instructors to these classes (Fig. 7.77). A linked class contains the same content and settings as the Master Template. Both the administrator and the instructor assigned to the class will receive a message in their ALEKS Message Center containing important information about the linked classes.

To add linked classes:

1. In the Master Templates List, click on the name of the template to view the Master Template Summary. Alternatively, you can check the box next to the template and then click Class Summary.
2. Locate the Linked Classes section and click Edit.

On the Create Linked Classes page, enter the name of the Class CRN/Section and assign an instructor to the individual linked class. (The name of the linked class will consist of the name of the template plus the name of the CRN/Section.) There are three options for the “Instructor” field:

**Existing ALEKS Instructor**
Select this option and then use the drop-down menu to select the name of the Instructor teaching the linked class.

**Instructor to be announced (TBA)**
Select this option if the name of the instructor is unknown. The linked class can be assigned to an instructor at a later time (Sec. 7.10.8).
Create a new Instructor

Select this option if the instructor does not have an existing ALEKS account. Enter the title, first and last names, and e-mail address of the instructor teaching the linked class. ALEKS will send an email message containing login information to the instructor. If an email address is not provided, the administrator will need to edit the instructor account, change the password, and send it to the instructor at a later time (Sec. 7.2.1).

A maximum of 15 linked classes can be created at a time. To add more linked classes, repeat the steps.

Once saved, you will receive a confirmation and arrive at the Linked Class List page with the linked classes that have been created. You can create another linked class by selecting New Linked Class, edit the linked classes by clicking on the CRN/Section name of each class, or complete the Master Template set-up process by clicking I am done creating linked classes.

NOTE. There is no limit on the number of linked classes you can associate with a Master Template. The interface allows you to link up to 15 at a time: to add more than 15 linked classes, just return to the Master Template Summary page, locate the Linked Classes section, and select Edit. On the Linked Class List page, select New Linked Class.

7.10.8 Classes to be Assigned

![Classes to be Assigned](image)

Figure 7.78: Classes to be Assigned

The Classes to be Assigned page contains linked classes that were set to “Instructor to be announced (TBA)” (Fig. 7.78).

To assign a linked class to an instructor:

1. From the Master Templates sub-navigation, select Classes to be Assigned.
2. Check the box next to the name of the linked class that needs an instructor.
3. Click Move.
4. Select the instructor who is going to teach the class.
5. Click Apply.
6. Click Confirm.

Once a linked class has been assigned, the instructor assigned to the class will receive a message about the new class information in their ALEKS Message Center. The Master Template name will be part of the linked Class Name; instructors can view this information or edit the information by clicking on Class Summary.

### 7.10.9 Create a Master Template from an Existing Class

![Create a Master Template from an Existing Class](image)

Figure 7.79: Create a Master Template from an Existing Class

After selecting Create a Master Template from an Existing Class, use the drop-down menu to select an instructor and a class. Then, click on Continue (Fig. 7.79).

On the page that follows, fill in the new Master Template information, including Name and Start Date/End Date. At this time, you also have the option to select the settings you wish to copy into the new Master Template. Click Save to create the template.

If there are assignments in the previous template, you will arrive at the Edit Due Dates page to adjust the start and end dates to correspond to your new Master Template or select Continue to Master Template Summary.

### 7.10.10 Duplicate a Master Template

![Duplicate a Master Template](image)

Figure 7.80: Duplicate a Master Template
After selecting **Duplicate a Master Template**, use the drop-down menu to select a Master Template, and click **Continue** (Fig. 7.80).

On the page that follows, fill in the new Master Template information, including Name and Start Date/End Date. At this time, you also have the option to select the settings you wish to copy into the new Master Template. Click **Save** to create the template.

If there are assignments in the previous template, you will arrive at the **Edit Due Dates** page to adjust the start and end dates to correspond to your new Master Template or select **Continue to Master Template Summary**.

Duplicating a Master Template does not copy the linked sections (nor would you generally want to). Administrators will need to link sections from the **Master Template Summary** page.

### 7.10.11 Archive Master Templates

The **Archive** feature allows administrator to simplify the list of Master Templates without removing templates from the system.

To archive a Master Template:

1. From the **Master Templates** sub-navigation, select **Master Templates List**.
2. Check the box(es) next to the Master Template(s) you wish to archive.
3. Select **Archive**.
4. Click **Confirm** to save the action.

This will hide the archived Master Template(s) from the list.

Please note that archiving the Master Template does not archive its linked classes. Individual instructors will need to archive their own linked classes from the **Class Summary** page (Sec. 7.4.16) or the **Class List** page (Sec. 7.4.33).

### 7.10.12 Delete Master Template

Administrators can delete a Master Template if no linked classes are set up.

To delete a Master Template:

1. From the **Master Templates** sub-navigation, select **Master Templates List**.
2. Check the box next to a Master Template you wish to remove.
3. Select **Delete**.
4. Click **Confirm** to proceed with the deletion.

This will remove the selected template from the list.
7.10.13 Master Template Reports

Administrators can run reports quickly and easily at the Master Template level using the Master Template Reports feature. This feature allows administrators to generate a single report for all classes linked to a Master Template.

For each Master Template in use, Administrators can select from a variety of reports. ALEKS will generate the report and email it to the administrator as an Excel attachment. The report will include the students’ names, instructors’ names, class sections, and the relevant report data.

To access the Master Template reports:

1. From the Master Templates sub-navigation, select Master Templates List.
2. Locate the Master Template you wish to run reports for.
3. Under the Reports column, select the paper-like icon for the pre-built Master Templates Reports options. (Or, select the tool-like icon to create a Custom Report; Sec. 7.3.26.)
4. You will see a list of available reports. Click on the link of the report you would like to generate.
5. Select the Send Me the report button.

At the end of the process, you will see a confirmation message letting you know that the request is being processed.

NOTE. Blank Excel attachments will be generated if linked classes to a Master Template do not contain students.

7.10.14 Effects of Editing a Master Template

The effects of editing a Master Template are as follows:

- Edits to the Master Template will apply automatically to all linked classes under the Master Template.
- A change made to the Master Template will override changes made in individual linked classes. If something was changed in the course settings on the Master Template, then that specific change is made to all linked classes. Changes are modular. Changing one part in a module will save all settings of that particular module. For example, if something is changed in the template basic settings, all settings from that part of the wizard are saved and will override the linked courses. If a due date is changed in a homework assignment, clicking on the Save button will resave all settings for that assignment.
- Instructors of linked classes will receive a message in their ALEKS Message Center (Inbox) when an administrator has made a change to the Master Template.
7.11 District Features

In addition to all the features that are available to school administrators, district administrators have access to the features described below. District administrators have access to four levels of account: institution, instructor, class, and student (Fig. 7.81).

7.11.1 Account Summary

Selecting **Institution Administration** and then **Account Summary** displays a page containing account settings and important contact information for the district (Fig. 7.82).

7.11.2 Learning Management System (LMS) Integration (District Level)

LMS Integration is also available at the multi-campus level. Integration at this level should only be done when the same LMS instance is shared across ALL campuses. If each institution has its own instance of the LMS, the integration should be done at school level. For more information about LMS Integration, see Sec. 7.9.3.
7.11.3 Administrator Roster

District administrators can view a roster for all administrators in the district by selecting Administrator Roster from Institution Administration. The administrator roster displays administrator information (Fig. 7.83). This roster can be used to manage administrator accounts, including viewing their dashboards, sending messages, and moving and unenrolling students. Many functions are streamlined on this page for updating and managing accounts efficiently.

7.11.4 New Administrator

New district administrator accounts can be created through this feature (Fig. 7.84).

7.11.5 Class Activity

Administrators can view the number of students who worked in ALEKS at each school each month and the average hours worked each week.

7.11.6 Student Roster (District Level)

Like the student roster at the institution level, district administrators can manage many student accounts within the district, including viewing their dashboards, sending messages, and moving and unenrolling students. Many functions are streamlined on
this page for updating and managing accounts efficiently. For full details on the student roster, see Sec. 7.9.8.

7.11.7 Subscription Management System (District Level)

District administrators can also view and manage subscriptions for the district and for schools within the district. For more information about Subscription Management System, see Sec. 7.9.6.

7.11.8 Administrative Reports (District Level)

District administrators can also generate administrative reports for the district and for schools within the district. For more information about administrative reports, see Sec. 7.9.7.
Chapter 8

Teaching with ALEKS

8.1 The ALEKS Educational Paradigm

ALEKS is based on the understanding that students learn mathematics in different ways, at differing speeds. Starting from an accurate assessment of their current knowledge, students in ALEKS are only offered what they have shown themselves ready to learn. (The term “knowledge check” is synonymous with assessment.) They therefore experience less frustration from material that is too difficult and boredom from material that is too easy. Students are engaged in the learning process, and grow in confidence and independence as they use the program. ALEKS periodically reassesses students to test their retention of new knowledge, and if they forget what was once learned, ALEKS smoothly and efficiently guides them through necessary review and reinforcement. With time and persistence, every ALEKS student will progress toward mastery, in a way clearly visible to both student and instructor.

It is normal for students to be in disparate knowledge states; ALEKS puts this information clearly at the instructor’s disposal. The relative mastery attained by students appears clearly from the “Learning Progress Since Latest Assessment” report in the Instructor Module. ALEKS does not require students to progress as a unified group. ALEKS will permit a student to work on any topic in the category “ready to learn,” a list of topics that the student has not yet learned, but has demonstrated (within ALEKS) the readiness to begin learning.

Students using ALEKS will experience new independence and excitement in learning. Instructors also may find different opportunities for optimizing their role in the learning process, with a greatly expanded ability to accurately monitor and effectively promote their students’ learning. The role of the instructor is critical in providing structure, support, and reward for the students’ effective use of ALEKS. If ALEKS is used properly, the instructor’s scope for individual coaching and small-group instruction will be greatly expanded, as will the freedom to teach mathematics in a broader and richer way.

ALEKS gives the instructor a set of powerful resources. Various styles of use of ALEKS
are possible. The following should be understood as suggestions, designed to give instructors a sense of the possibilities offered by ALEKS’s extensive library of tools.

8.2 The Instructor and ALEKS

ALEKS is often used in regular classroom settings.

The instructor in an ALEKS class need not be collecting, correcting, or distributing papers, organizing groups, managing materials, giving instructions, or supervising activities. The instructor in an ALEKS class may be just as busy teaching mathematics to individual learners: getting one student started on a new topic, checking another student’s work, responding to questions, suggesting alternate methods and explanations, making or reinforcing connections among concepts, and congratulating those who add an item to their pie. ALEKS provides comprehensive support to the student in every phase of its use; the instructor will find that the additional direct support given this way is especially productive. The relation of teacher and student is based on knowledge and discovery, not management and sanction. No one is “behind” in ALEKS; setbacks are readily addressed and overcome; every student can expect to make progress and be recognized.

It is important, especially in the early stages of an ALEKS class, to be generous in recognizing student progress. Students need to understand that when they add an item to their pie, or show progress in a new assessment (knowledge check), it is an achievement. At the same time, formal rewards for the effective use of ALEKS need to be built into the class structure and made clear from the outset (Sec. 8.3).

Students will be assessed at the beginning of their use of ALEKS (following Registration and the Tutorial), and at regular intervals after that. The instructor does not need to supervise all ALEKS assessments; normally, students will be using ALEKS both in and out of the classroom, and taking assessments at various times and locations. Once the students realize that the purpose of the ALEKS assessment is to provide appropriate material in the Learning Mode, there will be little reason to get help, use the textbook or calculator inappropriately, or in any other way achieve inaccurate assessment results.

We recommend supervising the Initial Assessment (Knowledge Check). The students may need assistance in their first use of the system, they will need to be reassured that the assessment is not for a grade, and it is important to get valid results on this Initial Assessment, so that the students’ work in the Learning Mode will be productive from the start. For the instructor’s own information, other supervised assessments may also be held at regular intervals to provide accurate “snapshots” of overall progress by the class (Sec. 8.11). We suggest that such supervised assessments be scheduled at the midpoint and end of the class. Also, any assessment results which may be used as a component in the students’ grades should, of course, be obtained from supervised assessments.

NOTE. In cases where students do not seem to be making adequate progress in ALEKS,
the student may have received help, or inappropriately used a calculator on an unsupervised assessment, skewing the assessment results and leading to inappropriate material in the Learning Mode. This can be corrected by requesting a new assessment for the student.

8.3 Planning the ALEKS Class

In ALEKS, the instructor has complete freedom in planning lectures, lessons, and assignments, while ALEKS ensures that students can progress toward mastery regardless of their level of preparation. To the extent that students will be working independently in ALEKS, the content of lab classes is provided by their work in ALEKS. Instructors can, however, plan focused small-group instruction from week to week (Sec. 8.5).

It is important to make ALEKS an integral part of the class requirements and grading scheme. The main factor influencing the success of students using ALEKS is the time that they spend in it. This means that the students must be required to spend a suitable amount of time in ALEKS on a weekly basis. (A minimum of three hours is recommended.) They should be informed of this at the beginning of the class, and the instructor should monitor their fulfillment of this obligation. The amount of time required must be reasonable and in balance with other requirements for the course; the instructor should not simply include an ALEKS requirement without reducing the other requirements that the students have to fulfill. For example, the quantity of homework problems may be reduced, as the students will be solving problems in their ALEKS sessions.

These are only suggestions, and experienced instructors may well find approaches that will be more effective with their own students. There must, however, be clear, formal support for the use of ALEKS.

One approach is to provide a certain number of points toward the final grade for each week that the student fulfills their required hours. It is advisable to reward each week, so that the student does not fall into the expectation that all of the required hours can be done at the end; consistency should be rewarded, along with total hours. If a student falls short of the specified hours during a particular week, that week is not rewarded, but the “deficit” is not carried forward; the next week begins with a clean slate (the primary concern is regular use of the system; for this reason a surplus is also not carried forward). Proportional rewards can also be used; each hour spent has a point value, up to the required minimum.

In order to effectively monitor the students’ use, the instructor should check the hours on the “Learning Progress Since Latest Assessment” page or the “Time and Topic” report. This page can be printed out every week for record-keeping. In rare cases, students may try to fool ALEKS by logging on to their accounts and doing something else; this can be seen when the number of items gained per hour is far too low. ALEKS will log the student off if there is no activity after a certain amount of time. Instructors can obtain
a precise record of a student’s actual work in ALEKS by viewing the student’s “Time and Topic” report.

The students’ achievement in ALEKS (as opposed to their use of the system) may also be used as a component in their final grade. For information on how to do this, see the Instructor Manual.

8.4 Preparing Your Students

The following considerations may be useful in preparing your students to begin to use ALEKS.

**Difficulty of Assessment Questions**

The ALEKS Initial Assessment (Knowledge Check) is always comprehensive, in order to achieve the highest accuracy and reliability. In the course of the assessment, some questions may be too easy or too difficult for some students. The students should be told to click the *I don’t know* button only if a question is completely unfamiliar to them; otherwise they should do their best to answer. As the assessment proceeds, the questions will focus more and more closely on the outer limits of the student’s actual knowledge. In Learning Mode (following the assessment), students will be provided only material that they are prepared to learn.

**Length of Assessments**

The number of questions asked in an ALEKS assessment varies. Normally, an assessment in Basic Math requires between 20 and 30 questions.

**No Help in Assessments**

Explain to the students that they will need paper and pencil for answering assessment questions, but that no help or collaboration whatsoever is permitted during assessment. If the teacher or anyone else helps the student during assessment, even just explaining or rephrasing a question, assessment results may be inaccurate and the student’s learning in ALEKS may initially be hindered. Be sure students understand that the purpose of the Initial Assessment is to gain a precise, detailed understanding of what they know, so that in Learning Mode they are given material they are ready to learn. It is not a “test” to pass or fail, and they will not receive a grade on an ALEKS assessment (unless the instructor chooses to use assessments for grading).

8.5 Focused Instruction with ALEKS

The features of the Instructor Module make it possible to prepare students for specific topics that they are going to work on, and to reinforce and expand on knowledge that students have recently acquired. This involves either guiding lectures or focused instruction to small groups of students based on data obtained from ALEKS.
The two kinds of teaching opportunities cued by ALEKS come from two types of information maintained by the system for students over the entire time that they use it: the set of items a student is “ready to learn” (or “outer fringe” of the student’s knowledge state), and the set of items most recently learned (“what students can do,” the “highest” topics in the student’s knowledge state, called the “inner fringe”). (See the Instructor’s Manual under “Inner and Outer Fringes of a Knowledge State,” in the chapter “Knowledge Spaces and the Theory Behind ALEKS”. The items “ready to learn” are the topics a student may normally choose to work on in ALEKS; the items recently learned (“what a student can do”) are considered the least secure and most likely to need reinforcement. (These items can be reviewed by clicking the Review button.) When the students are logged on to ALEKS, these two types of information are used automatically to guide and manage their learning. The instructor, however, can also view the inner and outer fringes in a convenient format to plan focused instruction that will parallel, supplement, and enhance the individual work that their students are doing in ALEKS.

To find this information for a class, the instructor can enter the Instructor Module and select the class, then click on Reports and select the ALEKS Pie report. This report represents the average student in the given class, and displays the weaknesses and strengths of the class as a whole. The Show drop-down box can be used to filter the report by “Current Learning,” “Most Recent Knowledge Check,” or “Initial Knowledge Check.” Complete details on which topics students have mastered, not mastered, and are ready to learn in the class are available in the section below the pie chart and can be viewed by Objectives (if textbook integration or intermediate objectives are being used) or ALEKS Table of Contents.

Using the ALEKS Pie Report we can see a breakdown of student mastery for each topic, send messages directly to students, and view additional topics that a group of students is ready to learn. The purpose of this analysis is that the instructor may pick one or more topics from the list and schedule small-group sessions of focused instruction.

The following are examples that illustrate how these features may be used.

**Example 1: Basic**

On a Friday evening, the instructor sits down to plan lessons for the following week. He or she logs onto ALEKS, selects the name of a class in Basic Math, and clicks on “ALEKS Pie” under “Reports” to access the ALEKS Pie Report. A pie chart appears showing the average profile of mastery in the class. The “slice” of the pie chart for Whole Numbers is full to about 90 percent; the slices for Fractions, Decimals, and Proportions and Percents are filled much less, ranging between 20 and 40 percent. This indicates that lessons for the week may focus profitably on the most advanced Whole Numbers topics as well as on topics of moderate difficulty in Fractions, Decimals, and Proportions and Percents.

**Example 2: Intermediate**

On a weekend afternoon, the instructor logs on to ALEKS, selects the name of a class in Basic Math, and clicks on “ALEKS Pie” under “Reports” to access the
ALEKS Pie Report. Next the instructor clicks on the “View all topics” toggle, in either the ALEKS tab or the Objectives tab, and when the list of topics appears, the instructor scans this list for items of particular difficulty. “Ordering Numbers with Exponents” has 16 students currently able to choose this topic from their pie charts. The instructor notes this topic down for class discussion early in the week. With the benefit of some timely preparation, the students can be expected to master this troublesome topic with less difficulty.

**Example 3: Advanced**

On a Monday morning, the instructor logs on to his or her ALEKS account, selects the name of a class in Beginning Algebra, and clicks on “ALEKS Pie” under “Reports” to access the ALEKS Pie Report. Next, the instructor clicks on the “View all topics” toggle, in either the ALEKS tab or the Objectives tab, and the list of topics appears, clearly showing what students have mastered, not mastered and are ready to learn. The experience and expertise of the instructor are used to plan with this information. Suppose that there is only time in the week’s schedule for two small group sessions. (The ALEKS class has only one hour in the lab, and ten minutes are set aside to speak with each small group; the remaining forty minutes are for helping students in the lab.) The instructor will look over the topics with two questions in mind: which topics have the greatest numbers of students, and which are most worth discussing.

For example, looking at the list of topics “Ready to learn,” the instructor sees “Solving a Linear Equation with Absolute Value: Problem Type 1.” The instructor knows from experience that students have difficulty with the concept, and that they are more successful with it if they have had a chance to review. This topic has twelve students out of thirty in the class. The instructor uses the message feature to send a note to these students, asking them to meet in the front of the room at the beginning of the lab; the students will receive this note the next time they log on to ALEKS, no later than the beginning of that lab.

Looking over the list of topics “Mastered,” the instructor sees “Marking a point in the coordinate plane,” with ten students. Although the number of students is less than for other topics, this one seems to the instructor richer in its content of mathematical culture than the others; students who have just worked on this topic are may be using the coordinate plane for the first time. Thus this is chosen as the second topic, and a second message is sent to these students, to meet at the front of the room, ten minutes into the lab.

8.6 Models of Classroom Integration

There are numerous ways in which ALEKS can be and is used in concrete educational situations.

**Supervised Math Lab**
8.6. MODELS OF CLASSROOM INTEGRATION

Expert supervision can be provided for the students’ use of ALEKS in regularly scheduled mathematics lab periods, whether or not these are part of a conventional class structure. Students benefit from the direct coaching and assistance of qualified instructors in the course of their work with ALEKS.

Math Lab in Structured Course

The supervised mathematics lab may be part of a structure of class meetings, combined with conventional and lecture-style classes. The instructor in such a setting need not gear the sequence of topics covered in classes in any way to what the students are doing in ALEKS; the students’ independent work in ALEKS will increasingly benefit their performance on quizzes and tests, as well as their understanding of lectures. ALEKS is not designed to “teach to the test,” although experience has shown that students’ performance on comprehensive tests improves dramatically when they have worked with ALEKS over time.

Small-Group Instruction

The recommended use of ALEKS in a classroom setting makes use of the detailed analysis of individual student knowledge provided through the Class Report page to tailor the lectures to the skills of students.

Self-Paced Learning

In this scenario students may use the college computer lab on their own, with only informal supervision. ALEKS is used in this case much as it is for distance learning, except that students have the opportunity for closer consultation with the instructor.

Distance Learning

ALEKS is used by students who may never enter the physical classroom, or may enter only on a few occasions for orientation and supervised assessments. ALEKS provides a range of features for communication between instructor and student, as well as powerful facilities for the monitoring and evaluation of student work.

Regardless of which approach is used, you can derive more benefit from ALEKS through monitoring the students’ use of ALEKS and communicating with them, whether in direct contact, by email, or by messages through the ALEKS system. As discussed above, we recommend that a certain number of hours in ALEKS each week be required (Sec. 8.3); this should be made clear from the start as part of the published course syllabus and rewarded appropriately through the grading scheme. Students’ progress in ALEKS should be recognized and reinforced early on; conversely, students who do not seem to make adequate progress should be contacted promptly.

The following sections of this chapter provide more information on these issues affecting the classroom use and integration of ALEKS.
8.7 Monitoring Student Use

In the day-to-day use of ALEKS by a class, a principal concern of the instructor is to monitor that students are using ALEKS regularly and for at least the required amount of time. The most convenient place to find this information is the “Time and Topic report for all students” (under “Reports”). Each student’s name is displayed on this page along with the total number of hours that student has spent logged on to the system. There is also a breakdown of how much time the student has spent in ALEKS on a daily basis. Students can see this same breakdown of daily usage in their own accounts by using the “Report” link.

It is also important that critical assessments be supervised by the instructor, to ensure that valid results are received (Sec. 8.2).

8.8 Monitoring the Progress of a Class

The instructor can also use the bar graphs on the “Learning progress since latest assessment” page to see how close each student is to mastery of the subject matter. Keep in mind that the bar graphs displayed on this page show only the students’ achievement as of their last assessment (in blue) and any progress made in the Learning Mode since that assessment (in green). For a more panoramic view of the progress made by a group, select the “Total progress” report. This displays the difference between the students’ knowledge on their first and their most recent assessments.

The “Detailed progress history” report is an expanded version of “Learning progress since latest assessment.” It shows the learning history for all students, with one bar graph for each assessment taken. The bar graphs are stacked, with the earliest on the bottom, and the most recent at the top. To the left of each bar there is the date of the assessment and a notation indicating the reason for the assessment.

To see each of the assessments for a given student, with that student’s progress subsequent to each assessment in the Learning Mode, the instructor should view the page “Progress report for a particular student in this class” for the student.

8.9 Monitoring Individual Progress

On the page “Progress report for a particular student in this class” there is a line for each assessment taken by a particular student, with bar graphs showing mastery as of that assessment and subsequent progress made in the Learning Mode. The Initial Assessment is shown in the bottom line, with later assessments “stacked” upward. By following progression from earlier to later assessments, the instructor can see very clearly how a student is progressing toward mastery of the subject matter.

Use caution in interpreting this information. Students vary widely in how they master
material. Progress made in the Learning Mode (green bar) is not always immediately reflected in the student’s level of mastery on a subsequent assessment. Some students progress more quickly in Assessment Mode than in the Learning Mode. In such cases the “new” blue line is further ahead than the green line just below it. On the other hand, many students make faster progress in the Learning Mode than in assessment. In such cases the “new” blue line lags behind the green line below it. It is very common for a student to master the entire subject matter two or more times in the Learning Mode before that mastery is finally confirmed in an assessment. Part of the power of the ALEKS system is that it accommodates individual differences in behavior.

NOTE. In cases where a student moves backward in his or her mastery, the instructor should contact the student. If the student did not take the assessment seriously enough, a new one can be requested.

8.10 Moving a Student to a New Class

A student subscription to ALEKS entitles the student to work through as many subjects in the sequence as the student masters during the subscription period (with some exceptions). When a student completes the objectives of a class, the student should be moved to a more advanced class.

8.11 Ordering Assessments

Following the Initial Assessment or Knowledge Check (which should be taken under the instructor’s supervision), the ALEKS system will automatically schedule other assessments as needed to guide the students’ progress. The instructor, however, can order an individual or group assessment at any time. It is a good practice for the instructor to schedule supervised assessments at regular intervals (midterm and end of the class), as “snapshots” of overall class achievement.

8.12 Independent Study and Distance Learning

The ALEKS system is well suited to use in an independent study or distance learning context. ALEKS is self-contained and adaptable to any syllabus or class materials. Students using ALEKS under these circumstances know exactly what the class goals are, where they stand in relation to those goals, and what they need to do to achieve them.

For the instructor administering an independent study or distance learning program, ALEKS solves nearly every problem of management, oversight, evaluation, and communication. All of the information needed to keep track of far-flung independent learners is at the instructor’s fingertips, through the features of the Instructor Module. The
internal message system of ALEKS puts the instructor in constant touch with students, without dependence on telephone or email communication.

8.13 The ALEKS Knowledge Structure

Each ALEKS subject, such as Beginning Algebra, has a knowledge structure associated with it. The number of items comprised in a knowledge structure ranges roughly between 200 and 1000 topics. A knowledge state is a subset of items which may correspond to the knowledge of an actual student (i.e., there may be a student who has mastered exactly those items, and no others). A knowledge structure is the family of all the knowledge states that we may encounter for a given subject.

An ALEKS structure affects virtually every aspect of ALEKS’s functioning. In the ALEKS Assessment Mode it enables ALEKS to make inferences from student answers, keeping the ALEKS assessments brief but accurate.

The structure is also crucial in the ALEKS Learning Mode. Using the structure of a given course product, the system knows precisely which items are in the inner fringe and outer fringe of each of the knowledge states in ALEKS. The items in the outer fringe of a student’s knowledge state are those items that the student is the most ready to learn next. (From a technical standpoint, an item is in the outer fringe of a state if adding that item to the state results in another feasible knowledge state.) These items are presented to the student in MyPie when the student moves the mouse pointer over the ALEKS Pie Chart. Similarly, an item in the inner fringe of a student’s state is an item either recently learned or one whose mastery by the student might be shaky. (Technically, an item is in the inner fringe of a state if removing that item from the state results in another feasible knowledge state.) They are presented to the student when the student is having difficulty in the ALEKS Learning Mode and during ALEKS Review.

An additional benefit of the proliferation of connections among items in ALEKS is its extreme flexibility from the students’ viewpoint: for any particular topic, there is a vast number of possible approaches, or learning paths, which may lead students to mastery of that topic. This flexibility does not imply, however, that any order is possible. Each learning path leading to a particular topic must contain, at a minimum, the items which are “below” such topic in the ALEKS structure.

8.14 Objectives

ALEKS also provides a facility for creating multiple sets of syllabi within a single class (See the Instructor’s Manual under Set Objectives / Modules, in the chapter Instructor Module). The Objectives feature makes it possible to prioritize particular sets of items for particular periods of time, by constraining the choices available to the
students. When Objectives have been set, students will be guided to these items by the shortest possible path.
Chapter 9

Knowledge Spaces and the Theory Behind ALEKS

9.1 History

Knowledge Space Theory has been under development since 1983 by Professor JeanClaude Falmagne, who is the Chairman and founder of ALEKS Corporation, and other scientists (especially, Jean-Paul Doignon from Belgium) in the United States and Europe.

ALEKS is the first computer system to embody Knowledge Space Theory for assessment and teaching.

9.2 Theory

A complete exposition of Knowledge Space Theory is not intended here. The Bibliography contains a number of references for those interested in further details (Sec. 9.3). Knowledge Space Theory is expressed in a mathematical discipline often referred to as “Combinatorics.” What follows here is a brief, intuitive summary introducing certain fundamental terms employed in discussions of ALEKS.

9.2.1 Domain, Items, and Instances

An academic discipline such as Basic Math or Algebra is represented as a particular set of problems or questions that comprehensively embody the knowledge of the discipline. That set is called the domain, and the problems are called items. A symbolic representation of the domain of Basic Math uses dots standing for items (Fig. 9.1). One of the items, which might be entitled “Word problem with percentages,” is indicated by a line. The problem in the rectangle is an instance of that item.
Each item, or problem type, has at least dozens, more often hundreds or thousands of instances. Full mastery of the subject implies the ability to solve problems corresponding to all the items making up the domain.

Determining the set of items that make up the domain is the first step in constructing a “knowledge structure” for that domain. This is done by research in instructional materials and standards and systematic consultation with professionals. Substantial agreement is achieved among expert pedagogues on the choice and definition of items. The set of items finally arrived at and forming the domain must be comprehensive, that is, it must cover all the concepts that are included in the particular academic discipline.

9.2.2 Knowledge States

The knowledge state of a student is represented by the set of items in the domain that he or she is capable of solving under ideal conditions (Fig. 9.2). This means that the student is not working under time pressure, is not upset or impaired in any way, etc. In reality, careless errors may arise. Also, the correct response to a question may occasionally be guessed by a subject lacking any real understanding of the question asked. (This will occur very rarely when using the ALEKS system, because multiple-choice answers are not used.) An individual’s knowledge state is not directly observable and has to be inferred from responses to questions.
A possible knowledge state. 
In Basic Math, we use a knowledge structure with roughly 40,000 states.

Figure 9.2: Knowledge State

The beginning of a possible learning path. 
Our structure in Basic Math allows for billions of them.

Figure 9.3: Learning Path
9.2.3 Knowledge Structures and Knowledge Spaces

It should be obvious that not all possible subsets of the domain are feasible knowledge states. For instance, every student having mastered “long division” would also have mastered “addition of decimal numbers.” Thus, there is no knowledge state containing the “long division” item that does not also contain the “addition of decimal numbers” item. The collection of all feasible knowledge states is referred to as the knowledge structure. The very large number of states for any product means that there are many possible ways of acquiring knowledge, i.e., many learning paths (Fig. 9.3). In the ALEKS knowledge structure there are literally billions of such learning paths. A “knowledge space” is a particular kind of knowledge structure.

As in many real-life applications, “noise” and errors of various sorts often creep in, which require the elaboration of a probabilistic theory. The ALEKS System is based on such a probabilistic theory, which makes it capable of recovering from errors. For instance, ALEKS is capable of deciding that a student has mastered an item, even though the student has actually made an error when presented with a problem instantiating this item. This is not mysterious: a sensible examiner in an oral exam, observing an error to a question about addition would nevertheless conclude that the student has mastered addition, for example, if that student had given evidence of skillful manipulation of fractions.

9.2.4 Inner and Outer Fringes of a Knowledge State

An item that has not yet been mastered by a student may not be immediately learnable by that student. Learning one or more prerequisite items may be necessary. Consider
9.2. THEORY

A student in a particular knowledge state $K$. The set of all items that may be learned immediately by a student in that state $K$ is called the outer fringe of the state $K$. The outer fringe of a state $K$ is defined as the set of all items, any one of which may be the next one learned. An item is in the outer fringe of the state $K$ if the addition of that item to the state $K$ forms a new, feasible knowledge state (Fig. 9.4). Typically, the outer fringe of a knowledge state will contain between one and several items.

Similarly, an item is in the inner fringe of a state $K$ if there is some other knowledge state to which that item may be added to form state $K$ (Fig. 9.5). The inner fringe of a state $K$ is thus defined as the set of all items, any one of which may have been the last one learned.

These two concepts of inner and outer fringes are used in powerful ways in the Learning Mode of the ALEKS system. For example, the system always offers a student problems to solve that are based on items in the outer fringe of his or her state. If ALEKS judges that a student is experiencing difficulties in learning some new item, ALEKS typically reviews the mastery of items in the inner fringe of the student’s state that are also related to the new item to be learned.

9.2.5 Assessment

How can ALEKS uncover, by efficient questioning, the particular knowledge state of a student? While the details of ALEKS’s method for achieving such a goal are technical, the guiding intuition is straightforward. At every moment of an assessment, ALEKS chooses a question to be “as informative as possible.” (In ALEKS, assessments may be called “knowledge checks.”) In our context, this means a question which the student has, in the system’s estimate, about a 50 percent chance of getting right. The student’s
response (correct or false) determines a change in all the likelihood values: for instance, if
the question involved manipulation of fractions, and the student’s response was correct,
then all the knowledge states containing this item would have their likelihood values
increased. The specific way the questions are chosen and the likelihood values altered
makes it possible for ALEKS to pinpoint the student’s state in a relatively short time.
In Basic Math, for example, approximately 15–25 questions usually suffice.

Finally, it should be noted that the assessment report given to students, instructors,
and administrators is a very precise summary of the student’s knowledge state. If
the structure is known, the outer fringe and inner fringe together completely define the
student’s knowledge state. Internally, the system registers the student’s knowledge or
non-knowledge of each item in the domain.

A more thorough but still accessible overview of Knowledge Space Theory is available
on the ALEKS website: Cosyn, Doignon, Falmagne, “The Assessment of Knowledge, in
Theory and Practice”:

https://www.aleks.com/about_aleks/Science_Behind_ALEKS.pdf

A comprehensive treatment of Knowledge Space Theory can be found in Doignon and

A comprehensive scientific bibliography on Knowledge Spaces is maintained here:

http://css.uni-graz.at/kst.php

For a more selective bibliography, see the following section.

9.3 Selected Bibliography


9.3. SELECTED BIBLIOGRAPHY


Chapter 10

Frequently Asked Questions

10.1 General

General questions on ALEKS concern what it is, its purpose, and what it contains.

What is ALEKS?
ALEKS is an online educational software program based on a cycle of assessment and learning. ALEKS course products include Mathematics, Statistics, Accounting, Business, and Chemistry. By knowing exactly which concepts the student has mastered and which are new but within reach, ALEKS enables the student to work on those concepts they are most ready to learn. ALEKS is a full-time automated tutor, including explanations, practice and feedback. ALEKS interacts closely with the student, continuously updating its precise map of the student’s knowledge state. ALEKS combines the advantages of one-on-one instruction and evaluation with the convenience of being on-call, on your computer, 24 hours a day, seven days a week. The cost of ALEKS is a small fraction of the cost of a human tutor.

What makes ALEKS different?
A great many important differences exist between ALEKS and other kinds of “educational software,” including its finely individualized instructional features, easy access over the Internet, rigorous and comprehensive educational content, and full-featured class-management module for instructors and administrators. A critical difference is the capacity of ALEKS for efficient, precise, comprehensive, and qualitative assessment. This not only makes it a valuable tool for monitoring educational progress, but also enables it to provide students with the material they are most able to learn at a particular time. Students will not be given material they have already mastered, or topics for which they have not yet demonstrated prerequisite knowledge.

ALEKS is a self-contained learning environment, with complete sets of practice and explanatory units needed for the subjects that it covers. The units may also
be referenced or linked to textbooks for extended treatment of mathematical concepts. There is an online student mathematics dictionary accessed by clicking on underlined mathematical terms (hypertext links), and a diagnostic feedback facility that, in many cases, is able to explain the nature of misunderstandings and errors made by students.

For instructors, ALEKS offers a complete administrative and monitoring facility through which individual and group progress can be checked, standards established, enrollment managed, and messages exchanged. ALEKS can be configured for use with diverse educational standards.

ALEKS is not a game or “edutainment.” It is an automated educational tool with robust, carefully-designed features for both learners and educators.

What are the parts or “modules” of ALEKS?

The principal “modules” of ALEKS are the **Assessment Mode** (assessments are also called “knowledge checks”), in which student knowledge is rigorously assessed, the **Learning Mode**, where students work on mastering specific concepts, the Instructor Module, in which instructors and administrators are able to monitor student progress and carry out administrative functions, and the Administrator Account, which permits management and monitoring of an arbitrary number of separate institutions, such as those making up a multi-campus college system. There is also a Tutorial (which students take when first registering with the system), online help, a mathematical dictionary, graphic display of assessment results and learning progress, and many other features.

Why is ALEKS on the Internet?

ALEKS is available on the Internet so that a student who has registered with the system can use it from any suitable computer, in any location. No disks, CD’s, peripherals, or backup facilities are required.

### 10.2 Technical

The technical information needed to use ALEKS is minimal. These few questions are all that are likely to be asked, even in a large group of users.

**What are the system requirements for using ALEKS?**

[Sec. 3.2] Fig. 10.1 presents the technical requirements for ALEKS in summary form.

**Tablets.** All courses are desktop and tablet compatible with the exception of Intro. to Statistics, Business Statistics, Statistics for the Behavioral Sciences, Prep. for Statistics, Math Prep. for Accounting, Essential Math Skills for Business, and Business Math. These courses are not compatible with tablet devices.

Note that any of the kinds of Internet connection (cable, ISDN, DSL, or wireless) typical in computer labs are adequate for use with ALEKS.
10.3 Theory

For those interested in looking beneath the surface, these questions concern the principles on which ALEKS is designed and constructed.

What is the theory behind ALEKS?

[Chapter 9] ALEKS is based on a field of Cognitive Science (Mathematical Psychology) called “Knowledge Spaces” (or “Learning Spaces”). The purpose of research in Knowledge Spaces is to model human knowledge in any subject, using mathematical tools such as Set Theory, Combinatorics, and Markovian Processes, so as to make possible fast and accurate assessment through interactive computer applications. There are numerous scientific publications in the field of Knowledge Spaces dating back to the early 1980’s. A recent, authoritative treatment (with Bibliography) is Doignon and Falmagne, Learning Spaces (Berlin, Heidelberg: Springer-Verlag, 2011).

What is an “item”?

[Sec. 9.2.1] In Knowledge Space theory, an “item” is a concept or skill to be learned, the mastery of which is captured by a “problem type” serving as the basis for specific assessment and practice problems. Thus the item “Addition of two-digit numbers without carry” might produce the problem (instance) “What is 25 plus 11?”

What is a “domain”?

[Sec. 9.2.1] In Knowledge Space theory, a “domain” is the set of all items making up a particular subject matter, such as Basic Math. A learner is considered to
have mastered the domain when that learner can solve problems corresponding to all the items in the domain.

**What is a “knowledge state”?**

[Sec. 9.2.2] In Knowledge Space theory, a “knowledge state” is the set of items belonging to a domain that a learner has mastered at some point in time. We speak of knowledge states in relation to a particular learner and a particular domain. Obviously, a learner’s knowledge changes in time, and the goal of learning is that the knowledge state should eventually include (correspond to) the entire domain.

**What is the “outer fringe” of a knowledge state?**

[Sec. 9.2.4] In Knowledge Space theory, a learner’s “outer fringe” is the set of items, any one of which can be added to the current knowledge state without others to make a new, feasible knowledge state. These are the items that the student is considered most “ready to learn.” Progress is made from one state to another through one of the items in the first state’s “outer fringe.”

**What is the “inner fringe” of a knowledge state?**

[Sec. 9.2.4] In Knowledge Space theory, a learner’s “inner fringe” is the set of items, any one of which can be taken away without any others from the current knowledge state to make a new, feasible knowledge state. These are the items that the student may have learned recently, and thus whose knowledge might need reinforcement.

**What is a “knowledge structure”? What is a “knowledge space”?**

[Sec. 9.2.3] In Knowledge Space theory, “knowledge structure” or “knowledge space” (the two concepts differ in a technical way) refers to the collection of feasible knowledge states for a particular domain. It is a key point that not all sets of items from the domain (subsets of the domain) are feasible knowledge states. For instance, in mathematics there can be no knowledge state containing the item “finding the square root of an integer” that does not contain the item “addition of two-digit numbers without carry,” since no one will master the first without having mastered the second.

**How was the structure created?**

The knowledge structures (or, briefly, “structures”) used by ALEKS are created by analysis of the subject matter and refined on the basis of data obtained from students’ learning experiences. When ALEKS assesses a student, it is actually searching the structure for knowledge states that match the student’s present competence.

**What is the educational philosophy behind ALEKS?**

The educational use of ALEKS is not tied to any particular theory of education or knowledge acquisition. A key insight underlying ALEKS is the existence of a vast multiplicity of diverse “learning paths” or sequences of topics by which a field can be mastered. Based on an inventory of knowledge states that numbers in the tens of thousands (for the subjects currently covered by ALEKS), the specialized tools of
Knowledge Space theory make it possible for the system to accommodate literally billions of possible individual learning paths implied by the relations among states. ALEKS does not embody a particular philosophy of teaching mathematics; it is compatible with any pedagogical approach.

10.4 Assessments and Reports

Much of the power of ALEKS comes from its capacity for accurately and efficiently assessing the current state of a learner’s knowledge.

What is an ALEKS assessment (knowledge check)?

[Chapter 4] An assessment by the ALEKS system consists of a sequence of mathematical problems posed to the student. The answers are in the form of mathematical expressions and constructions produced by the system’s input tools (no multiple choice). The student can answer “I don’t know” where necessary. During an ALEKS assessment, the student is not told whether answers are correct or incorrect. The assessment is adaptive. Each question after the first is chosen on the basis of answers previously submitted. Assessment problems (like practice problems) are algorithmically generated, with random numerical values. The length of the assessment is variable, between 15 and 35 questions. There are no time constraints, but some assessments can take less than a half-hour and a few more than an hour and a half. Students taking an assessment need to have paper and pencil. The ALEKS calculator button will become active when use of a calculator is permitted.

No help whatsoever should be given to students taking a knowledge check, not even rephrasing problems. Outside help can easily lead to false assessment results and hinder subsequent work in the ALEKS Learning Mode.

Students may be assessed when they first register with ALEKS. It is advisable that all assessments from which the instructor uses data for grading or a similar purpose take place under the instructor’s supervision. At a minimum, the Initial Assessment should be supervised.

How does the ALEKS assessment work?

[Sec. 9.2.5] In assessing a student’s knowledge, the system is in fact determining which of the feasible knowledge states for that subject correspond to the student’s current knowledge. The assessment is probabilistic, so it is not fooled by odd careless errors. (Lucky guesses are very rare, because multiple choice answers are not used.) Likelihood values (values for the likelihood that the student is in a particular knowledge state) are spread out over the states belonging to the structure. With each correct answer, the likelihood of states containing the item for which a correct answer was given is raised and that of states not containing the item lowered. The reverse occurs for incorrect answers or “I don’t know.” At each step of the assessment, the system attempts to choose an item for which it
estimates, based on current likelihood values, that the student has about a fifty-fifty chance of success; such questions are maximally informative. When the likelihood values of a few states are extremely high and those of all the rest are extremely low—in technical terms, when the entropy of the structure is lower than a certain threshold value—the assessment ends and results are produced.

If a student makes a careless error or lucky guess, this will appear inconsistent with the general tendency of the student’s responses, and the system will “probe” that area of knowledge until it is sure. For this reason, inconsistent assessments may require more questions.

10.5 Learning Mode

Students spend by far the greatest part of their time in ALEKS in the Learning Mode. The features of the Learning Mode are designed to provide a maximum of support to the student’s growing mastery of course materials.

What is the Learning Mode?

[Chapter 5] The Learning Mode in ALEKS contains features to help students practice and master specific mathematical concepts and skills. In the Learning Mode, students are always working on a specific concept that they have chosen and that, in the system’s estimation, they are fully prepared to master. If the learner successfully solves an appropriate number of problems based on that concept, the system will tentatively determine that it has been mastered and offer a new choice of topics. If the student has difficulty, the system will attempt to diagnose and interpret the student’s errors. It will also provide explanations of how to solve problems and definitions of mathematical terms. It may suggest the name of a classmate who can help. If the student is unable to master the concept right now, or if the student wishes to change topics, a new choice of topics will be offered. After a certain amount of time has been spent in the Learning Mode, or after a certain amount of progress has been made, the student will automatically be reassessed.

What is the relationship between the Assessment Mode and the Learning Mode in ALEKS?

The Assessment and Learning Modes work together in a cyclical fashion, beginning with the Initial Assessment (Knowledge Check). A student is assessed, and the results of the assessment serve as a basis for the student’s entry into the Learning Mode (the student works on concepts that the assessment showed that student most “ready to learn”). After a certain time in the Learning Mode, during which the results of the previous assessment are tentatively updated according to whether the student masters or fails to master new concepts, the student is reassessed and the cycle begins again. In this sense, ALEKS is an interactive learning system guided and powered by ongoing diagnostic assessment.
NOTE. Students who do not take an Initial Assessment will begin this cycle in Learning Mode.

10.6 Educational Use

ALEKS also provides a full range of features for successful integration into a variety of teaching styles and class plans.

What is the best way to use ALEKS with my class?
The greatest factor in successful use of ALEKS is regular, structured use, with close monitoring of student progress by the instructor. We recommend scheduling regular lab sessions with ALEKS, totalling at least three hours per week, as part of your class requirements. Not every lab session need be supervised by the instructor, but the Initial Assessment should be. Any other interim and concluding assessments scheduled specially by the instructor normally should also be supervised.

There has been successful use of ALEKS in a very wide variety of contexts and structures, including independent study. ALEKS Corporation is happy to consult with instructors on the best way to use ALEKS with their students. Also, extensive materials on implementation strategies in ALEKS are available on the ALEKS website.

Can ALEKS be used with handicapped and learning-disability students?

Is ALEKS a remedial tool?

ALEKS is designed to help all students who can read sufficiently to understand what is being displayed on the screen, and who can use a computer. It has been used successfully with students exhibiting a range of learning disabilities. A large part of ALEKS content is compatible with screen-reading technology.

Does ALEKS need to be used with a particular textbook or curriculum?

ALEKS is designed to be used with any syllabus, curriculum, or textbook. The system may also be referenced or linked to a textbook or online applications for particular classes. The fundamental idea of the ALEKS system is to allow students to pursue individualized paths to mastery of the subject matter. For this reason instructors may often find their students learning material that has not yet been covered in the class.

Does ALEKS have special features for educators?

[Chapter 7] Students’ use of ALEKS and their progress toward mastery can be monitored using the features of the Instructor Module. The Instructor Module also enables instructors and administrators to establish the syllabi and standards used by ALEKS, to configure accounts, to find statistics on multi-campus college system use, and to exchange messages. An instructor or administrator who has been registered with ALEKS enters the Instructor Module immediately upon login.

How can I contact ALEKS Corporation Customer Support?
[Sec. 11] You can contact ALEKS Corporation using the information in Chapter 12 of this manual. Students should approach their instructor first with any questions or problems regarding the use of ALEKS. Questions the instructor cannot answer should be brought to our attention.
Chapter 11

Support

Current information on ALEKS is available at the ALEKS website:

https://www.aleks.com

Technical support and consultation on the effective use of ALEKS is provided to educators by ALEKS Corporation. Please contact the support group via the web:

https://support.aleks.com

by telephone:

(714) 619-7090

or by fax:

(714) 245-7190

NOTE. We ask that students using ALEKS not contact us directly, but approach their instructors first. It is hoped that the information in this Instructor’s Manual will enable instructors to answer many of their students’ questions.

We also welcome any and all comments and feedback on ALEKS. Here is our mailing address:

ALEKS Corporation Customer Support
15460 Laguna Canyon Road
Irvine, CA 92618
Appendix A

ALEKS Student User’s Guide

A.1 System Requirements

ALEKS runs on many devices with various operating system and web browser configurations.

- PCs must have at least 64 MB of RAM and Windows 7 or higher. Compatible browsers are Internet Explorer 11.0 or higher, Firefox 25 or higher, and Chrome 30 or higher.
- PowerMacs or iMacs must have at least 64 MB of RAM and operating system Mac OS 10.7 or higher. Compatible browsers are Safari 6 or higher, Firefox 25 or higher, and Chrome 30 or higher.
- All courses are desktop and tablet compatible with the exception of Introduction to Statistics, Math Prep for Accounting, Business Statistics, Essential Math Skills for Business, Statistics for the Behavioral Sciences, Business Math, and Prep for Statistics. These courses are not compatible with tablet devices.

NOTE. The most up-to-date requirements can always be found on the ALEKS website.

A.2 Registration

In order to register as an ALEKS user, you need a Student Access Code (20 characters), which may be purchased through your campus bookstore, online as part of the ALEKS registration process, or in some other way. If this booklet was purchased through the bookstore, the Student Access Code may be inside its back cover. You also need a Class Code (10 characters) provided by your instructor. When you register with ALEKS, your name is entered into the database, and records of your progress are kept.
1. Go to the ALEKS website:

https://www.aleks.com

When entering this URL, pay careful attention to the spelling of aleks.

Figure A.1: The ALEKS Website

2. Click on SIGN UP NOW! on the left of the page, under the space for Registered Users (Fig. A.1).

3. At the beginning of Registration you will be asked for your Class Code. The Class Code is supplied by your instructor. Enter this in the spaces provided, on the left-hand side of the window, and click on Continue (Fig. A.2).

4. Next, ALEKS will check whether you have ever used ALEKS before. Check the appropriate response and click on Continue. If you have used ALEKS before, you will be prompted to enter your ALEKS Login Name and Password before moving on.

5. To continue your registration you will be asked for your Student Access Code. It may be packaged with the textbook, or can be purchased directly from ALEKS Corporation by using the link on this page (PURCHASE AN ACCESS CODE). Enter the Student Access Code in the spaces provided and click on Continue (Fig. A.3).

6. Enter your personal information and choose a Password. Supplying an email enables your site administrator to help you with problems more quickly. You will also be able to enter your Student ID number.
A.2. REGISTRATION

Figure A.2: Class Code

Figure A.3: Access Code
7. At the end of registration you will be given a Login Name. You will need the ALEKS Login Name and your Password to return to ALEKS. Your Login Name and Password can be typed with upper- or lower-case letters. Neither may contain spaces or punctuation. If you forget your Password, click on the link **Forgot your login info?** located underneath the Password field on the ALEKS Home page.

A.3 Tools Tutorial

![Figure A.4: The Answer Editor](image)

The ALEKS Tools Tutorial teaches you how to enter your answers in ALEKS. ALEKS avoids multiple-choice questions. Most answers are complete mathematical expressions and constructions. The Tools Tutorial is not intended to teach mathematics. The Tools Tutorial teaches you how to use the ALEKS input tools called the **Answer Editor** (Fig. A.4). Online help is also available while you are using ALEKS; just click the ? button next to the input tools when you are working in ALEKS. This will give you access to the various sections of the Tools Tutorial.

A.4 Knowledge Checks

Instruction through ALEKS is guided by a precise understanding of your knowledge of the ALEKS class material. This information is obtained by Knowledge Checks in which
ALEKS asks you to solve a series of problems. (ALEKS's estimate of your knowledge is also updated when you make progress in the Learning Mode.) Your Initial Knowledge Check occurs immediately after the ALEKS Tools Tutorial.

A.4.1 Knowledge Checks in ALEKS

The Initial Knowledge Check determines which class topics you already have mastery of, which topics are not currently mastered, and which topics you are ready to learn. When the Initial Knowledge Check is completed ALEKS will display your unique knowledge state and individualized learning path.

Additional Knowledge Checks may be scheduled for you by your instructor. These may or may not need to be supervised, depending on the instructor’s preference. ALEKS also prompts for automatic Knowledge Checks when you have spent a certain amount of time in ALEKS or have made a certain amount of progress (Fig. A.5).

**NOTE.** Your instructor may require that the Initial Knowledge Check be taken under supervision. **Don’t try to begin your Initial Knowledge Check at home until you find out where your instructor wants you to take it.**
A.4.2 Knowledge Check Results

Upon completion of your Initial Knowledge Check you will see your ALEKS Pie along with quick tips that describe how it works and how to use it. The ALEKS Pie will display the number of topics mastered per pie slice and the overall mastery percent in the class based on the Initial Knowledge Check. Clicking on an individual pie slice will give specific information about the topics in that slice.

A.4.3 Knowledge Checks and Your Learning

The purpose of Knowledge Checks in ALEKS is to throughout your learning path to confirm that you have retained material previously learned and to provide review and reinforcement when it is needed. New Knowledge Checks occur at regular intervals (typically 20 new topics learned or 10 hours in the system), or after the completion or due date of an Objective. Note that any new Knowledge Check “resets the clock,” so that they don’t occur one after another.

You can see when your next Knowledge Check is coming up by clicking on the Knowledge Check icon on your Home page, next to the Timeline/ALEKS Pie switch. When it is time for the Knowledge Check, you will see a notification, and you will have 24 hours to begin it (the exact period may be different if your instructor sets it differently for your class). Before beginning the Knowledge Check, you may wish to review by clicking on Review for Knowledge Check; this option appears under the Knowledge Check notification and on your Primary Guidance Menu.

It is important to make your best effort on the Knowledge Check! Do not rush or work when tired; remember you can always break off and resume the Knowledge Check later. As always, only use the I don’t know button when you have no idea of the answer; it’s always better to try to respond if you possibly can, since “I don’t know” is counted as “incorrect.” Note that you are likely to get at least a couple of questions that you haven’t learned yet, due to the adaptive nature of the Knowledge Check mechanism.

Needs More Practice. It is also normal to lose some topics from your mastery count on a Knowledge Check. This simply means that those topics need additional reinforcement; in most cases you will add them back quickly. ALEKS will present these topics in the beginning of the Topic Carousel under Needs More Practice.

A.5 Home

The first time you enter your ALEKS Home page you will be guided through an introduction giving a brief description of how ALEKS works. There are also pop-ups and animations that appear when you are seeing something in ALEKS for the first time, to ensure that you understand the interface and know how to use it.

The Home page includes some important information such as the name of the ALEKS
class, progress bar, notifications, Main Navigation Menu (Sec. A.5.4), account Settings (Sec. A.5.5), Primary Guidance Menu (Sec. A.5.3), and next Knowledge Check indicator.

The Home page shows the Timeline by default (Sec. A.5.1), but you can switch to the ALEKS Pie view (Sec. A.5.2) to see your progress within each slice. The view last selected will appear as your Home Page the next time you log in.

At any point in ALEKS, you can click on the Home symbol or ALEKS icon in the upper left corner to return to the Home page.

### A.5.1 ALEKS Timeline

![Figure A.6: ALEKS Timeline](image)

The ALEKS Timeline is a visual tool that graphs your progress and growth over time. It helps you understand how to achieve learning goals and reach milestones. You can use the timeline to view what you worked on in the past, what’s ahead, and when topics are due next so you can plan your class accordingly. As you learn or lose topics, the timeline is updated with real-time information.

Some key points about the timeline:

- The timeline is intended to show information at a macro level. You can select points on the graph to access information. For example, the blue goal topic marker is a projection to show what you are working towards next.
The orange marker displays your progress today, and the number of topics you have left to reach the next goal on the timeline. It also shows what was completed on that day.

The area below the timeline contains assignments created by the instructor, showing when the assignments start and end. You can select the assignment name to view detailed information. When there are multiple assignments available, they are stacked and prioritized by due dates.

You can select the Timeline Detail button to see a more detailed full-screen view and a longer time range than what is displayed on the Home page. You can filter the timeline by day, week, or month.

For a key to the icons that may appear on the timeline, see Fig. A.7.

A.5.2 ALEKS Pie and Details

The ALEKS Pie view is an alternate Home page. You can switch back and forth between the Pie view and the Timeline; whichever you looked at last will appear as your Home page on your next login.

The ALEKS Pie allows you to see your overall progress toward completion of the class. Slices represent topic categories. Mastered, learned, and remaining topics are shown in different colors within each slice. Each pie slice is color-coded to match the list next to the ALEKS Pie. The darker color in the slice represents topics mastered, the lighter color represents topics learned, and the outer space without color represents the topics remaining to be learned and mastered (Fig. A.8).
You can view your progress in real time by selecting a pie slice. The area to the right is a legend that displays the slice name and the number of topics mastered, learned, and remaining in each category for the slice selected.

**Mastered**

The number of topics you have demonstrated mastery of in a Knowledge Check.

**Learned**

The number of topics that you have practiced successfully in Learning Mode but have not yet confirmed through a Knowledge Check.

**Remaining**

The number of topics you have left to learn.

The number in the middle of the ALEKS Pie is a counter that represents the total number of topics you have mastered or learned.

You can also click on the ALEKS Pie Detail button to see your class progress broken down by the topics that you are ready to learn, have learned, and have mastered in each slice. Category headings can be expanded to view progress and sample problems. The drop-down menu at the top of the report displays progress in Knowledge Checks. You can use this drop-down to track how they have performed across all Knowledge Checks in their class.
A.5.3 Primary Guidance Menu

The blue bar area on the left-hand side of the Home page is called the Primary Guidance Menu. This menu will show you the next topic in your path. You will also see your class progress and any upcoming assignments.

The Primary Guidance Menu displays the following features:

**UP NEXT**
- This section contains buttons such as **START MY PATH/CONTINUE MY PATH** to direct you to Learning Mode to practice problems that are Ready to Learn. The **GET STARTED/CONTINUE** button begins or continues an assignment.

**WORKING TOWARD**
- This section displays goals and what the student is working toward, including due dates.

**WORK ON SOMETHING ELSE**
- This section contains class assignments as they become available to work on.

A.5.4 Main Navigation Menu

The ALEKS Navigation Menu located in the upper-left corner of your screen provides easy access to features in the Student Module. Depending on your ALEKS class, you will see some or all of the following menu options displayed:

- Assignments (Sec. A.9)
- Worksheet
- Calendar
- Gradebook (Sec. A.10)
- Reports (Sec. A.8)
- Message Center (Sec. A.7)
- Class Forum
- E-Book
- Dictionary
- Instructor Resources
- QuickTables (Sec. A.12)
- Manage My Classes (Secs. A.11.1 and A.11.2)

When the menu is open, you can return to the Home page by selecting Home or by clicking the X. (Fig. A.9).
A.6. LEARNING MODE

A.6.1 Learning Page/Problem Page/Explanation Page

The following pages are available in Learning Mode:

Learning Page
The ALEKS Learning Page provides a sample problem for the current topic, with detailed explanation and answer (Fig. A.10). After reviewing the Learning Page, select the Start button to move to the first problem.

A.5.5 Settings

You can access your account settings and log out of ALEKS by selecting the down arrow in the upper-right corner by your name. On the Settings page, you have the option to have ALEKS messages forwarded to your email address; if you did not provide one during Registration, you can put it in now. The option to change your ALEKS account password is also located here.

A.6 Learning Mode

In Learning Mode you can practice Ready to Learn topics and review previously learned and mastered topics. To access Learning Mode, go to the Primary Guidance Menu and select START MY PATH.
Problem Page

The ALEKS Problem Page displays a problem for the current topic. Enter your answer in the space provided and then select the Check button at the bottom of the screen. If your answer is correct, ALEKS will display the message Correct on the screen. If your answer is incorrect, you will be given the opportunity to correct the answer and then select the re-check button.

Explain Page

If you are not sure how to answer a problem, you can click on the Explanation button at the bottom of the screen. This will take you to the Explanation page showing detailed information about how to solve the problem. For some topics an Additional Explanation link will be available showing another method of solving the problem.

Resources

Resources on the right hand side of the Problem Pages and Explain Pages are provided to help you solve the problem. These may include tools such as a calculator, an eBook link, the ALEKS dictionary, and the Message Center.

A.6.2 Progress Indicator

Mastery of problems is based on a point system: one point added for a correct answer, two points added for two correct in a row without using the Explanation page, and one point subtracted for an incorrect answer. The number of points cannot go below zero.
ALEKS considers a topic learned when a student earns a total of five points for that topic. The bars in the progress indicator represent how many points you have earned for the current topic (top right of the Learning Page). The progress bars change color to show how the topic is going: green to show success, yellow, orange, and red to indicate difficulty.

### A.6.3 Topic Carousel

![Topic Carousel]

**Figure A.11: Topic Carousel**

![Topic Icons]

**Figure A.12: Topic Icons**

In Learning Mode you can access the Topic Carousel by selecting the downward arrow tab in the upper left corner of your screen (Fig. A.11). The Carousel lists topics that
APPENDIX A. ALEKS STUDENT USER’S GUIDE

Figure A.13: Objectives/Ready to Learn Drop-Down Menu

you are currently ready to learn, sorted by degree of difficulty or complexity, with the most accessible first. Each topic has its own card containing the slice name, the topic name, and attributes (if any) indicated by icons (Fig. A.12). The Topic Carousel shows three cards at a time and is scrolled using the scroll bar or the back/forward arrows.

Filters
You can filter topics by selecting Filters in the upper right corner of the screen (Fig. A.11). The Filters feature lets you search for topics by name and type.

Switching Topics
You can switch topics at any time by selecting a new topic card in the Topic Carousel. When you select a card, a sample problem is previewed in the bottom half of the window. Switching topics mid-way through a topic will not cause you to lose work; when you return to the topic, ALEKS will resume where you left off.

Objectives/Ready to Learn Drop-Down Menu
The drop-down menu above the Topic Carousel allows you to see progress in Objectives (if used in the class) or Ready to Learn pie slices. To see this drop-down
menu, select the Ready to Learn/Objectives drop-down menu in the upper left (Fig. A.13).

**Review**

You can review previously-learned topics by choosing **Review** (rather than **Ready to Learn**) in the filter. Note that you will also be prompted to review when you receive the notification for a new Knowledge Check (Sec. A.4.3).

### A.6.4 Classes with Objectives

Objectives are sections of the material in your class, similar to chapters in a textbook or units or modules in a lecture course. If your ALEKS class uses Objectives, they will be in a definite order and you will need to work through them in that order. They may have individual due dates, or there may be one due date for all the Objectives; the following paragraphs explain how the Objectives work on both cases. Note that when the next Objective begins, you will be notified by tool tips appearing on the Home page and in the Topic Carousel.

**Objectives with Due Dates**

In Learning Mode, the Topic Carousel will display Ready to Learn topics in the current Objective. If you complete the current Objective before the scheduled due date, you will move into Open Pie Mode, which unlocks all Ready to Learn topics until the start of the next Objective. During this time, you can return to previous Objectives and work on topics you did not learn or may have lost during a Knowledge Check. For example, if you missed an Objective, did not complete all topics in an Objective by the due date, or lost topics from previous Objectives in a Knowledge Check, you can go back to the previous Objectives and learn or re-learn those topics. After you learn all topics in a given Objective, the Topic Carousel will be empty. You can select another Objective to work on from the Objectives drop-down menu, or use the review filter to practice previously learned and mastered topics in the selected Objective.

**Objectives with One Final Due Date**

In Learning Mode, the Topic Carousel will display Ready to Learn topics in the current Objective. The Objectives drop-down menu conveniently displays the breakdown for the number of topics that must be learned to complete the current Objective. Future Objectives are locked. Completing the current Objective at the level specified by your instructor (e.g., 90%) will unlock the next Objective.

### A.6.5 Locked Topics

Some topics that appear in the Topic Carousel may be locked. This occurs when there is one or more prerequisite topic that must be learned prior to attempting the topic. A lock icon appears in the topic card to distinguish the locked topics.
A.7  Message Center

The Message Center allows you to send messages to your instructor if you need assistance with a topic or problem in ALEKS. To compose a message, click the Navigation Menu in the upper left corner of your screen. Next, click the Message Center link and select the Compose button to create an email.

To include mathematical notation and illustrations:

1. Click the Math or Graphs tab at the right end of the tool bar. This switches you to the Enhanced message editor, with a robust set of math input tools.
2. Click on the Graphs tab for graphing tools, or on Algebra, Trig, Matrix, or Stat for symbolism specific to these areas.

While working in the Learning Mode, you can send a specific problem to your instructor for assistance. This will include a link in the message, showing a screenshot of the practice problem that you see on your screen.

To attach a specific problem, with the problem on the screen:

1. Click on the Envelope icon (located on the right-hand side of the screen). This will take you into the ALEKS Message Center. The system will automatically be in the Compose mode.
2. Fill in the Subject line and any details you want included in your message.
3. Below the body message section, the system will automatically check the box next to Attach Page to include the current problem. Uncheck this box if you don’t want the page attached to your message.
4. Click on the Send button to send the message.

You can also include attachments of up to 2MB in your messages.

A.8  Reports

You can access a wide range of reports in your ALEKS account by selecting the Main Navigation Menu in the upper left corner and then selecting Reports.

The Report dashboard displays quick overviews of important data applicable to your progress in ALEKS (Fig. A.14). You can move the tiles around by selecting the icon in the upper-right corner of a tile. Selecting View Full Report on a tile will give you more detailed information about that report.

Reports that may be available in your account include:

- ALEKS Pie (Sec. A.5.2)
- Timeline (Sec. A.5.1)
A.8. REPORTS

Figure A.14: Report Dashboard

- Progress History (Sec. A.8.1)
- Time and Topic Report (Sec. A.8.2)
- Objective Details Report (Sec. A.8.3)
- QuickTables Report (Sec. A.8.4)

A.8.1 Progress History

This report shows your progress on Knowledge Checks and in Learning Mode. Clicking on the Current Class tab shows the progress for the current class. Clicking on the All Classes tab shows the progress for all classes that you have been enrolled in.

- The dark blue bar shows the content mastered based on your most recent Knowledge Check.
- The light blue bar shows progress made in Learning Mode since your last Knowledge Check.
- The gray bar shows the content remaining to be learned.

A.8.2 Time and Topic Report

This report gives a daily breakdown of time spent in ALEKS. The view can be adjusted to a weekly, monthly, or cumulative view or to a specific date range.
- Hover over a bar to see how much time was spent and which topics were attempted and learned on a given day.
- Select a bar to view the Learning Sequence Log, which shows the sequence of actions you followed to learn the topic, including the exact problems practiced and the answers entered.
- Select the magnifying glass icon to see the answer that you entered with the correct answer if different.

A.8.3 Objective Details Report

This report helps you track your progress towards Objective completion for classes set up to use Objectives. The report displays goal topics, prerequisite topics, and locked topics (topics not yet Ready to Learn). You can scroll through the Carousel to view details on past, current, or future objectives.

A.8.4 QuickTables Report

This report shows your progress in QuickTables (Sec. A.12) based on Knowledge Checks and Learning Mode. The report displays the following information:

- The total time spent in Quicktables since completion of the typing tutorial.
- The last login date.
- The date the last Knowledge Check was completed.

A.9 Assignments

![Figure A.15: Assignments](image)

The Assignments link on the Navigation Menu allows you to view all current, upcoming, and past assignments in your class. Assignments are displayed in a table that includes
the assignment type, start date, due date, score, and details about the specific assignment. Assignments are sorted by due date. Assignments can be started by selecting an assignment name. ALEKS indicates when assignments are In Progress or Saved for Later; clicking on such assignments lets you pick up where you left off. Clicking on an assignment score (for assignments that have been completed) will display detailed information about that assignment (Fig. A.15).

A.10 Gradebook

![Figure A.16: Student Gradebook](image)

The ALEKS Gradebook allows you to check your overall grade in the class as well as individual assignment scores. The Gradebook link will be available on the Navigation Menu for classes where the Gradebook has been enabled. Selecting the Gradebook link displays assignments in your ALEKS class, e.g., tests, quizzes, and Objectives. You can click on the Filters drop-down to customize the Gradebook display to show specific assignment types (Fig. A.16).

A.11 Student Account Home

The Student Account Home groups all your ALEKS accounts under one profile with one Login Name and Password. When you log on to ALEKS, you come first to your Student Account Home. From here, you click on the link of the active class you wish to work in.

The Student Account Home lists your current and past ALEKS classes, and includes options to sign up for new classes, switch classes, suspend classes, extend access to classes, and remove classes from the Student Account Home.
A.11.1 Account Management

When you log in to your ALEKS account, you arrive at the Student Account Home main screen.

Active Classes

All classes in which you have an active account will be listed here. You will see the name of the class, the name of the instructor, the date you last logged in to the account, and the date your access to the class will expire. Additional information can be accessed by clicking on the Show more link, including the Class Code, the Reference ID for the account, the date the account was started, the amount of time spent in the class, and the current level of progress.

Accessing a Class

You can access an active class by clicking on the class name. You will be taken to your Home page for that class and will be able to work on topics. To return to the Student Account Home main screen, click on your name in the upper right corner and select the Account home option. To completely log out, choose the Log out option after clicking on your name.

Inactive Classes

The INACTIVE section will display a list of your classes that are no longer active. The same class information that is displayed in the ACTIVE courses is available here.

Adding a New Class

You can add a new class by clicking on the + NEW CLASS button (Fig. A.17). You will be prompted to enter the class code for the new class. Once the new
class has been added, it will be displayed in the ACTIVE section on the Student Account Home main page, along with any other active courses.

+ NEW CLASS creates a new account in a new class, and will require a new 20-character access code as well as the 10-character class code; it does not transfer your current access code to a different class. To transfer your current access code to a different class (and set the previously active account to inactive), use Switch to a new class (below, Sec. A.11.2).

Account Settings
To access your account settings, click on your name in the upper right corner of the Student Account Home main screen. This screen displays information both for the profile account and for the college that you attend. This information includes your name, the Login Name for the profile account, the account Password (hidden), and the email address linked to the account. You can edit certain entries by clicking on the Edit link to the right. To return to the main screen, click on the Done button.

A.11.2 Class Management

Different options are available, depending on whether a class is ACTIVE, ON-HOLD, or INACTIVE:

ACTIVE Class Options
The following options are available for ACTIVE classes:

Switch to a new class. You can switch to a new class by entering a new class code. When you do this, the new class will become active and the previously active class may appear under INACTIVE. (No records will be kept if you switch within the first 15 days after beginning the previous class; this period depends on the instructor’s configuration of the class and may vary.) If the new class uses the same course product as the one you were in previously, your progress will be carried over; otherwise, a new Initial Knowledge Check will be required.

To begin a new class with a new access code, leaving the current class active, use + NEW CLASS (above, Sec. A.11.1).

Suspend Access to this Class. This option will only appear when your subscription meets the eligibility requirements for suspension (Sec. A.11.3). Once suspended, an account appears in the ON-HOLD section.

Extend Access to this Class. You can extend access to your class by selecting the Extend option and entering a new 20-character access code. You will be able to purchase the access code online if needed.

ON-HOLD Class Options
The following option is available for ON-HOLD classes:

Reactivate Accounts. You can click on the Reactivate button when you are ready to reactivate a class that was suspended or placed on Leave of Absence (Sec. A.11.3 and Sec. A.11.4).
INACTIVE Class Options

The following options are available for INACTIVE classes:

**Download Progress (PDF).** Clicking on this link will give you access to a PDF report displaying the pie chart and learning history progress achieved in the inactive class.

**Renew access to this class.** This option allows you to renew access to an account by entering a new 20-character access code. The access code can be purchased online if needed. The course will then appear under ACTIVE.

**Delete from my account.** Inactive class accounts may be deleted; they will then no longer be displayed in the Student Account Home.

A.11.3 Suspend Account

This feature is intended to provide additional flexibility in your access to an already purchased subscription with ALEKS. The **Suspend access to this class** feature is used when you have already purchased an access code and registered with ALEKS, but then decide to drop the course with the intention of taking it again at the next opportunity.

This feature can be used within a limited time after you activate your account.

- 6-week access codes can be suspended within 7 days of activation OR if the account has less than 5 hours of use, whichever comes first.
- 11-week access codes can be suspended within 14 days of activation OR if the account has less than 8 hours of use, whichever comes first.
- 18-week, 2-semester, 3-quarter, and 52-week access codes can be suspended within 30 days of activation OR if the account has less than 10 hours of use, whichever comes first.

To suspend access to your class, choose the action **Suspend access to this class** (above, Sec. A.11.2). After you confirm this choice, the system will suspend the account for a period of time equal to the length of the access code they purchased (6 weeks, 11, weeks, 18 weeks, etc.). At the end of this period you will be able to reactivate the account (above, Sec. A.11.2), and you will have the full subscription length originally purchased.

**NOTE.** Be sure to reactivate your suspended account in a timely way. If you do not reactivate the account within a certain period of time following the end of the normal suspension period, it will reactivate automatically and its time will begin to run, whether or not you are using it.

**Cancel Suspension.** Should you suspend your account by mistake and then need it to be reactivated before the end of the normal suspension period, you will need to contact ALEKS Customer Support. If the suspension is cancelled, the time remaining for the
A.12. QUICKTABLES

access code will be recalculated from the original start date. Note that the Suspend feature can only be used once per account.

A.11.4 Leave of Absence

In contrast to the Suspend feature, the Leave of Absence feature applies only to 2-semester (40 week), 3-quarter (also 40 weeks), and 52-week access codes; it takes effect automatically after a certain number of weeks have passed since the account was activated.

First Notification

20 weeks after the access code was used to activate the account, you will receive a one-week warning. The leave will begin automatically 21 weeks after the account was activated.

Second Notification

When you log in after the 21st week, you will see another message informing you that the account is on hold and giving the date on which the account will automatically resume if it is not manually reactivated.

If you choose to resume using the account prior to the automatic reactivation date (above, ”Reactivate Accounts,” Sec. A.11.2), you will be given access for the time remaining on the access code.

A.12 QuickTables

QuickTables is a special tool in ALEKS for learning the math facts of Addition, Subtraction, Multiplication, and Division. It is available where needed as a component in ALEKS classes.
When you log in to an ALEKS class where QuickTables is enabled, you will see the QuickTables link in the Main Navigation Menu. Clicking on this link will switch you into the QuickTables environment (Fig. A.18).

The first time you use QuickTables, you will have a short training session before starting to practice. The purpose of the training is to make sure that you are comfortable typing and entering numbers in ALEKS. There will be a series of quick drills in which you are asked to type numbers that appear on the screen. If you make a mistake, QuickTables will stop to let you correct it. You can enter the numbers by pressing either your computer’s Enter key or the Space bar (the long bar at the bottom of the keyboard).

You will need to enter the numbers quickly; QuickTables wants you to learn the math facts so well that you can answer easily and smoothly. If you prefer to click numbers using the onscreen keypad, contact your instructor to turn on this feature.

After this training, you will begin a Knowledge Check of what you know now about the math facts. Do not be anxious about this Knowledge Check; just relax and do your best. The results of the Knowledge Check will tell QuickTables where you should start off in your math facts table. This Initial Knowledge Check must be finished in one login session. Logging out before it is complete will require restarting the test.

You may have more than one table set up. If so, you will see different tabs on your screen with the names of the tables: Addition, Subtraction, Multiplication, Division. Simply click on the tab for the table you wish to work in. You will need to take a brief Knowledge Check when you first start working in any table.

Figure A.19: QuickTables Learning Display

Once you finish the test, you will see a colored display that shows all the facts in the table (Fig. A.19). The colors in the cells show whether you have learned that fact, and
how well you know it. In general, you will see that the colors fill in through the table diagonally, from the top left corner down. The hardest facts are the ones you get to last, in the lower right-hand corner.

Above the table is a Progress bar that gives your overall percentage of the table. Notice that there are gold stars on the bar. Every time you reach one of these stars, there will be a new game for you to play. You earn access to the games by the progress that you make filling in your table. Any time you want to play a game that you have earned, click on the Games link top right. These are fun games that give you extra practice on the math facts that you have been learning.

NOTE. You will only be able to use QuickTables for a certain amount of time on any day, and only a certain number of times per week. These limits are set for the best possible progress in learning and remembering math facts.
Appendix B

Syllabi in ALEKS

B.1 Basic Math

Whole Numbers

arith124 Whole number place value: Problem type 1
arith125 Whole number place value: Problem type 2
arith066 Expanded form
arith643 Expanded form with zeros
arith028 Numeral translation: Problem type 1
arith060 Numeral translation: Problem type 2
arith633 One-digit addition with carry
arith634 Addition of 3 or 4 one-digit numbers
arith001 Addition without carry
arith635 Adding a 2-digit number and a 1-digit number with carry
arith050 Addition with carry
arith630 Addition with carry to the hundreds place
arith012 Addition of large numbers
arith636 Subtracting a 1-digit number from a 2-digit number
arith007 Subtraction without borrowing
arith128 Adding or subtracting 10, 100, or 1000
arith006 Subtraction with borrowing
arith682 Subtraction with multiple regrouping steps
arith637 Subtraction and regrouping with zeros
arith613 Word problem with addition or subtraction of whole numbers
arith655 Introduction to properties of addition
arith126 Multiplication as repeated addition
arith008 One-digit multiplication
arith679 Multiplication by 10, 100, and 1000
arith003 Multiplication without carry
arith004 Multiplication with carry
arith632 Multiplication with trailing zeros: Problem type 1
arith615 Introduction to multiplication of large numbers
arith638 Multiplication with trailing zeros: Problem type 2
arith014 Multiplication of large numbers
arith641 Multiples: Problem type 1
arith642 Multiples: Problem type 2
arith656 Introduction to properties of multiplication
arith675 Division facts
arith614 Word problem with multiplication or division of whole numbers
arith130 Word problem with multiplication and addition or subtraction of whole numbers
APPENDIX B. SYLLABI IN ALEKS

arith243 Division of whole numbers given in fractional form
arith711 Division involving zero
arith052 Division without carry
arith005 Division with carry
arith680 Division with trailing zeros: Problem type 1
arith649 Division with trailing zeros: Problem type 2
arith616 Quotient and remainder: Problem type 1
arith644 Word problem on quotient and remainder
arith617 Quotient and remainder: Problem type 2
arith631 Quotient and remainder: Problem type 3
arith650 Division involving quotients with intermediate zeros
arith023 Word problem with division of whole numbers and rounding
arith651 Introduction to inequalities
arith077 Ordering large numbers
arith078 Rounding to tens or hundreds
arith123 Rounding to hundreds or thousands
arith061 Rounding to thousands, ten thousands, or hundred thousands
arith101 Estimating a sum of whole numbers
arith102 Estimating a difference of whole numbers
arith604 Estimating a product or quotient of whole numbers
arith692 Writing expressions using exponents
arith233 Introduction to exponents
arith683 Power of 10: Positive exponent
arith645 Introduction to parentheses
arith681 Introduction to order of operations
arith048 Order of operations with whole numbers
arith051 Order of operations with whole numbers and grouping symbols
arith651 Order of operations with whole numbers and grouping symbols: Basic
arith713 Order of operations with whole numbers and exponents: Advanced
arith657 Understanding the distributive property
arith646 Even and odd numbers
arith647 Divisibility rules for 2, 5, and 10
arith648 Divisibility rules for 3 and 9
arith056 Factors
arith034 Prime numbers
arith035 Prime factorization
arith033 Greatest common factor of 2 numbers
arith070 Least common multiple of 2 numbers
arith804 Least common multiple of 3 numbers
arith240 Word problem with common multiples
alge925 Finding the next terms of an arithmetic sequence with whole numbers
alge933 Finding the next terms of a geometric sequence with whole numbers
alge732 Finding patterns in shapes
alge284 Evaluating an algebraic expression: Whole number addition or subtraction
alge683 Evaluating an algebraic expression: Whole number multiplication or division
alge285 Evaluating an algebraic expression: Whole numbers with two operations
alge099 Additive property of equality with whole numbers
alge008 Multiplicative property of equality with whole numbers
alge803 Using two steps to solve an equation with whole numbers

Fractions

arith623 Introduction to fractions
arith665 Understanding equivalent fractions
arith212 Equivalent fractions
arith666 Introduction to simplifying a fraction
arith667 Simplifying a fraction
arith687 Fractional position on a number line
arith667 Fractional position on a number line
arith044 Ordering fractions with the same denominator
B.1. BASIC MATH

arith091 Ordering fractions with the same numerator
arith092 Using a common denominator to order fractions
arith086 Product of a fraction and a whole number: Problem type 1
arith119 Introduction to fraction multiplication
arith053 Fraction multiplication
arith812 Product of a fraction and a whole number: Problem type 2
arith813 Multiplication of 3 fractions
arith818 Word problem involving fractions and multiplication
arith095 Multi-step word problem involving fractions and multiplication
arith088 The reciprocal of a number
arith094 Division involving a whole number and a fraction
arith022 Fraction division
arith819 Word problem involving fractions and division
arith018 Addition or subtraction of fractions with the same denominator
arith802 Addition or subtraction of fractions with the same denominator and simplification
arith801 Finding the LCD of two fractions
arith109 Addition or subtraction of unit fractions
arith664 Introduction to addition or subtraction of fractions with different denominators
arith230 Addition or subtraction of unit fractions
arith818 Addition or subtraction of fractions with different denominators
arith803 Addition and subtraction of 3 fractions with different denominators
arith805 Word problem involving addition or subtraction of fractions with different denominators
arith100 Fractional part of a circle
arith662 Writing a mixed number and an improper fraction for a shaded region
arith015 Writing an improper fraction as a mixed number
arith215 Addition or subtraction of mixed numbers with the same denominator
arith084 Addition of mixed numbers with the same denominator and carry
arith216 Subtraction of mixed numbers with the same denominator and borrowing
arith806 Addition or subtraction of mixed numbers with different denominators and no carry or borrow
arith808 Addition of mixed numbers with different denominators and carry
arith809 Subtraction of mixed numbers with different denominators and borrowing
arith807 Addition and subtraction of 3 mixed numbers with different denominators
arith810 Word problem involving addition or subtraction of mixed numbers with different denominators
arith815 Mixed number multiplication
arith816 Multiplication of a mixed number and a whole number
arith817 Division with a mixed number and a whole number
arith068 Mixed number division
arith820 Word problem involving multiplication or division with mixed numbers
arith821 Exponents and fractions
arith859 Order of operations with fractions: Problem type 1
arith860 Order of operations with fractions: Problem type 2
arith861 Order of operations with fractions: Problem type 3
arith695 Complex fraction without variables: Problem type 1

Decimals

arith127 Writing a decimal and a fraction for a shaded region
arith110 Decimal place value: Tenths and hundredths
arith220 Decimal place value: Hundreds to ten thousandths
arith714 Writing a decimal number less than 1 given its name
arith715 Writing a decimal number greater than 1 given its name
arith716 Writing a decimal number given its name: Advanced
arith829 Reading decimal position on a number line: Tenths
arith830 Reading decimal position on a number line: Hundredths
arith831 Understanding decimal position on a number line using zoom: Hundredths
arith832 Understanding decimal position on a number line using zoom: Thousandths
arith129 Introduction to ordering decimals
arith608 Ordering decimals
arith221 Rounding decimals
arithmetic717 Converting a decimal to a proper fraction without simplifying: Basic
arithmetic719 Converting a decimal to a proper fraction without simplifying: Advanced
arithmetic718 Converting a decimal to a proper fraction in simplest form: Basic
arithmetic087 Converting a decimal to a proper fraction in simplest form: Advanced
arithmetic721 Converting a decimal to a mixed number and an improper fraction without simplifying
arithmetic722 Converting a decimal to a mixed number and an improper fraction in simplest form: Basic
arithmetic724 Converting a decimal to a mixed number and an improper fraction in simplest form: Advanced
arithmetic024 Addition of aligned decimals
arithmetic013 Decimal addition with 3 numbers
arithmetic734 Decimal subtraction: Basic
arithmetic736 Decimal subtraction: Advanced
arithmetic735 Decimal subtraction with 3 or more numbers
arithmetic131 Estimating a decimal sum or difference
arithmetic132 Word problem with addition or subtraction of 2 decimals
arithmetic133 Word problem with addition of 3 or 4 decimals and whole numbers
arithmetic134 Word problem with subtraction of a whole number and a decimal: Regrouping with zeros
arithmetic739 Introduction to decimal multiplication
arithmetic017 Multiplication of a decimal by a whole number
arithmetic055 Decimal multiplication: Problem type 1
arithmetic046 Decimal multiplication: Problem type 2
arithmetic822 Multiplication of a decimal by a power of ten
arithmetic740 Multiplication of decimals that have a product less than 0.1
arithmetic752 Estimating a product of decimals
arithmetic135 Word problem with multiplication of a decimal and a whole number
arithmetic137 Word problem with multiplication of two decimals
arithmetic224 Word problem with decimal addition and multiplication
arithmetic744 Whole number division with decimal answers
arithmetic081 Division of a decimal by a whole number
arithmetic743 Division of a decimal by a 1-digit decimal
arithmetic019 Division of a decimal by a 2-digit decimal
arithmetic083 Division of a decimal by a power of ten
arithmetic742 Division of a decimal by a power of 0.1
arithmetic745 Decimal division with rounding
arithmetic136 Word problem with division of a decimal and a whole number
arithmetic138 Word problem with division of two decimals
arithmetic227 Word problem with decimal subtraction and division
algebra823 Solving a one-step word problem using the formula \( d = rt \)
arithmetic725 Converting a fraction with a denominator of 10 or 100 to a decimal
arithmetic726 Converting a fraction with a denominator of 100 or 1000 to a decimal
arithmetic609 Ordering fractions and decimals
arithmetic727 Converting a fraction to a terminating decimal: Basic
arithmetic728 Converting a fraction to a terminating decimal: Advanced
arithmetic730 Converting a fraction to a repeating decimal: Basic
arithmetic731 Converting a fraction to a repeating decimal: Advanced
arithmetic733 Using a calculator to convert a fraction to a rounded decimal
arithmetic111 Converting a mixed number to a terminating decimal: Basic
arithmetic112 Converting a mixed number to a terminating decimal: Advanced
arithmetic732 Converting a fraction or mixed number to a rounded decimal
arithmetic733 Squaring decimal bases: Products greater than 0.1
arithmetic741 Exponents and decimals: Products less than 0.1
arithmetic720 Order of operations with decimals: Problem type 1
arithmetic746 Order of operations with decimals: Problem type 2
arithmetic747 Order of operations with decimals: Problem type 3
arithmetic748 Addition or subtraction with a decimal and a mixed number
arithmetic749 Multiplication with a decimal and a fraction

Ratios, Proportions, and Percents

arithmetic823 Writing ratios using different notations
B.1. **BASIC MATH**

arith663 Writing ratios for real-world situations

arith824 Simplifying a ratio of whole numbers: Problem type 1

arith825 Simplifying a ratio of decimals

arith827 Finding a unit price

arith828 Computing unit prices to find the better buy

arith864 Solving a word problem on proportions using a unit rate

arith228 Problem on unit rates associated with ratios of whole numbers: Decimal answers

alge272 Solving a proportion of the form $x/a = b/c$

arith610 Word problem on proportions: Problem type 1

arith611 Word problem on proportions: Problem type 2

alge063 Word problem on mixed number proportions

arith045 Word problem with powers of ten

arith836 Converting a fraction with a denominator of 100 to a percentage

arith837 Converting a percentage to a fraction with a denominator of 100

arith723 Finding the percentage of a grid that is shaded

arith833 Introduction to converting a decimal to a percentage

arith834 Converting between percentages and decimals

arith841 Converting a mixed number percentage to a decimal

arith835 Converting between percentages and decimals in a real-world situation

arith909 Converting a percentage to a fraction in simplest form

arith839 Converting a decimal percentage to a fraction

arith842 Converting a fraction to a percentage: Denominator of 4, 5, or 10

arith843 Converting a fraction to a percentage: Denominator of 20, 25, or 50

arith844 Using a calculator to convert a fraction to a rounded percentage

arith840 Finding a percentage of a whole number

arith845 Finding a percentage of a whole number without a calculator: Basic

arith844 Finding a percentage of a whole number without a calculator: Advanced

arith862 Applying the percent equation: Problem type 1

arith863 Applying the percent equation: Problem type 2

arith845 Finding a percentage of a total amount: Real-world situations

arith846 Finding a percentage of a total amount without a calculator: Sales tax, commission, discount

arith857 Estimating a tip without a calculator

mstat049 Computing a percentage from a table of values

arith850 Finding the rate of a tax or commission

arith849 Finding the total amount given the percentage of a partial amount

arith852 Finding the multiplier to give a final amount after a percentage increase or decrease

arith851 Finding the final amount given the original amount and a percentage increase or decrease

arith847 Finding the sale price given the original price and percent discount

arith874 Finding the sale price without a calculator given the original price and percent discount

arith848 Finding the total cost including tax or markup

arith855 Finding the original amount given the result of a percentage increase or decrease

arith831 Finding the original price given the sale price and percent discount

arith858 Finding the percentage increase or decrease: Basic

arith225 Finding the percentage increase or decrease: Advanced

arith232 Finding simple interest without a calculator

arith853 Introduction to compound interest

algebra741 Finding the final amount in a word problem on compound interest

arith854 Computing a percent mixture

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**Geometry**

geom339 Perimeter of a polygon

geom300 Perimeter of a square or a rectangle

geom618 Perimeter of a polygon involving mixed numbers and fractions

geom878 Sides of polygons having the same perimeter

geom221 Finding the missing length in a figure

geom353 Perimeter of a piecewise rectangular figure
APPENDIX B. SYLLABI IN ALEKS

geom358 Identifying parallel and perpendicular lines
geom349 Naming segments, rays, and lines
geom151 Measuring an angle with the protractor
geom152 Drawing an angle with the protractor
geom303 Acute, obtuse, and right angles
geom304 Finding supplementary and complementary angles
geom305 Identifying supplementary and vertical angles
geom306 Identifying corresponding and alternate angles
geom307 Classifying scalene, isosceles, and equilateral triangles by side lengths or angles
geom301 Finding an angle measure of a triangle given two angles
geom308 Finding an angle measure for a triangle with an extended side
geom312 Finding an angle measure given extended triangles
geom313 Finding an angle measure given a triangle and parallel lines
geom361 Naming polygons
mstat042 Interpreting a Venn diagram of 2 sets
geom367 Identifying parallelograms, rectangles, and squares
geom310 Properties of quadrilaterals
geom352 Classifying parallelograms
geom3019 Area of a square or a rectangle
geom3866 Perimeter and area on a grid
geom320 Area of a rectangle involving fractions
geom319 Area of a rectangle involving mixed numbers and fractions
geom350 Distinguishing between the area and perimeter of a rectangle
geom351 Areas of rectangles with the same perimeter
geom327 Finding the side length of a rectangle given its perimeter or area
geom340 Area of a piecewise rectangular figure
geom34 Word problem involving the area between two rectangles
geom3801 Area of a triangle
geom344 Area involving rectangles and triangles
geom322 Area of a parallelogram
geom323 Area of a trapezoid
geom347 Introduction to a circle: Diameter, radius, and chord
geom316 Circumference of a circle
geom301 Perimeter involving rectangles and circles
geom302 Circumference and area of a circle
geom302 Area involving rectangles and circles
geom336 Word problem involving the area between two concentric circles
geom324 Area involving inscribed figures
geom368 Classifying solids
geom348 Vertices, edges, and faces of a solid
geom330 Counting the cubes in a solid made of cubes
geom354 Volume of a rectangular prism made of unit cubes
geom311 Volume of a rectangular prism
geom355 Volume of a piecewise rectangular prism
geom390 Volume of a triangular prism
geom333 Volume of a pyramid
geom335 Volume of a cylinder
geom392 Word problem involving the rate of filling or emptying a cylinder
geom322 Volume of a cone
geom341 Volume of a sphere
geom329 Nets of solids
geom316 Side views of a solid made of cubes
geom331 Surface area of a cube or a rectangular prism
geom345 Surface area of a piecewise rectangular prism made of unit cubes
geom391 Surface area of a triangular prism
geom321 Surface area of a cylinder
geom342 Surface area of a sphere
arith316 Square root of a perfect square
arith763 Using a calculator to approximate a square root
arith602 Estimating a square root
arith601 Square root of a rational perfect square
B.1. BASIC MATH

Introduction to the Pythagorean Theorem
Pythagorean Theorem
Word problem involving the Pythagorean Theorem
Identifying congruent shapes on a grid
Identifying and naming congruent triangles
Identifying similar or congruent shapes on a grid
Similar polygons
Similar right triangles
Indirect measurement

Measurement
Choosing U.S. Customary measurement units
U.S. Customary unit conversion with whole number values
Conversions involving measurements in feet and inches
Adding measurements in feet and inches
U.S. Customary unit conversion with whole number values: Two-step conversion
U.S. Customary unit conversion with mixed number values: One-step conversion
U.S. Customary unit conversion with mixed number values: Two-step conversion
U.S. Customary area unit conversion with whole number values
Choosing metric measurement units
Metric distance conversion with whole number values
Metric mass or capacity conversion with whole number values
Metric distance conversion with decimal values
Metric conversion with decimal values: Two-step problem
Metric area unit conversion with decimal values
Time unit conversion with whole number values
Adding time
Elapsed time
Word problem with clocks
Converting between temperatures in Fahrenheit and Celsius
Simplifying a ratio of whole numbers: Problem type 2
Converting between metric and U.S. Customary unit systems
Converting between compound units: Basic
Converting between compound units: Advanced

Data Analysis and Statistics
Interpreting a tally table
Constructing a line plot
Constructing a bar graph for non-numerical data
Constructing a histogram for numerical data
Interpreting a bar graph
Interpreting a double bar graph
Interpreting a pictograph table
Interpreting a line graph
Interpreting a stem-and-leaf plot
Interpreting a circle graph or pie chart
Finding a percentage of a total amount in a circle graph
Computations from a circle graph
Angle measure in a circle graph
Calculating relative frequencies in a contingency table
Making a reasonable inference based on proportion statistics
Finding if a question can be answered by the data
Mode of a data set
Finding the mode and range of a data set
Average of two numbers
Mean of a data set
mstat028 Mean and median of a data set
stat803 Finding the value for a new score that will yield a given mean
mstat029 How changing a value affects the mean and median
mstat053 Choosing the best measure to describe data
stat802 Rejecting unreasonable claims based on average statistics
mstat066 Weighted mean
mstat027 Using back-to-back stem-and-leaf plots to compare data sets
mstat072 Five-number summary and interquartile range
mstat006 Constructing a box-and-whisker plot
mstat073 Using box-and-whisker plots to compare data sets
mstat043 Interpreting a Venn diagram of 3 sets
mstat041 Interpreting a tree diagram
mstat040 Introduction to the counting principle
mstat015 Counting principle
pcalc082 Factorial expressions
mstat017 Computing permutations and combinations
mstat008 Word problem involving permutations
mstat009 Word problem involving combinations
mstat026 Introduction to the probability of an event
mstat010 Probability of an event
mstat039 Understanding likelihood
mstat048 Odds of an event
stat106 Outcomes and event probability
stat112 Probabilities involving two dice
mstat011 Area as probability
mstat046 Experimental and theoretical probability
mstat047 Introduction to expectation
mstat012 Probability of independent events
mstat013 Probability of dependent events
mstat032 Probability of the union of two events

Real Numbers

alge286 Plotting integers on a number line
arith605 Plotting rational numbers on a number line
mstat038 Reading the temperature from a thermometer
arith699 Writing a signed number for a real-world situation
arith691 Ordering integers
arith712 Ordering real numbers
arith671 Absolute value of a number
arith200 Integer addition: Problem type 1
arith108 Integer addition: Problem type 2
arith688 Integer subtraction: Problem type 1
arith689 Integer subtraction: Problem type 2
arith690 Integer subtraction: Problem type 3
arith754 Addition and subtraction with 3 integers
arith755 Addition and subtraction with 4 or 5 integers
arith701 Word problem with addition or subtraction of integers
arith231 Integer multiplication and division
arith800 Multiplication of 3 or 4 integers
alge001 Identifying numbers as integers or non-integers
alge002 Identifying numbers as rational or irrational
arith116 Signed fraction addition or subtraction: Basic
arith864 Signed fraction subtraction involving double negation
arith106 Signed fraction addition or subtraction: Advanced
arith811 Addition and subtraction of 3 fractions involving signs
arith822 Signed fraction multiplication: Basic
arith105 Signed fraction multiplication: Advanced
arith814 Signed fraction division
arith117 Signed decimal addition and subtraction
B.1. BASIC MATH

arith234 Signed decimal addition and subtraction with 3 numbers
arith750 Signed decimal multiplication
arith751 Signed decimal division
arith104 Operations with absolute value: Problem type 2
unit052 Finding the absolute error and percent error of a measurement
arith702 Exponents and integers: Problem type 1
arith703 Exponents and integers: Problem type 2
arith704 Exponents and signed fractions
arith118 Order of operations with integers
arith600 Order of operations with integers and exponents
arith696 Complex fraction without variables: Problem type 2
arith036 Scientific notation with positive exponent
arith037 Scientific notation with negative exponent
scinot012 Converting between scientific notation and standard form in a real-world situation

Algebraic Expressions and Equations

alg005 Evaluating a linear expression: Integer multiplication with addition or subtraction
alg808 Evaluating a linear expression: Signed fraction multiplication with addition or subtraction
alg302 Evaluating a linear expression: Signed decimal addition and subtraction
alg303 Evaluating a linear expression: Signed decimal multiplication with addition or subtraction
alg832 Evaluating an algebraic expression: Whole number operations and exponents
alg004 Evaluating a quadratic expression: Integers
alg310 Multiplying a constant and a linear monomial
alg606 Distributive property: Whole number coefficients
alg604 Distributive property: Integer coefficients
alg700 Combining like terms: Whole number coefficients
alg607 Combining like terms: Integer coefficients
alg608 Using distribution and combining like terms to simplify: Univariate
alg609 Using distribution with double negation and combining like terms to simplify: Multivariate
alg293 Combining like terms in a quadratic expression
alg432 Introduction to adding fractions with variables and common denominators
alg436 Adding rational expressions with different denominators and a single occurrence of a variable
alg437 Adding rational expressions with denominators ax and bx: Basic
alg187 Properties of addition
alg188 Properties of real numbers
alg801 Additive property of equality with fractions and mixed numbers
alg800 Additive property of equality with decimals
alg010 Additive property of equality with integers
alg836 Additive property of equality with signed fractions
alg511 Solving for a variable in terms of other variables using addition or subtraction: Basic
alg820 Multiplicative property of equality with fractions
alg825 Multiplicative property of equality with decimals
alg797 Multiplicative property of equality with integers
alg012 Multiplicative property of equality with signed fractions
alg513 Solving for a variable in terms of other variables using multiplication or division: Basic
alg834 Identifying solutions to a linear equation in one variable: Two-step equations
alg266 Additive property of equality with a negative coefficient
alg006 Solving a two-step equation with integers
alg200 Solving an equation to find the value of an expression
alg920 Introduction to solving an equation with parentheses
alg837 Solving a multi-step equation given in fractional form
alg986 Identifying properties used to solve a linear equation
alg824 Solving a two-step equation with signed decimals
alg838 Introduction to solving an equation with variables on the same side
alg862 Solving a linear equation with several occurrences of the variable: Variables on the same side
alg863 Solving a linear equation with several occurrences of the variable: Variables on both sides
alg011 Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
alg013 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
APPENDIX B. SYLLABI IN ALEKS

alge209 Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions
alge420 Solving a linear equation with several occurrences of the variable: Fractional forms with monomial numerators
alge208 Solving a two-step equation with signed fractions
alge061 Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
alge742 Solving equations with zero, one, or infinitely many solutions
alge840 Solving a proportion of the form \((x+a)\div b = c\div d\)
alge271 Solving a proportion of the form \(a/(x+b) = c/x\)
alge512 Solving for a variable in terms of other variables using addition or subtraction: Advanced
alge733 Writing a one-step expression for a real-world situation
alge831 Translating a phrase into a one-step expression
alge291 Translating a phrase into a two-step expression
alge016 Translating a sentence into a one-step equation
alge841 Translating a sentence into a multi-step equation
alge802 Solving a fraction word problem using a linear equation of the form \(Ax = B\)
alge218 Solving a word problem involving rates and time conversion
alge014 Solving a word problem with two unknowns using a linear equation
alge173 Solving a decimal word problem using a linear equation of the form \(Ax + B = C\)
alge219 Solving a decimal word problem using a linear equation with the variable on both sides
alge704 Solving a fraction word problem using a linear equation with the variable on both sides
alge842 Solving a word problem involving consecutive integers
geom530 Solving equations involving vertical angles
geom531 Solving equations involving angles and a pair of parallel lines
geom823 Finding angle measures of a triangle given angles with variables
geom502 Finding angle measures of a right or isosceles triangle given angles with variables
geom817 Finding a side length given the perimeter and side lengths with variables
geom143 Finding the perimeter or area of a rectangle given one of these values
geom218 Finding the radius or the diameter of a circle given its circumference
geom838 Circumference ratios

Inequalities

alge015 Translating a sentence by using an inequality symbol
alge017 Graphing a linear inequality on the number line
alge822 Writing an inequality given a graph on the number line
alge845 Translating a sentence into a one-step inequality
alge846 Translating a sentence into a multi-step inequality
alge748 Writing an inequality for a real-world situation
alge844 Identifying solutions to a two-step linear inequality in one variable
alge848 Additive property of inequality with whole numbers
alge849 Additive property of inequality with integers
alge852 Additive property of inequality with signed fractions
alge853 Additive property of inequality with signed decimals
alge854 Multiplicative property of inequality with integers
alge964 Multiplicative property of inequality with signed fractions
alge855 Solving a two-step linear inequality: Problem type 1
alge856 Solving a two-step linear inequality: Problem type 2

Graphs of Linear Equations

alge064 Reading a point in the coordinate plane
alge067 Plotting a point in the coordinate plane
alge850 Table for a linear equation
alge873 Identifying solutions to a linear equation in two variables
alge066 Finding a solution to a linear equation in two variables
fun005 Writing a function rule given a table of ordered pairs: One-step rules
B.1. BASIC MATH

alge191 Midpoint of a line segment in the plane
alge877 Graphing a linear equation of the form y = mx
alge878 Graphing a line given its equation in slope-intercept form: Integer slope
alge879 Graphing a line given its equation in slope-intercept form: Fractional slope
alge880 Graphing a line given its equation in standard form
alge198 Graphing a vertical or horizontal line
alge884 Finding x- and y-intercepts given the graph of a line on a grid
alge924 Finding x- and y-intercepts of a line given the equation: Basic
alge210 Finding x- and y-intercepts of a line given the equation: Advanced
alge197 Graphing a line given its x- and y-intercepts
alge881 Graphing a line by first finding its x- and y-intercepts
alge954 Graphing a parabola of the form y = ax^2
alge875 Classifying slopes given graphs of lines
alge886 Finding slope given the graph of a line on a grid
alge887 Finding slope given two points on the line
alge885 Finding the slope of horizontal and vertical lines
alge888 Finding the coordinate that yields a given slope
alge229 Graphing a line given its slope and y-intercept
alge196 Graphing a line through a given point with a given slope
alge701 Writing an equation and drawing its graph to model a real-world situation: Advanced
alge263 Interpreting the graphs of two functions
alge060 Solving a rational equation that simplifies to linear: Denominator x
alge982 Identifying direct variation equations
alge938 Identifying direct variation from ordered pairs and writing equations
alge904 Writing a direct variation equation
alge175 Word problem on direct variation
alge828 Interpreting direct variation from a graph
alge905 Writing an inverse variation equation
alge903 Identifying direct and inverse variation equations
alge902 Identifying direct and inverse variation from ordered pairs and writing equations
alge176 Word problem on inverse variation

Exponents and Polynomials

alge758 Degree and leading coefficient of a univariate polynomial
alge798 Simplifying a sum or difference of two univariate polynomials
alge029 Simplifying a sum or difference of three univariate polynomials
alge932 Simplifying a sum or difference of multivariate polynomials
alge821 Understanding the product rule of exponents
alge024 Introduction to the product rule of exponents
alge311 Product rule with positive exponents: Univariate
alge030 Product rule with positive exponents: Multivariate
alge826 Understanding the power rules of exponents
alge306 Introduction to the power of a power rule of exponents
alge305 Introduction to the power of a product rule of exponents
alge307 Power rules with positive exponents: Multivariate products
alge308 Power rules with positive exponents: Multivariate quotients
alge756 Power and product rules with positive exponents
arith029 Ordering numbers with positive exponents
alge745 Multiplying a univariate polynomial by a monomial with a positive coefficient
alge972 Multiplying a univariate polynomial by a monomial with a negative coefficient
alge835 Multiplying a multivariate polynomial by a monomial
alge033 Multiplying binomials with leading coefficients of 1
alge983 Multiplying binomials with leading coefficients greater than 1
alge765 Multiplying binomials in two variables
alge764 Multiplying conjugate binomials: Univariate
alge981 Multiplying conjugate binomials: Multivariate
alge032 Squaring a binomial: Univariate
alge068 Squaring a binomial: Multivariate
alge935 Multiplication involving binomials and trinomials in one variable
APPENDIX B. SYLLABI IN ALEKS

alge180 Multiplication involving binomials and trinomials in two variables
alge736 Introduction to the GCF of two monomials
alge037 Greatest common factor of two multivariate monomials
alge930 Greatest common factor of three univariate monomials
alge737 Introduction to the LCM of two monomials
alge055 Least common multiple of two monomials
alge605 Factoring a linear binomial
alge738 Factoring out a monomial from a polynomial: Univariate
alge739 Factoring out a monomial from a polynomial: Multivariate
alge451 Simplifying a ratio of multivariate monomials: Basic
alge827 Introduction to the quotient rule of exponents
alge452 Simplifying a ratio of univariate monomials
alge026 Quotient of expressions involving exponents
alge453 Simplifying a ratio of multivariate monomials: Advanced
alge790 Evaluating expressions with exponents of zero
arith684 Power of 10: Negative exponent
arith729 Evaluating an expression with a negative exponent: Whole number base
arith642 Evaluating an expression with a negative exponent: Positive fraction base
arith643 Evaluating an expression with a negative exponent: Negative integer base
alge791 Rewriting an algebraic expression without a negative exponent
alge961 Introduction to the product rule with negative exponents
alge028 Product rule with negative exponents
alge025 Power of a power rule with negative exponents
alge799 Power rules with negative exponents
alge755 Quotient rule with negative exponents: Problem type 1
scinot008 Multiplying numbers written in scientific notation: Basic
scinot009 Multiplying numbers written in scientific notation: Advanced
scinot010 Dividing numbers written in scientific notation: Basic
scinot011 Dividing numbers written in scientific notation: Advanced
alge413 Finding all square roots of a number
arith693 Simplifying the square root of a whole number less than 100
arith762 Simplifying the square root of a whole number greater than 100
arith764 Introduction to square root multiplication
arith765 Square root multiplication: Basic
arith767 Introduction to square root addition or subtraction
arith632 Square root addition or subtraction
alge533 Square root addition or subtraction with three terms

B.2 Pre-Algebra

Whole Numbers

arith124 Whole number place value: Problem type 1
arith125 Whole number place value: Problem type 2
arith066 Expanded form
arith043 Expanded form with zeros
arith028 Numerical translation: Problem type 1
arith060 Numerical translation: Problem type 2
arith633 One-digit addition with carry
arith634 Addition of 3 or 4 one-digit numbers
arith601 Addition without carry
arith635 Adding a 2-digit number and a 1-digit number with carry
arith650 Addition with carry
arith630 Addition with carry to the hundreds place
arith012 Addition of large numbers
arith636 Subtracting a 1-digit number from a 2-digit number
arith007 Subtraction without borrowing
arith128 Adding or subtracting 10, 100, or 1000
B.2. PRE-ALGEBRA

arith006 Subtraction with borrowing
arith682 Subtraction with multiple regrouping steps
arith637 Subtraction and regrouping with zeros
arith613 Word problem with addition or subtraction of whole numbers
arith655 Introduction to properties of addition
arith126 Multiplication as repeated addition
arith008 One-digit multiplication
arith679 Multiplication by 10, 100, and 1000
arith003 Multiplication without carry
arith004 Multiplication with carry
arith632 Multiplication with trailing zeros: Problem type 1
arith615 Introduction to multiplication of large numbers
arith638 Multiplication with trailing zeros: Problem type 2
arith014 Multiplication of large numbers
arith641 Multiples: Problem type 1
arith642 Multiples: Problem type 2
arith656 Introduction to properties of multiplication
arith675 Division facts
arith614 Word problem with multiplication or division of whole numbers
arith130 Word problem with multiplication and addition or subtraction of whole numbers
arith243 Division of whole numbers given in fractional form
arith711 Division involving zero
arith652 Division without carry
arith005 Division with carry
arith680 Division with trailing zeros: Problem type 1
arith649 Division with trailing zeros: Problem type 2
arith616 Quotient and remainder: Problem type 1
arith644 Word problem on quotient and remainder
arith617 Quotient and remainder: Problem type 2
arith631 Quotient and remainder: Problem type 3
arith650 Division involving quotients with intermediate zeros
arith623 Word problem with division of whole numbers and rounding
arith646 Even and odd numbers
arith651 Introduction to inequalities
arith077 Ordering large numbers
arith078 Rounding to tens or hundreds
arith123 Rounding to hundreds or thousands
arith061 Rounding to thousands, ten thousands, or hundred thousands
arith101 Estimating a sum of whole numbers
arith102 Estimating a difference of whole numbers
arith604 Estimating a product or quotient of whole numbers
arith692 Writing expressions using exponents
arith233 Introduction to exponents
arith683 Power of 10: Positive exponent
arith645 Introduction to parentheses
arith681 Introduction to order of operations
arith048 Order of operations with whole numbers
arith051 Order of operations with whole numbers and grouping symbols
arith693 Order of operations with whole numbers and exponents: Basic
arith713 Order of operations with whole numbers and exponents: Advanced
arith657 Understanding the distributive property

Integers

alge286 Plotting integers on a number line
mstat038 Reading the temperature from a thermometer
arith699 Writing a signed number for a real-world situation
arith691 Ordering integers
arith071 Absolute value of a number
arith200 Integer addition: Problem type 1
Appendix B. Syllabi in ALEKS

arith108 Integer addition: Problem type 2
arith688 Integer subtraction: Problem type 1
arith689 Integer subtraction: Problem type 2
arith690 Integer subtraction: Problem type 3
arith754 Addition and subtraction with 3 integers
arith755 Addition and subtraction with 4 or 5 integers
arith701 Word problem with addition or subtraction of integers
arith104 Operations with absolute value: Problem type 2
arith231 Integer multiplication and division
arith800 Multiplication of 3 or 4 integers
arith702 Exponents and integers: Problem type 1
arith703 Exponents and integers: Problem type 2
arith118 Order of operations with integers
arith600 Order of operations with integers and exponents

Algebraic Expressions and Equations

alge284 Evaluating an algebraic expression: Whole number addition or subtraction
alge683 Evaluating an algebraic expression: Whole number multiplication or division
alge285 Evaluating an algebraic expression: Whole numbers with two operations
alge832 Evaluating an algebraic expression: Whole number operations and exponents
alge605 Evaluating a linear expression: Integer multiplication with addition or subtraction
alge604 Evaluating a quadratic expression: Integers
alge310 Multiplying a constant and a linear monomial
alge606 Distributive property: Whole number coefficients
alge604 Distributive property: Integer coefficients
alge700 Combining like terms: Whole number coefficients
alge607 Combining like terms: Integer coefficients
alge608 Using distribution and combining like terms to simplify: Univariate
alge609 Using distribution with double negation and combining like terms to simplify: Multivariate
alge293 Combining like terms in a quadratic expression
alge609 Additive property of equality with whole numbers
alge010 Additive property of equality with integers
alge511 Solving for a variable in terms of other variables using addition or subtraction: Basic
alge008 Multiplicative property of equality with whole numbers
alge797 Multiplicative property of equality with integers
alge512 Solving for a variable in terms of other variables using addition or subtraction: Advanced
alge742 Solving equations with zero, one, or infinitely many solutions
alge513 Solving a linear equation with several occurrences of the variable: Variables on the same side
alge834 Identifying solutions to a linear equation in one variable: Two-step equations
alge803 Using two steps to solve an equation with whole numbers
alge266 Additive property of equality with a negative coefficient
alge606 Solving a two-step equation with integers
alge290 Solving an equation to find the value of an expression
alge920 Introduction to solving an equation with parentheses
alge838 Introduction to solving an equation with variables on the same side
alge862 Solving a linear equation with several occurrences of the variable: Variables on the same side
alge863 Solving a linear equation with several occurrences of the variable: Variables on both sides
alge011 Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
alge013 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
alge986 Identifying properties used to solve a linear equation
alge742 Solving equations with zero, one, or infinitely many solutions
alge512 Solving for a variable in terms of other variables using addition or subtraction: Advanced
alge733 Writing a one-step expression for a real-world situation
alge831 Translating a phrase into a one-step expression
alge291 Translating a phrase into a two-step expression
alge016 Translating a sentence into a one-step equation
alge841 Translating a sentence into a multi-step equation
alge014 Solving a word problem with two unknowns using a linear equation
alge842 Solving a word problem involving consecutive integers
Fractions

arith647 Divisibility rules for 2, 5, and 10
arith648 Divisibility rules for 3 and 9
arith656 Factors
arith634 Prime numbers
arith635 Prime factorization
arith633 Greatest common factor of 2 numbers
arith670 Least common multiple of 2 numbers
arith804 Least common multiple of 3 numbers
arith240 Word problem with common multiples
alge925 Finding the next terms of an arithmetic sequence with whole numbers
alge933 Finding the next terms of a geometric sequence with whole numbers
alge732 Finding patterns in shapes
arith623 Introduction to fractions
arith665 Understanding equivalent fractions
arith212 Equivalent fractions
arith666 Introduction to simplifying a fraction
arith067 Simplifying a fraction
alten925 Finding the next terms of an arithmetic sequence with whole numbers
alten933 Finding the next terms of a geometric sequence with whole numbers
alten732 Finding patterns in shapes
alten623 Introduction to fractions
alten665 Understanding equivalent fractions
alten212 Equivalent fractions
alten666 Introduction to simplifying a fraction
alten067 Simplifying a fraction
aritnb812 Product of a fraction and a whole number: Problem type 1
aritnb119 Introduction to fraction multiplication
aritnb812 Product of a fraction and a whole number: Problem type 2
aritnb813 Multiplication of 3 fractions
aritnb822 Signed fraction multiplication: Basic
aritnb105 Signed fraction multiplication: Advanced
aritnb818 Word problem involving fractions and multiplication
aritnb095 Multi-step word problem involving fractions and multiplication
aritnb088 The reciprocal of a number
aritnb694 Division involving a whole number and a fraction
aritnb822 Fraction division
aritnb814 Signed fraction division
aritnb819 Word problem involving fractions and division
aritnb618 Addition or subtraction of fractions with the same denominator
aritnb802 Addition or subtraction of fractions with the same denominator and simplification
alten432 Introduction to adding fractions with variables and common denominators
aritnb801 Finding the LCD of two fractions
aritnb109 Addition or subtraction of unit fractions
aritnb664 Introduction to addition or subtraction of fractions with different denominators
aritnb230 Addition or subtraction of fractions with different denominators
aritnb803 Addition and subtraction of 3 fractions with different denominators
aritnb116 Signed fraction addition or subtraction: Basic
aritnb864 Signed fraction subtraction involving double negation
aritnb106 Signed fraction addition or subtraction: Advanced
aritnb811 Addition and subtraction of 3 fractions involving signs
alten436 Adding rational expressions with different denominators and a single occurrence of a variable
alten437 Adding rational expressions with denominators ax and bx: Basic
aritnb805 Word problem involving addition or subtraction of fractions with different denominators
aritnb100 Fractional part of a circle
aritnb662 Writing a mixed number and an improper fraction for a shaded region
aritnb615 Writing an improper fraction as a mixed number
aritnb619 Writing a mixed number as an improper fraction
aritnb605 Plotting rational numbers on a number line
aritnb215 Addition or subtraction of mixed numbers with the same denominator
aritnb084 Addition of mixed numbers with the same denominator and carry
arith216 Subtraction of mixed numbers with the same denominator and borrowing
arith806 Addition or subtraction of mixed numbers with different denominators and no carry or borrow
arith808 Addition of mixed numbers with different denominators and carry
arith809 Subtraction of mixed numbers with different denominators and borrowing
arith807 Addition and subtraction of 3 mixed numbers with different denominators
arith810 Word problem involving addition or subtraction of mixed numbers with different denominators
arith815 Mixed number multiplication
arith816 Multiplication of a mixed number and a whole number
arith817 Division with a mixed number and a whole number
arith068 Mixed number division
arith820 Word problem involving multiplication or division with mixed numbers
arith821 Exponents and fractions
arith859 Order of operations with fractions: Problem type 1
arith860 Order of operations with fractions: Problem type 2
arith861 Order of operations with fractions: Problem type 3
alge808 Evaluating a linear expression: Signed fraction multiplication with addition or subtraction
arith695 Complex fraction without variables: Problem type 1
arith696 Complex fraction without variables: Problem type 2
alge801 Additive property of equality with fractions and mixed numbers
alge836 Additive property of equality with signed fractions
alge820 Multiplicative property of equality with fractions
alge012 Multiplicative property of equality with signed fractions
alge837 Solving a multi-step equation given in fractional form
alge208 Solving a two-step equation with signed fractions
alge420 Solving a linear equation with several occurrences of the variable: Fractional forms with monomial numerators
alge061 Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
alge209 Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions
alge187 Properties of addition
alge188 Properties of real numbers
alge802 Solving a fraction word problem using a linear equation of the form Ax = B
alge704 Solving a fraction word problem using a linear equation with the variable on both sides

Decimals

arith127 Writing a decimal and a fraction for a shaded region
arith110 Decimal place value: Tenths and hundredths
arith220 Decimal place value: Hundreds to ten thousandths
arith714 Writing a decimal number less than 1 given its name
arith715 Writing a decimal number greater than 1 given its name
arith716 Writing a decimal number given its name: Advanced
arith829 Reading decimal position on a number line: Tenths
arith830 Reading decimal position on a number line: Hundredths
arith831 Understanding decimal position on a number line using zoom: Hundredths
arith832 Understanding decimal position on a number line using zoom: Thousandths
arith129 Introduction to ordering decimals
arith608 Ordering decimals
arith221 Rounding decimals
arith717 Converting a decimal to a proper fraction without simplifying: Basic
arith719 Converting a decimal to a proper fraction without simplifying: Advanced
arith718 Converting a decimal to a proper fraction in simplest form: Basic
arith887 Converting a decimal to a proper fraction in simplest form: Advanced
arith721 Converting a decimal to a mixed number and an improper fraction without simplifying
arith722 Converting a decimal to a mixed number and an improper fraction in simplest form: Basic
arith724 Converting a decimal to a mixed number and an improper fraction in simplest form: Advanced
arith624 Addition of aligned decimals
arith013 Decimal addition with 3 numbers
alge413 Finding all square roots of a number
arith093 Simplifying the square root of a whole number less than 100
arith762 Simplifying the square root of a whole number greater than 100
arith764 Introduction to square root multiplication
arith765 Square root multiplication: Basic
arith767 Introduction to square root addition or subtraction
arith832 Square root addition or subtraction
alge533 Square root addition or subtraction with three terms
alge001 Identifying numbers as integers or non-integers
alge002 Identifying numbers as rational or irrational
arith712 Ordering real numbers

Ratios, Proportions, and Percents

arith823 Writing ratios using different notations
arith663 Writing ratios for real-world situations
arith824 Simplifying a ratio of whole numbers: Problem type 1
arith825 Simplifying a ratio of decimals
arith827 Finding a unit price
arith828 Computing unit prices to find the better buy
arith864 Solving a word problem on proportions using a unit rate
alge823 Solving a one-step word problem using the formula d = rt
arith828 Word problem on unit rates associated with ratios of whole numbers: Decimal answers
alge272 Solving a proportion of the form \( \frac{x}{a} = \frac{b}{c} \)
alge840 Solving a proportion of the form \( a \div b = c \div d \)
alge271 Solving a proportion of the form \( \frac{a}{x+b} = \frac{c}{x} \)
arith610 Word problem on proportions: Problem type 1
arith611 Word problem on proportions: Problem type 2
alge063 Word problem on mixed number proportions
arith845 Word problem with powers of ten
arith836 Converting a fraction with a denominator of 100 to a percentage
arith837 Converting a percentage to a fraction with a denominator of 100
arith874 Finding the percentage of a grid that is shaded
arith723 Introduction to converting a percentage to a decimal
arith833 Introduction to converting a decimal to a percentage
arith834 Converting between percentages and decimals
arith841 Converting a mixed number percentage to a decimal
arith835 Converting between percentages and decimals in a real-world situation
arith890 Converting a percentage to a fraction in simplest form
arith839 Converting a decimal percentage to a fraction
arith889 Converting a fraction to a percentage: Denominator of 4, 5, or 10
arith802 Converting a fraction to a percentage: Denominator of 20, 25, or 50
arith843 Using a calculator to convert a fraction to a rounded percentage
arith842 Converting a fraction to a percentage in a real-world situation
arith840 Finding a percentage of a whole number
arith830 Finding a percentage of a whole number without a calculator: Basic
arith844 Finding a percentage of a whole number without a calculator: Advanced
arith862 Applying the percent equation: Problem type 1
arith863 Applying the percent equation: Problem type 2
arith845 Finding a percentage of a total amount: Real-world situations
arith846 Finding a percentage of a total amount without a calculator: Sales tax, commission, discount
arith857 Estimating a tip without a calculator
arith069 Writing a ratio as a percentage without a calculator
mstat049 Computing a percentage from a table of values
arith850 Finding the rate of a tax or commission
arith849 Finding the total amount given the percentage of a partial amount
arith852 Finding the multiplier to give a final amount after a percentage increase or decrease
arith851 Finding the final amount given the original amount and a percentage increase or decrease
arith847 Finding the sale price given the original price and percent discount
arith074 Finding the sale price without a calculator given the original price and percent discount
B.2. PRE-ALGEBRA

arith848 Finding the total cost including tax or markup
arith855 Finding the original amount given the result of a percentage increase or decrease
arith031 Finding the original price given the sale price and percent discount
arith858 Finding the percentage increase or decrease: Basic
arith225 Finding the percentage increase or decrease: Advanced
unit052 Finding the absolute error and percent error of a measurement
arith232 Finding simple interest without a calculator
arith853 Introduction to compound interest
alge741 Finding the final amount in a word problem on compound interest
arith854 Computing a percent mixture

Geometry

ggeom039 Perimeter of a polygon
ggeom300 Perimeter of a square or a rectangle
ggeom618 Perimeter of a polygon involving mixed numbers and fractions
ggeom078 Sides of polygons having the same perimeter
ggeom221 Finding the missing length in a figure
ggeom353 Perimeter of a piecewise rectangular figure
ggeom358 Identifying parallel and perpendicular lines
ggeom349 Naming segments, rays, and lines
ggeom151 Measuring an angle with the protractor
ggeom152 Drawing an angle with the protractor
ggeom303 Acute, obtuse, and right angles
ggeom039 Finding supplementary and complementary angles
ggeom305 Identifying supplementary and vertical angles
ggeom530 Solving equations involving vertical angles
ggeom304 Identifying corresponding and alternate angles
ggeom351 Solving equations involving angles and a pair of parallel lines
ggeom306 Acute, obtuse, and right triangles
ggeom307 Classifying scalene, isosceles, and equilateral triangles by side lengths or angles
ggeom001 Finding an angle measure of a triangle given two angles
ggeom623 Finding angle measures of a triangle given angles with variables
ggeom502 Finding angle measures of a right or isosceles triangle given angles with variables
ggeom908 Finding an angle measure for a triangle with an extended side
ggeom812 Finding an angle measure given extended triangles
ggeom813 Finding an angle measure given a triangle and parallel lines
ggeom361 Naming polygons
mstat042 Interpreting a Venn diagram of 2 sets
ggeom867 Identifying parallelograms, rectangles, and squares
ggeom310 Properties of quadrilaterals
ggeom532 Classifying parallelograms
ggeom019 Area of a square or a rectangle
ggeom866 Perimeter and area on a grid
ggeom620 Area of a rectangle involving fractions
ggeom619 Area of a rectangle involving mixed numbers and fractions
ggeom350 Distinguishing between the area and perimeter of a rectangle
ggeom351 Areas of rectangles with the same perimeter
ggeom217 Finding the side length of a rectangle given its perimeter or area
ggeom817 Finding a side length given the perimeter and side lengths with variables
ggeom143 Finding the perimeter or area of a rectangle given one of these values
ggeom340 Area of a piecewise rectangular figure
ggeom142 Word problem involving the area between two rectangles
ggeom801 Area of a triangle
ggeom344 Area involving rectangles and triangles
ggeom022 Area of a parallelogram
ggeom253 Area of a trapezoid
ggeom347 Introduction to a circle: Diameter, radius, and chord
ggeom016 Circumference of a circle
ggeom218 Finding the radius or the diameter of a circle given its circumference
geom838 Circumference ratios
geom301 Perimeter involving rectangles and circles
geom802 Circumference and area of a circle
geom302 Area involving rectangles and circles
geom806 Word problem involving the area between two concentric circles
geom214 Area involving inscribed figures
geom868 Classifying solids
geom348 Vertices, edges, and faces of a solid
geom830 Counting the cubes in a solid made of cubes
geom354 Volume of a rectangular prism made of unit cubes
geom311 Volume of a rectangular prism
geom505 Volume of a piecewise rectangular prism
geom090 Volume of a triangular prism
geom033 Volume of a pyramid
geom035 Volume of a sphere
geom219 Nets of solids
geom816 Side views of a solid made of cubes
geom031 Surface area of a cube or a rectangular prism
geom345 Surface area of a piecewise rectangular prism made of unit cubes
geom091 Surface area of a triangular prism
geom621 Surface area of a cylinder
geom842 Surface area of a sphere
alge407 Introduction to the Pythagorean Theorem
geom044 Pythagorean Theorem
alge408 Word problem involving the Pythagorean Theorem
geom359 Identifying congruent shapes on a grid
geom520 Identifying and naming congruent triangles
geom037 Similar polygons
geom038 Similar right triangles
geom337 Indirect measurement

Measurement

mstat059 Choosing U.S. Customary measurement units
unit005 U.S. Customary unit conversion with whole number values
mstat035 Conversions involving measurements in feet and inches
mstat036 Adding measurements in feet and inches
unit006 U.S. Customary unit conversion with whole number values: Two-step conversion
unit007 U.S. Customary unit conversion with mixed number values: One-step conversion
unit008 U.S. Customary unit conversion with mixed number values: Two-step conversion
unit009 U.S. Customary area unit conversion with whole number values
mstat060 Choosing metric measurement units
unit001 Metric distance conversion with whole number values
unit002 Metric mass or capacity conversion with whole number values
unit003 Metric distance conversion with decimal values
unit004 Metric conversion with decimal values: Two-step problem
unit010 Metric area unit conversion with decimal values
unit012 Time unit conversion with whole number values
time006 Adding time
time007 Elapsed time
arith063 Word problem with clocks
mstat065 Converting between temperatures in Fahrenheit and Celsius
arith066 Simplifying a ratio of whole numbers: Problem type 2
alge218 Solving a word problem involving rates and time conversion
unit034 Converting between metric and U.S. Customary unit systems
unit035 Converting between compound units: Basic
B.2. PRE-ALGEBRA

Statistics and Probability

mstat056 Interpreting a tally table
mstat057 Constructing a line plot
mstat005 Constructing a bar graph for non-numerical data
mstat004 Constructing a histogram for numerical data
mstat024 Interpreting a bar graph
mstat044 Interpreting a double bar graph
mstat057 Interpreting a pictograph table
mstat007 Interpreting a line graph
mstat031 Interpreting a stem-and-leaf plot
stat084 Interpreting a circle graph or pie chart
arith056 Finding a percentage of a total amount in a circle graph
stat081 Computations from a circle graph
geom014 Angle measure in a circle graph
stat020 Calculating relative frequencies in a contingency table
stat085 Making a reasonable inference based on proportion statistics
mstat025 Finding if a question can be answered by the data
mstat003 Mode of a data set
mstat055 Finding the mode and range of a data set
arith03 Average of two numbers
mstat001 Mean of a data set
mstat028 Mean and median of a data set
stat083 Finding the value for a new score that will yield a given mean
mstat029 How changing a value affects the mean and median
mstat053 Choosing the best measure to describe data
stat082 Rejecting unreasonable claims based on average statistics
mstat066 Weighted mean
mstat027 Using back-to-back stem-and-leaf plots to compare data sets
mstat072 Five-number summary and interquartile range
mstat006 Constructing a box-and-whisker plot
mstat073 Using box-and-whisker plots to compare data sets
mstat043 Interpreting a Venn diagram of 3 sets
mstat041 Interpreting a tree diagram
mstat040 Introduction to the counting principle
mstat015 Counting principle
pcalc082 Factorial expressions
mstat017 Computing permutations and combinations
mstat008 Word problem involving permutations
mstat009 Word problem involving combinations
mstat026 Introduction to the probability of an event
mstat010 Probability of an event
mstat039 Understanding likelihood
mstat048 Odds of an event
stat016 Outcomes and event probability
stat012 Probabilities involving two dice
mstat011 Area as probability
mstat046 Experimental and theoretical probability
mstat047 Introduction to expectation
mstat012 Probability of independent events
mstat013 Probability of dependent events
mstat032 Probability of the union of two events

Graphs of Linear Equations

alg064 Reading a point in the coordinate plane
alg067 Plotting a point in the coordinate plane
APPENDIX B. SYLLABI IN ALEKS

alge850 Table for a linear equation
alge873 Identifying solutions to a linear equation in two variables
alge066 Finding a solution to a linear equation in two variables
fun005 Writing a function rule given a table of ordered pairs: One-step rules
alge191 Midpoint of a line segment in the plane
alge877 Graphing a linear equation of the form \( y = mx \)
alge878 Graphing a line given its equation in slope-intercept form: Integer slope
alge879 Graphing a line given its equation in slope-intercept form: Fractional slope
alge880 Graphing a line given its equation in standard form
alge198 Graphing a vertical or horizontal line
alge884 Finding x- and y-intercepts given the graph of a line on a grid
alge924 Finding x- and y-intercepts of a line given the equation: Basic
alge210 Finding x- and y-intercepts of a line given the equation: Advanced
alge197 Graphing a line given its x- and y-intercepts
alge881 Graphing a line by first finding its x- and y-intercepts
alge954 Graphing a parabola of the form \( y = ax^2 \)
alge875 Classifying slopes given graphs of lines
alge886 Finding slope given the graph of a line on a grid
alge887 Finding slope given two points on the line
alge885 Finding the slope of horizontal and vertical lines
alge888 Finding the coordinate that yields a given slope
alge259 Graphing a line given its slope and y-intercept
alge196 Graphing a line through a given point with a given slope
alge701 Writing an equation and drawing its graph to model a real-world situation: Advanced
alge263 Interpreting the graphs of two functions
alge060 Solving a rational equation that simplifies to linear: Denominator x
alge982 Identifying direct variation equations
alge938 Identifying direct variation from ordered pairs and writing equations
alge904 Writing a direct variation equation
alge175 Word problem on direct variation
alge828 Interpreting direct variation from a graph
alge905 Writing an inverse variation equation
alge903 Identifying direct and inverse variation equations
alge902 Identifying direct and inverse variation from ordered pairs and writing equations
alge176 Word problem on inverse variation

Exponents and Polynomials

alge758 Degree and leading coefficient of a univariate polynomial
alge798 Simplifying a sum or difference of two univariate polynomials
alge029 Simplifying a sum or difference of three univariate polynomials
alge932 Simplifying a sum or difference of multivariate polynomials
alge821 Understanding the product rule of exponents
alge024 Introduction to the product rule of exponents
alge311 Product rule with positive exponents: Univariate
alge030 Product rule with positive exponents: Multivariate
alge826 Understanding the power rules of exponents
alge306 Introduction to the power of a power rule of exponents
alge305 Power rules with positive exponents: Multivariate products
alge308 Power rules with positive exponents: Multivariate quotients
alge756 Power and product rules with positive exponents
arith029 Ordering numbers with positive exponents
alge735 Multiplying a univariate polynomial by a monomial with a positive coefficient
alge972 Multiplying a univariate polynomial by a monomial with a negative coefficient
alge835 Multiplying a multivariate polynomial by a monomial
alge033 Multiplying binomials with leading coefficients of 1
alge983 Multiplying binomials with leading coefficients greater than 1
alge765 Multiplying binomials in two variables
alge764 Multiplying conjugate binomials: Univariate
B.3. PRE-ALGEBRA AND INTRODUCTORY ALGEBRA

Inequalities

Inequalities

B.3 Pre-Algebra and Introductory Algebra

Whole Numbers
APPENDIX B. SYLLABI IN ALEKS

arith124 Whole number place value: Problem type 1
arith125 Whole number place value: Problem type 2
arith664 Expanded form
arith028 Numeral translation: Problem type 1
arith060 Numeral translation: Problem type 2
arith633 One-digit addition with carry
arith634 Addition of 3 or 4 one-digit numbers
arith635 Adding a 2-digit number and a 1-digit number with carry
arith630 Addition with carry to the hundreds place
arith012 Addition of large numbers
arith636 Subtracting a 1-digit number from a 2-digit number
arith007 Subtraction without borrowing
arith128 Adding or subtracting 10, 100, or 1000
arith066 Expanded form
arith682 Subtraction with multiple regrouping steps
arith637 Subtraction and regrouping with zeros
arith613 Word problem with addition or subtraction of whole numbers
arith655 Introduction to properties of addition
arith126 Multiplication as repeated addition
arith008 One-digit multiplication
arith679 Multiplication by 10, 100, and 1000
arith003 Multiplication without carry
arith004 Multiplication with carry
arith632 Multiplication with trailing zeros: Problem type 1
arith615 Introduction to multiplication of large numbers
arith638 Multiplication with trailing zeros: Problem type 2
arith014 Multiplication of large numbers
arith641 Multiples: Problem type 1
arith642 Multiples: Problem type 2
arith656 Introduction to properties of multiplication
arith075 Division facts
arith614 Word problem with multiplication or division of whole numbers
arith130 Word problem with multiplication and addition or subtraction of whole numbers
arith243 Division of whole numbers given in fractional form
arith711 Division involving zero
arith052 Division without carry
arith005 Division with carry
arith680 Division with trailing zeros: Problem type 1
arith649 Division with trailing zeros: Problem type 2
arith616 Quotient and remainder: Problem type 1
arith644 Word problem on quotient and remainder
arith617 Quotient and remainder: Problem type 2
arith631 Quotient and remainder: Problem type 3
arith650 Division involving quotients with intermediate zeros
arith023 Word problem with division of whole numbers and rounding
arith651 Introduction to inequalities
arith077 Ordering large numbers
arith078 Rounding to tens or hundreds
arith123 Rounding to hundreds or thousands
arith061 Rounding to thousands, ten thousands, or hundred thousands
arith101 Estimating a sum of whole numbers
arith102 Estimating a difference of whole numbers
arith604 Estimating a product or quotient of whole numbers
arith692 Writing expressions using exponents
arith233 Introduction to exponents
arith683 Power of 10: Positive exponent
arith645 Introduction to parentheses
arith681 Introduction to order of operations
arith048 Order of operations with whole numbers
B.3. PRE-ALGEBRA AND INTRODUCTORY ALGEBRA

arith051 Order of operations with whole numbers and grouping symbols
arith693 Order of operations with whole numbers and exponents: Basic
arith713 Order of operations with whole numbers and exponents: Advanced
arith657 Understanding the distributive property
alge284 Evaluating an algebraic expression: Whole number addition or subtraction
alge683 Evaluating an algebraic expression: Whole number multiplication or division
alge285 Evaluating an algebraic expression: Whole numbers with two operations
alge832 Evaluating an algebraic expression: Whole number operations and exponents
alge069 Additive property of equality with whole numbers
alge088 Multiplicative property of equality with whole numbers
alge803 Using two steps to solve an equation with whole numbers
arith646 Even and odd numbers
arith647 Divisibility rules for 2, 5, and 10
arith648 Divisibility rules for 3 and 9
arith656 Factors
arith634 Prime numbers
arith635 Prime factorization
arith033 Greatest common factor of 2 numbers
arith070 Least common multiple of 2 numbers
arith804 Least common multiple of 3 numbers
arith240 Word problem with common multiples
alge925 Finding the next terms of an arithmetic sequence with whole numbers
alge933 Finding the next terms of a geometric sequence with whole numbers
alge732 Finding patterns in shapes

Fractions

arith623 Introduction to fractions
arith665 Understanding equivalent fractions
arith212 Equivalent fractions
arith666 Introduction to simplifying a fraction
arith667 Simplifying a fraction
arith687 Fractional position on a number line
arith667 Plotting fractions on a number line
arith044 Ordering fractions with the same denominator
arith691 Ordering fractions with the same numerator
arith692 Using a common denominator to order fractions
arith079 Product of a unit fraction and a whole number
arith086 Product of a fraction and a whole number: Problem type 1
arith119 Introduction to fraction multiplication
arith653 Fraction multiplication
arith812 Product of a fraction and a whole number: Problem type 2
arith813 Multiplication of 3 fractions
arith818 Word problem involving fractions and multiplication
arith095 Multi-step word problem involving fractions and multiplication
arith688 The reciprocal of a number
arith694 Division involving a whole number and a fraction
arith622 Fraction division
arith819 Word problem involving fractions and division
arith618 Addition or subtraction of fractions with the same denominator
arith802 Addition or subtraction of fractions with the same denominator and simplification
arith801 Finding the LCD of two fractions
arith109 Addition or subtraction of unit fractions
arith664 Introduction to addition or subtraction of fractions with different denominators
arith230 Addition or subtraction of fractions with different denominators
arith803 Addition and subtraction of 3 fractions with different denominators
arith805 Word problem involving addition or subtraction of fractions with different denominators
arith100 Fractional part of a circle
arith662 Writing a mixed number and an improper fraction for a shaded region
arith015 Writing an improper fraction as a mixed number
APPENDIX B. SYLLABI IN ALEKS

arith619 Writing a mixed number as an improper fraction
arith215 Addition or subtraction of mixed numbers with the same denominator
arith084 Addition of mixed numbers with the same denominator and carry
arith216 Subtraction of mixed numbers with the same denominator and borrowing
arith806 Addition or subtraction of mixed numbers with different denominators and no carry or borrow
arith808 Addition of mixed numbers with different denominators and carry
arith809 Subtraction of mixed numbers with different denominators and borrowing
arith807 Addition and subtraction of 3 mixed numbers with different denominators
arith810 Word problem involving addition or subtraction of mixed numbers with different denominators
arith815 Mixed number multiplication
arith816 Multiplication of a mixed number and a whole number
arith817 Division with a mixed number and a whole number
arith068 Mixed number division
arith820 Word problem involving multiplication or division with mixed numbers
arith821 Exponents and fractions
arith859 Order of operations with fractions: Problem type 1
arith860 Order of operations with fractions: Problem type 2
arith861 Order of operations with fractions: Problem type 3
arith816 Multiplication of a mixed number and a whole number
arith859 Order of operations with fractions: Problem type 1

Decimals, Proportions, and Percents

arith127 Writing a decimal and a fraction for a shaded region
arith110 Decimal place value: Tenths and hundredths
arith220 Decimal place value: Hundreds to ten thousandths
arith714 Writing a decimal number less than 1 given its name
arith715 Writing a decimal number greater than 1 given its name
arith716 Writing a decimal number given its name: Advanced
arith829 Reading decimal position on a number line: Tenths
arith830 Reading decimal position on a number line: Hundredths
arith831 Understanding decimal position on a number line using zoom: Hundredths
arith832 Understanding decimal position on a number line using zoom: Thousandths
arith129 Introduction to ordering decimals
arith608 Ordering decimals
arith221 Rounding decimals
arith717 Converting a decimal to a proper fraction without simplifying: Basic
arith719 Converting a decimal to a proper fraction without simplifying: Advanced
arith718 Converting a decimal to a proper fraction in simplest form: Basic
arith887 Converting a decimal to a proper fraction in simplest form: Advanced
arith721 Converting a decimal to a mixed number and an improper fraction without simplifying
arith722 Converting a decimal to a mixed number and an improper fraction in simplest form: Basic
arith724 Converting a decimal to a mixed number and an improper fraction in simplest form: Advanced
arith624 Addition of aligned decimals
arith013 Decimal addition with 3 numbers
arith735 Decimal subtraction: Basic
arith736 Decimal subtraction: Advanced
arith737 Decimal addition and subtraction with 3 or more numbers
arith131 Estimating a decimal sum or difference
arith132 Word problem with addition or subtraction of 2 decimals
arith133 Word problem with addition of 3 or 4 decimals and whole numbers
arith134 Word problem with subtraction of a whole number and a decimal: Regrouping with zeros
arith739 Introduction to decimal multiplication
arith017 Multiplication of a decimal by a whole number
arith055 Decimal multiplication: Problem type 1
arith046 Decimal multiplication: Problem type 2
arith082 Multiplication of a decimal by a power of ten
arith738 Multiplication of a decimal by a power of 0.1
arith740 Multiplication of decimals that have a product less than 0.1
arith752 Estimating a product of decimals
B.3. PRE-ALGEBRA AND INTRODUCTORY ALGEBRA

arith135 Word problem with multiplication of a decimal and a whole number
arith137 Word problem with multiplication of two decimals
arith224 Word problem with decimal addition and multiplication
arith744 Whole number division with decimal answers
arith081 Division of a decimal by a whole number
arith743 Division of a decimal by a 1-digit decimal
arith019 Division of a decimal by a 2-digit decimal
arith083 Division of a decimal by a power of ten
arith745 Decimal division with rounding
arith136 Word problem with division of a decimal and a whole number
arith138 Word problem with division of two decimals
arith227 Word problem with decimal subtraction and division
alge823 Solving a one-step word problem using the formula d = rt
arith725 Converting a fraction with a denominator of 10 or 100 to a decimal
arith726 Converting a fraction with a denominator of 100 or 1000 to a decimal
arith609 Ordering fractions and decimals
arith727 Converting a fraction to a terminating decimal: Basic
arith728 Converting a fraction to a terminating decimal: Advanced
arith730 Converting a fraction to a repeating decimal: Basic
arith731 Converting a fraction to a repeating decimal: Advanced
arith733 Using a calculator to convert a fraction to a rounded decimal
arith111 Converting a mixed number to a terminating decimal: Basic
arith112 Converting a mixed number to a terminating decimal: Advanced
arith732 Converting a fraction or mixed number to a rounded decimal
arith753 Squaring decimal bases: Products greater than 0.1
arith741 Exponents and decimals: Products less than 0.1
arith720 Order of operations with decimals: Problem type 1
arith746 Order of operations with decimals: Problem type 2
arith747 Order of operations with decimals: Problem type 3
arith748 Addition or subtraction with a decimal and a mixed number
arith749 Multiplication with a decimal and a fraction
arith823 Writing ratios using different notations
arith663 Writing ratios for real-world situations
arith824 Simplifying a ratio of whole numbers: Problem type 1
arith825 Simplifying a ratio of decimals
arith827 Finding a unit price
arith828 Computing unit prices to find the better buy
arith064 Solving a word problem on proportions using a unit rate
arith228 Word problem on unit rates associated with ratios of whole numbers: Decimal answers
alge272 Solving a proportion of the form x/a = b/c
arith610 Word problem on proportions: Problem type 1
arith611 Word problem on proportions: Problem type 2
alge063 Word problem on mixed number proportions
arith045 Word problem with powers of ten
arith045 Converting a fraction with a denominator of 100 to a percentage
arith836 Converting a fraction with a denominator of 100 to a percentage
arith837 Converting a percentage to a fraction with a denominator of 100
arith674 Finding the percentage of a grid that is shaded
arith723 Introduction to converting a percentage to a decimal
arith833 Introduction to converting a decimal to a percentage
arith834 Converting between percentages and decimals
arith841 Converting a mixed number percentage to a decimal
arith835 Converting between percentages and decimals in a real-world situation
arith090 Converting a percentage to a fraction in simplest form
arith839 Converting a decimal percentage to a fraction
arith838 Converting a fraction to a percentage: Denominator of 4, 5, or 10
arith002 Converting a fraction to a percentage: Denominator of 20, 25, or 50
arith843 Using a calculator to convert a fraction to a rounded percentage
arith842 Converting a fraction to a percentage in a real-world situation
arith840 Finding a percentage of a whole number
arith630 Finding a percentage of a whole number without a calculator: Basic
arith844 Finding a percentage of a whole number without a calculator: Advanced
arith862 Applying the percent equation: Problem type 1
arith863 Applying the percent equation: Problem type 2
arith845 Finding a percentage of a total amount: Real-world situations
arith846 Finding a percentage of a total amount without a calculator: Sales tax, commission, discount
arith857 Estimating a tip without a calculator
arith860 Writing a ratio as a percentage without a calculator
mstat049 Computing a percentage from a table of values
arith850 Finding the rate of a tax or commission
arith849 Finding the total amount given the percentage of a partial amount
arith852 Finding the multiplier to give a final amount after a percentage increase or decrease
arith851 Finding the final amount given the original amount and a percentage increase or decrease
arith847 Finding the sale price given the original price and percent discount
arith874 Finding the sale price without a calculator given the original price and percent discount
arith848 Finding the total cost including tax or markup
arith855 Finding the original amount given the result of a percentage increase or decrease
arith831 Finding the original price given the sale price and percent discount
arith858 Finding the percentage increase or decrease: Basic
arith825 Finding the percentage increase or decrease: Advanced
arith232 Finding simple interest without a calculator

Geometry

geom339 Perimeter of a polygon
geom300 Perimeter of a square or a rectangle
geom618 Perimeter of a polygon involving mixed numbers and fractions
geom078 Sides of polygons having the same perimeter
geom221 Finding the missing length in a figure
geom353 Perimeter of a piecewise rectangular figure
geom358 Identifying parallel and perpendicular lines
geom349 Naming segments, rays, and lines
geom151 Measuring an angle with the protractor
geom152 Drawing an angle with the protractor
geom303 Acute, obtuse, and right angles
geom039 Finding supplementary and complementary angles
geom305 Identifying supplementary and vertical angles
geom304 Identifying corresponding and alternate angles
geom306 Acute, obtuse, and right triangles
geom307 Classifying scalene, isosceles, and equilateral triangles by side lengths or angles
geom001 Finding an angle measure of a triangle given two angles
geom908 Finding an angle measure for a triangle with an extended side
geom312 Finding an angle measure given extended triangles
geom813 Finding an angle measure given a triangle and parallel lines
geom361 Naming polygons
mstat042 Interpreting a Venn diagram of 2 sets
geom867 Identifying parallelograms, rectangles, and squares
geom310 Properties of quadrilaterals
geom532 Classifying parallelograms
geom019 Area of a square or a rectangle
geom866 Perimeter and area on a grid
geom320 Area of a rectangle involving fractions
geom619 Area of a rectangle involving mixed numbers and fractions
geom350 Distinguishing between the area and perimeter of a rectangle
geom351 Areas of rectangles with the same perimeter
geom217 Finding the side length of a rectangle given its perimeter or area
geom340 Area of a piecewise rectangular figure
geom142 Word problem involving the area between two rectangles
geom081 Area of a triangle
geom344 Area involving rectangles and triangles
geom022 Area of a parallelogram
geom023 Area of a trapezoid
B.3. PRE-ALGEBRA AND INTRODUCTORY ALGEBRA

geom347 Introduction to a circle: Diameter, radius, and chord
geom016 Circumference of a circle
geom301 Perimeter involving rectangles and circles
geom802 Circumference and area of a circle
geom302 Area involving rectangles and circles
geom336 Word problem involving the area between two concentric circles
geom214 Area involving inscribed figures
geom868 Classifying solids
geom348 Vertices, edges, and faces of a solid
geom380 Counting the cubes in a solid made of cubes
geom354 Volume of a rectangular prism made of unit cubes
geom311 Volume of a rectangular prism
geom505 Volume of a piecewise rectangular prism
geom990 Volume of a triangular prism
geom833 Volume of a pyramid
geom835 Volume of a cylinder
geom992 Word problem involving the rate of filling or emptying a cylinder
geom822 Volume of a cone
geom841 Volume of a sphere
geom219 Nets of solids
gem816 Side views of a solid made of cubes
gem331 Surface area of a cube or a rectangular prism
gem345 Surface area of a piecewise rectangular prism made of unit cubes
gem91 Surface area of a triangular prism
gem621 Surface area of a cylinder
gem842 Surface area of a sphere
arith616 Square root of a perfect square
arith763 Using a calculator to approximate a square root
arith602 Estimating a square root
arith601 Square root of a rational perfect square
alge407 Introduction to the Pythagorean Theorem
geom944 Pythagorean Theorem
alge408 Word problem involving the Pythagorean Theorem
geom359 Identifying congruent shapes on a grid
geom520 Identifying and naming congruent triangles
geom360 Identifying similar or congruent shapes on a grid
geom837 Similar polygons
gem838 Similar right triangles
gem337 Indirect measurement

Measurement and Data Analysis

mstat059 Choosing U.S. Customary measurement units
unit005 U.S. Customary unit conversion with whole number values
mstat035 Conversions involving measurements in feet and inches
mstat036 Adding measurements in feet and inches
unit006 U.S. Customary unit conversion with whole number values: Two-step conversion
unit007 U.S. Customary unit conversion with mixed number values: One-step conversion
unit008 U.S. Customary unit conversion with mixed number values: Two-step conversion
unit009 U.S. Customary area unit conversion with whole number values
mstat060 Choosing metric measurement units
unit001 Metric distance conversion with whole number values
unit002 Metric mass or capacity conversion with whole number values
unit003 Metric distance conversion with decimal values
unit004 Metric conversion with decimal values: Two-step problem
unit010 Metric area unit conversion with decimal values
unit012 Time unit conversion with whole number values
time006 Adding time
time007 Elapsed time
arith063 Word problem with clocks
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>mstat065</td>
<td>Converting between temperatures in Fahrenheit and Celsius</td>
</tr>
<tr>
<td>arith826</td>
<td>Simplifying a ratio of whole numbers: Problem type 2</td>
</tr>
<tr>
<td>unit034</td>
<td>Converting between metric and U.S. Customary unit systems</td>
</tr>
<tr>
<td>unit036</td>
<td>Converting between compound units: Basic</td>
</tr>
<tr>
<td>mstat056</td>
<td>Interpreting a tally table</td>
</tr>
<tr>
<td>mstat037</td>
<td>Constructing a line plot</td>
</tr>
<tr>
<td>mstat005</td>
<td>Constructing a bar graph for non-numerical data</td>
</tr>
<tr>
<td>mstat004</td>
<td>Constructing a histogram for numerical data</td>
</tr>
<tr>
<td>mstat024</td>
<td>Interpreting a bar graph</td>
</tr>
<tr>
<td>mstat044</td>
<td>Interpreting a double bar graph</td>
</tr>
<tr>
<td>mstat057</td>
<td>Interpreting a pictograph table</td>
</tr>
<tr>
<td>mstat007</td>
<td>Interpreting a line graph</td>
</tr>
<tr>
<td>mstat031</td>
<td>Interpreting a stem-and-leaf plot</td>
</tr>
<tr>
<td>stat804</td>
<td>Interpreting a circle graph or pie chart</td>
</tr>
<tr>
<td>arith856</td>
<td>Finding a percentage of a total amount in a circle graph</td>
</tr>
<tr>
<td>stat801</td>
<td>Computations from a circle graph</td>
</tr>
<tr>
<td>geom814</td>
<td>Angle measure in a circle graph</td>
</tr>
<tr>
<td>stat020</td>
<td>Calculating relative frequencies in a contingency table</td>
</tr>
<tr>
<td>stat805</td>
<td>Making a reasonable inference based on proportion statistics</td>
</tr>
<tr>
<td>mstat025</td>
<td>Finding if a question can be answered by the data</td>
</tr>
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<td>mstat003</td>
<td>Mode of a data set</td>
</tr>
<tr>
<td>mstat055</td>
<td>Finding the mode and range of a data set</td>
</tr>
<tr>
<td>arith103</td>
<td>Average of two numbers</td>
</tr>
<tr>
<td>mstat001</td>
<td>Mean of a data set</td>
</tr>
<tr>
<td>mstat028</td>
<td>Mean and median of a data set</td>
</tr>
<tr>
<td>mstat029</td>
<td>How changing a value affects the mean and median</td>
</tr>
<tr>
<td>mstat053</td>
<td>Choosing the best measure to describe data</td>
</tr>
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<td>stat802</td>
<td>Rejecting unreasonable claims based on average statistics</td>
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<td>mstat066</td>
<td>Weighted mean</td>
</tr>
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<td>Using back-to-back stem-and-leaf plots to compare data sets</td>
</tr>
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<td>mstat072</td>
<td>Five-number summary and interquartile range</td>
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<td>mstat006</td>
<td>Constructing a box-and-whisker plot</td>
</tr>
<tr>
<td>mstat073</td>
<td>Using box-and-whisker plots to compare data sets</td>
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<td>Interpreting a Venn diagram of 3 sets</td>
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<td>mstat041</td>
<td>Interpreting a tree diagram</td>
</tr>
<tr>
<td>mstat040</td>
<td>Introduction to the counting principle</td>
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<td>mstat015</td>
<td>Counting principle</td>
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<tr>
<td>pcalc082</td>
<td>Factorial expressions</td>
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<td>mstat017</td>
<td>Computing permutations and combinations</td>
</tr>
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<td>Word problem involving permutations</td>
</tr>
<tr>
<td>mstat009</td>
<td>Word problem involving combinations</td>
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<td>mstat026</td>
<td>Introduction to the probability of an event</td>
</tr>
<tr>
<td>mstat010</td>
<td>Probability of an event</td>
</tr>
<tr>
<td>mstat039</td>
<td>Understanding likelihood</td>
</tr>
<tr>
<td>mstat048</td>
<td>Odds of an event</td>
</tr>
<tr>
<td>stat106</td>
<td>Outcomes and event probability</td>
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<td>stat112</td>
<td>Probabilities involving two dice</td>
</tr>
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<td>mstat011</td>
<td>Area as probability</td>
</tr>
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<td>mstat046</td>
<td>Experimental and theoretical probability</td>
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<td>mstat047</td>
<td>Introduction to expectation</td>
</tr>
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<td>mstat012</td>
<td>Probability of independent events</td>
</tr>
<tr>
<td>mstat013</td>
<td>Probability of dependent events</td>
</tr>
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<td>mstat032</td>
<td>Probability of the union of two events</td>
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**Real Numbers**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>alg286</td>
<td>Plotting integers on a number line</td>
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<tr>
<td>arith605</td>
<td>Plotting rational numbers on a number line</td>
</tr>
<tr>
<td>mstat038</td>
<td>Reading the temperature from a thermometer</td>
</tr>
</tbody>
</table>
B.3. PRE-ALGEBRA AND INTRODUCTORY ALGEBRA

arith699 Writing a signed number for a real-world situation
arith691 Ordering integers
arith712 Ordering real numbers
arith971 Absolute value of a number
arith200 Integer addition: Problem type 1
arith108 Integer addition: Problem type 2
arith688 Integer subtraction: Problem type 1
arith689 Integer subtraction: Problem type 2
arith690 Integer subtraction: Problem type 3
arith754 Addition and subtraction with 3 integers
arith755 Addition and subtraction with 4 or 5 integers
arith701 Word problem with addition or subtraction of integers
arith231 Integer multiplication and division
arith800 Multiplication of 3 or 4 integers
alge001 Identifying numbers as integers or non-integers
alge002 Identifying numbers as rational or irrational
arith116 Signed fraction addition or subtraction: Basic
arith864 Signed fraction subtraction involving double negation
arith106 Signed fraction addition or subtraction: Advanced
arith811 Addition and subtraction of 3 fractions involving signs
arith822 Signed fraction multiplication: Basic
arith815 Signed fraction multiplication: Advanced
arith841 Signed fraction division
arith234 Signed decimal addition and subtraction with 3 numbers
arith750 Signed decimal multiplication
arith751 Signed decimal division
arith104 Operations with absolute value: Problem type 2
gem525 Computing distances between decimals on the number line
unit052 Finding the absolute error and percent error of a measurement
arith702 Exponents and integers: Problem type 1
arith703 Exponents and integers: Problem type 2
arith704 Exponents and signed fractions
arith118 Order of operations with integers
arith600 Order of operations with integers and exponents
arith696 Complex fraction without variables: Problem type 2
alge005 Evaluating a linear expression: Integer multiplication with addition or subtraction
alge808 Evaluating a linear expression: Signed fraction multiplication with addition or subtraction
alge302 Evaluating a linear expression: Signed decimal addition and subtraction
alge303 Evaluating a linear expression: Signed decimal multiplication with addition or subtraction
alge004 Evaluating a quadratic expression: Integers
alge700 Combining like terms: Whole number coefficients
alge607 Combining like terms: Integer coefficients
alge187 Properties of addition
alge310 Multiplying a constant and a linear monomial
alge606 Distributive property: Whole number coefficients
alge604 Distributive property: Integer coefficients
alge188 Properties of real numbers
alge608 Using distribution and combining like terms to simplify: Univariate
alge609 Using distribution with double negation and combining like terms to simplify: Multivariate
alge293 Combining like terms in a quadratic expression
alge432 Introduction to adding fractions with variables and common denominators
alge436 Adding rational expressions with different denominators and a single occurrence of a variable

Linear Equations and Inequalities

alge801 Additive property of equality with fractions and mixed numbers
alge800 Additive property of equality with decimals
alge010 Additive property of equality with integers
alge836 Additive property of equality with signed fractions
APPENDIX B. SYLLABI IN ALEKS

- alge820 Multiplicative property of equality with fractions
- alge825 Multiplicative property of equality with decimals
- alge797 Multiplicative property of equality with integers
- alge012 Multiplicative property of equality with signed fractions
- alge834 Identifying solutions to a linear equation in one variable: Two-step equations
- alge266 Additive property of equality with a negative coefficient
- alge006 Solving a two-step equation with integers
- alge200 Solving an equation to find the value of an expression
- alge920 Introduction to solving an equation with parentheses
- alge837 Solving a multi-step equation given in fractional form
- alge986 Identifying properties used to solve a linear equation
- alge824 Solving a two-step equation with signed decimals
- alge838 Introduction to solving an equation with variables on the same side
- alge862 Solving a linear equation with several occurrences of the variable: Variables on the same side
- alge863 Solving a linear equation with several occurrences of the variable: Variables on both sides
- alge011 Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
- alge013 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
- alge209 Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions
- alge420 Solving a linear equation with several occurrences of the variable: Fractional forms with monomial numerators
- alge208 Solving a two-step equation with signed fractions
- alge001 Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
- alge179 Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators
- alge742 Solving equations with zero, one, or infinitely many solutions
- alge840 Solving a proportion of the form \((x+a)\div b = c\div d\)
- alge603 Introduction to solving an absolute value equation
- alge864 Solving an absolute value equation: Problem type 1
- alge511 Solving for a variable in terms of other variables using addition or subtraction: Basic
- alge512 Solving for a variable in terms of other variables using addition or subtraction: Advanced
- alge513 Solving for a variable in terms of other variables using multiplication or division: Basic
- alge514 Solving for a variable in terms of other variables using multiplication or division: Advanced
- alge517 Solving for a variable in terms of other variables using addition or subtraction with division
- alge518 Solving for a variable inside parentheses in terms of other variables
- alge507 Solving for a variable in terms of other variables in a linear equation with fractions
- alge733 Writing a one-step expression for a real-world situation
- alge831 Translating a phrase into a one-step expression
- alge291 Translating a phrase into a two-step expression
- alge016 Translating a sentence into a one-step equation
- alge841 Translating a sentence into a multi-step equation
- alge802 Solving a fraction word problem using a linear equation of the form \(Ax = B\)
- alge014 Solving a word problem with two unknowns using a linear equation
- alge173 Solving a decimal word problem using a linear equation of the form \(Ax + B = C\)
- alge730 Writing a multi-step equation for a real-world situation
- alge219 Solving a decimal word problem using a linear equation with the variable on both sides
- alge704 Solving a fraction word problem using a linear equation with the variable on both sides
- alge792 Solving a word problem with three unknowns using a linear equation
- alge842 Solving a word problem involving consecutive integers
- alge794 Solving a value mixture problem using a linear equation
- alge218 Solving a word problem involving rates and time conversion
- alge796 Solving a distance, rate, time problem using a linear equation
- arith854 Computing a percent mixture
- alge795 Solving a percent mixture problem using a linear equation
- geom817 Finding a side length given the perimeter and side lengths with variables
- geom143 Finding the perimeter or area of a rectangle given one of these values
- geom218 Finding the radius or the diameter of a circle given its circumference
- geom838 Circumference ratios
- geom530 Solving equations involving vertical angles
B.3. PRE-ALGEBRA AND INTRODUCTORY ALGEBRA

geom531 Solving equations involving angles and a pair of parallel lines
geom623 Finding angle measures of a triangle given angles with variables
geom502 Finding angle measures of a right or isosceles triangle given angles with variables
stat803 Finding the value for a new score that will yield a given mean
alge015 Translating a sentence by using an inequality symbol
alge845 Translating a sentence into a one-step inequality
alge846 Translating a sentence into a multi-step inequality
alge748 Writing an inequality for a real-world situation
alge017 Graphing a linear inequality on the number line
alge822 Writing an inequality given a graph on the number line
alge186 Translating a sentence into a compound inequality
alge166 Graphing a compound inequality on the number line
alge847 Writing a compound inequality given a graph on the number line
set001 Set builder notation
set004 Set builder and interval notation
set002 Union and intersection of finite sets
alge844 Identifying solutions to a two-step linear inequality in one variable
alge848 Additive property of inequality with whole numbers
alge849 Additive property of inequality with integers
alge852 Additive property of inequality with signed fractions
alge853 Additive property of inequality with signed decimals
alge854 Multiplicative property of inequality with integers
alge964 Multiplicative property of inequality with signed fractions
alge855 Solving a two-step linear inequality: Problem type 1
alge856 Solving a two-step linear inequality: Problem type 2
alge857 Solving a two-step linear inequality with a fractional coefficient
alge977 Solving a linear inequality with multiple occurrences of the variable: Problem type 1
alge858 Solving a linear inequality with multiple occurrences of the variable: Problem type 2
alge859 Solving a linear inequality with multiple occurrences of the variable: Problem type 3
alge860 Solving inequalities with no solution or all real numbers as solutions
alge746 Solving a compound linear inequality: Graph solution, basic
alge747 Solving a compound linear inequality: Interval notation
alge868 Solving an absolute value inequality: Problem type 1
alge749 Solving a decimal word problem using a two-step linear inequality
alge750 Solving a decimal word problem using a linear inequality with the variable on both sides

Lines and Functions

alge064 Reading a point in the coordinate plane
alge067 Plotting a point in the coordinate plane
alge850 Table for a linear equation
alge873 Identifying solutions to a linear equation in two variables
alge066 Finding a solution to a linear equation in two variables
alge191 Midpoint of a line segment in the plane
alge877 Graphing a linear equation of the form \( y = mx \)
alge878 Graphing a line given its equation in slope-intercept form: Integer slope
alge879 Graphing a line given its equation in slope-intercept form: Fractional slope
alge880 Graphing a line given its equation in standard form
alge198 Graphing a vertical or horizontal line
alge884 Finding \( x \)- and \( y \)-intercepts given the graph of a line on a grid
alge924 Finding \( x \)- and \( y \)-intercepts of a line given the equation: Basic
alge210 Finding \( x \)- and \( y \)-intercepts of a line given the equation: Advanced
alge197 Graphing a line given its \( x \)- and \( y \)-intercepts
alge881 Graphing a line by first finding its \( x \)- and \( y \)-intercepts
alge875 Classifying slopes given graphs of lines
alge886 Finding slope given the graph of a line on a grid
alge887 Finding slope given two points on the line
alge885 Finding the slope of horizontal and vertical lines
alge888 Finding the coordinate that yields a given slope
alge259 Graphing a line given its slope and \( y \)-intercept
APPENDIX B. SYLLABI IN ALEKS

alge196 Graphing a line through a given point with a given slope
alge876 Identifying linear equations: Advanced
alge874 Identifying linear functions given ordered pairs
alge891 Rewriting a linear equation in the form $Ax + By = C$
alge889 Finding the slope and y-intercept of a line given its equation in the form $y = mx + b$
alge890 Finding the slope and y-intercept of a line given its equation in the form $Ax + By = C$
alge882 Graphing a line by first finding its slope and y-intercept
alge258 Writing an equation of a line given its slope and y-intercept
alge892 Writing an equation and graphing a line given its slope and y-intercept
alge893 Writing an equation in slope-intercept form given the slope and a point
alge883 Graphing a line given its equation in point-slope form
alge894 Writing an equation in point-slope form given the slope and a point
alge070 Writing an equation of a line given the y-intercept and another point
alge072 Writing the equation of the line through two given points
alge073 Writing the equations of vertical and horizontal lines through a given point
geom806 Finding slopes of lines parallel and perpendicular to a line given in slope-intercept form
geom807 Finding slopes of lines parallel and perpendicular to a line given in the form $Ax + By = C$
geom808 Writing equations of lines parallel and perpendicular to a given line through a point
alge897 Writing and evaluating a function that models a real-world situation: Advanced
alge701 Writing an equation and drawing its graph to model a real-world situation: Advanced
fun005 Writing a function rule given a table of ordered pairs: One-step rules
fun006 Writing a function rule given a table of ordered pairs: Two-step rules
alge992 Combining functions to write a new function that models a real-world situation
alge987 Comparing properties of linear functions given in different forms
alge989 Interpreting the parameters of a linear function that models a real-world situation
alge905 Application problem with a linear function: Finding a coordinate given the slope and a point
alge906 Application problem with a linear function: Finding a coordinate given two points
mstat052 Identifying independent and dependent variables from equations or real-world situations
alge991 Solving a linear equation by graphing
mstat030 Sketching the line of best fit
mstat023 Scatter plots and correlation
mstat068 Predictions from the line of best fit
mstat067 Approximating the equation of a line of best fit and making predictions
mstat069 Computing residuals
mstat070 Interpreting residual plots
mstat071 Linear relationship and the correlation coefficient
mstat074 Identifying correlation and causation
alge898 Translating the graph of an absolute value function: One step
alge899 Translating the graph of an absolute value function: Two steps
alge913 Graphing an absolute value equation of the form $y = A|x|$
alge900 Graphing an absolute value equation in the plane: Basic
alge168 Graphing an absolute value equation in the plane: Advanced
alge901 How the leading coefficient affects the graph of an absolute value function
fun032 Identifying functions from relations
fun010 Vertical line test
fun016 Domain and range from ordered pairs
fun001 Table for a linear function
pcalc760 Evaluating functions: Linear and quadratic or cubic
fun033 Variable expressions as inputs of functions: Problem type 1
alge294 Finding outputs of a one-step function that models a real-world situation: Function notation
alge295 Finding outputs of a two-step function with decimals that models a real-world situation: Function notation
alge296 Finding inputs and outputs of a two-step function that models a real-world situation: Function notation
alge990 Domain and range of a linear function that models a real-world situation
fun026 Finding an output of a function from its graph
pcalc761 Finding inputs and outputs of a function from its graph
fun007 Domain and range from the graph of a discrete relation
fun024 Domain and range from the graph of a continuous function
alge896 Graphing an integer function and finding its range for a given domain
alge570 Graphing a function of the form $f(x) = ax + b$: Integer slope
alge571 Graphing a function of the form $f(x) = ax + b$: Fractional slope
B.3. PRE-ALGEBRA AND INTRODUCTORY ALGEBRA

alge954 Graphing a parabola of the form \( y = ax^2 \)
alge955 Graphing a parabola of the form \( y = ax^2 + c \)
alge572 Graphing a function of the form \( f(x) = ax^2 \)
alge573 Graphing a function of the form \( f(x) = ax^2 + c \)
pcalc750 Finding intercepts of a nonlinear function given its graph
pcalc751 Finding where a function is increasing, decreasing, or constant given the graph: Interval notation
pcalc752 Finding local maxima and minima of a function given the graph
mstat018 Choosing a graph to fit a narrative: Basic
mstat051 Choosing a graph to fit a narrative: Advanced

Systems

alge914 Identifying solutions to a system of linear equations
alge075 Classifying systems of linear equations from graphs
alge725 Graphically solving a system of linear equations
alge751 Solving a system of linear equations using substitution
alge915 Solving a system of linear equations using elimination with addition
alge076 Solving a system of linear equations using elimination with multiplication and addition
alge916 Solving a system of linear equations with fractional coefficients
alge917 Solving a system of linear equations with decimal coefficients
alge752 Solving a 2x2 system of linear equations that is inconsistent or consistent dependent
alge988 Identifying the operations used to create equivalent systems of equations
alge753 Solving a 3x3 system of linear equations: Problem type 1
alge263 Interpreting the graphs of two functions
alge078 Solving a word problem involving a sum and another basic relationship using a system of linear equations
alge919 Solving a word problem using a system of linear equations of the form \( Ax + By = C \)
alge918 Solving a word problem using a system of linear equations of the form \( y = mx + b \)
alge184 Solving a value mixture problem using a system of linear equations
alge192 Solving a percent mixture problem using a system of linear equations
alge224 Solving a distance, rate, time problem using a system of linear equations
alge172 Solving a tax rate or interest rate problem using a system of linear equations
alge793 Solving a word problem using a 3x3 system of linear equations: Problem type 1
alge912 Identifying solutions to a linear inequality in two variables
alge225 Graphing a linear inequality in the plane: Vertical or horizontal line
alge720 Graphing a linear inequality in the plane: Slope-intercept form
alge918 Graphing a linear inequality in the plane: Standard form
alge079 Graphing a system of two linear inequalities: Basic
alge921 Graphing a system of two linear inequalities: Advanced
alge922 Graphing a system of three linear inequalities
alge729 Writing a multi-step inequality for a real-world situation
pcalc093 Solving a word problem using a system of linear inequalities: Problem type 1

Exponents and Polynomials

alge821 Understanding the product rule of exponents
alge624 Introduction to the product rule of exponents
alge311 Product rule with positive exponents: Univariate
alge030 Product rule with positive exponents: Multivariate
arith029 Ordering numbers with positive exponents
alge826 Understanding the power rules of exponents
alge306 Introduction to the power of a power rule of exponents
alge305 Introduction to the power of a product rule of exponents
alge307 Power rules with positive exponents: Multivariate products
alge308 Power rules with positive exponents: Multivariate quotients
alge756 Power and product rules with positive exponents
alge451 Simplifying a ratio of multivariate monomials: Basic
alge827 Introduction to the quotient rule of exponents
alge452 Simplifying a ratio of univariate monomials
APPENDIX B. SYLLABI IN ALEKS

- alge026 Quotient of expressions involving exponents
- alge453 Simplifying a ratio of multivariate monomials: Advanced
- alge927 Power and quotient rules with positive exponents
- alge790 Evaluating expressions with exponents of zero
- arith684 Power of 10: Negative exponent
- arith729 Evaluating an expression with a negative exponent: Whole number base
- arith842 Evaluating an expression with a negative exponent: Positive fraction base
- arith843 Evaluating an expression with a negative exponent: Negative integer base
- alge791 Rewriting an algebraic expression without a negative exponent
- alge961 Introduction to the product rule with negative exponents
- alge028 Product rule with negative exponents
- alge755 Quotient rule with negative exponents: Problem type 1
- alge926 Quotient rule with negative exponents: Problem type 2
- alge025 Power of a power rule with negative exponents
- alge799 Power rules with negative exponents
- alge928 Power and quotient rules with negative exponents: Problem type 1
- alge929 Power and quotient rules with negative exponents: Problem type 2
- alge757 Power, product, and quotient rules with negative exponents
- arith636 Scientific notation with positive exponent
- arith637 Scientific notation with negative exponent
- sci1012 Converting between scientific notation and standard form in a real-world situation
- sci1008 Multiplying numbers written in scientific notation: Basic
- sci1009 Multiplying numbers written in scientific notation: Advanced
- sci1010 Dividing numbers written in scientific notation: Basic
- sci1011 Dividing numbers written in scientific notation: Advanced
- alge971 Table for an exponential function
- alge830 Evaluating an exponential function that models a real-world situation
- arith653 Introduction to compound interest
- alge177 Finding a final amount in a word problem on exponential growth or decay
- alge741 Finding the final amount in a word problem on compound interest
- alge966 Finding the initial amount and rate of change given an exponential function
- alge968 Writing an equation that models exponential growth or decay
- alge301 Solving an exponential equation by finding common bases: Linear exponents
- alge969 Graphing an exponential function: \( f(x) = ax \)
- alge970 Graphing an exponential function: \( f(x) = a(b)^x \)
- alge967 Writing an exponential function rule given a table of ordered pairs
- alge993 Comparing linear, polynomial, and exponential functions
- alge758 Degree and leading coefficient of a univariate polynomial
- alge601 Degree of a multivariate polynomial
- alge798 Simplifying a sum or difference of two univariate polynomials
- alge029 Simplifying a sum or difference of three univariate polynomials
- alge932 Simplifying a sum or difference of multivariate polynomials
- alge795 Multiplying a univariate polynomial by a monomial with a positive coefficient
- alge972 Multiplying a univariate polynomial by a monomial with a negative coefficient
- alge835 Multiplying a multivariate polynomial by a monomial
- alge033 Multiplying binomials with leading coefficients of 1
- alge983 Multiplying binomials with leading coefficients greater than 1
- alge765 Multiplying binomials in two variables
- alge764 Multiplying conjugate binomials: Univariate
- alge881 Multiplying conjugate binomials: Multivariate
- alge032 Squaring a binomial: Univariate
- alge068 Squaring a binomial: Multivariate
- alge973 Multiplying binomials with negative coefficients
- alge935 Multiplication involving binomials and trinomials in one variable
- alge180 Multiplication involving binomials and trinomials in two variables
- alge759 Dividing a polynomial by a monomial: Univariate
- alge760 Dividing a polynomial by a monomial: Multivariate
- alge761 Polynomial long division: Problem type 1
- alge762 Polynomial long division: Problem type 2
- alge763 Polynomial long division: Problem type 3
- alge985 Closure properties of integers and polynomials
B.3. PRE-ALGEBRA AND INTRODUCTORY ALGEBRA

alge605 Factoring a linear binomial
alge736 Introduction to the GCF of two monomials
alge930 Greatest common factor of three univariate monomials
alge037 Greatest common factor of two multivariate monomials
alge738 Factoring out a monomial from a polynomial: Univariate
alge739 Factoring out a monomial from a polynomial: Multivariate
alge949 Factoring out a binomial from a polynomial: GCF factoring, basic
alge923 Factoring a univariate polynomial by grouping: Problem type 1
alge950 Factoring a univariate polynomial by grouping: Problem type 2
alge951 Factoring a multivariate polynomial by grouping: Problem type 1
alge952 Factoring a multivariate polynomial by grouping: Problem type 2
alge039 Factoring a quadratic with leading coefficient 1
alge942 Factoring a quadratic in two variables with leading coefficient 1
alge906 Factoring out a constant before factoring a quadratic
alge909 Factoring a quadratic with leading coefficient greater than 1: Problem type 1
alge940 Factoring a quadratic with leading coefficient greater than 1: Problem type 2
alge941 Factoring a quadratic with leading coefficient greater than 1: Problem type 3
alge265 Factoring a quadratic by the ac-method
alge925 Factoring a quadratic in two variables with leading coefficient greater than 1
alge937 Factoring a quadratic with a negative leading coefficient
alge944 Factoring a perfect square trinomial with leading coefficient 1
alge945 Factoring a perfect square trinomial with leading coefficient greater than 1
alge946 Factoring a perfect square trinomial in two variables
alge290 Factoring a difference of squares in one variable: Basic
alge947 Factoring a difference of squares in one variable: Advanced
alge839 Factoring a difference of squares in two variables
alge948 Factoring a polynomial involving a GCF and a difference of squares: Univariate
alge833 Factoring a polynomial involving a GCF and a difference of squares: Multivariate
alge041 Factoring a product of a quadratic trinomial and a monomial
alge042 Factoring with repeated use of the difference of squares formula
alge044 Factoring a sum or difference of two cubes
alge681 Solving an equation written in factored form
alge956 Finding the roots of a quadratic equation of the form $ax^2 + bx = 0$
alge045 Finding the roots of a quadratic equation with leading coefficient 1
alge048 Finding the roots of a quadratic equation with leading coefficient greater than 1
alge211 Solving a quadratic equation needing simplification
alge703 Solving a word problem using a quadratic equation with rational roots
alge713 Using the Pythagorean Theorem and a quadratic equation to find side lengths of a right triangle

Rational Expressions

alge049 Restriction on a variable in a denominator: Linear
alge467 Restriction on a variable in a denominator: Quadratic
alge468 Evaluating a rational function: Problem type 1
alge469 Evaluating a rational function: Problem type 2
alge715 Domain of a rational function: Excluded values
alge454 Simplifying a ratio of factored polynomials: Linear factors
alge455 Simplifying a ratio of factored polynomials: Factors with exponents
alge456 Simplifying a ratio of polynomials using GCF factoring
alge457 Simplifying a ratio of linear polynomials: 1, -1, and no simplification
alge458 Simplifying a ratio of polynomials by factoring a quadratic with leading coefficient 1
alge710 Simplifying a ratio of polynomials: Problem type 1
alge682 Simplifying a ratio of polynomials: Problem type 2
alge459 Simplifying a ratio of polynomials: Problem type 3
alge034 Simplifying a ratio of multivariate polynomials
alge053 Multiplying rational expressions involving multivariate monomials
alge460 Multiplying rational expressions made up of linear expressions
alge620 Multiplying rational expressions involving quadratics with leading coefficients of 1
alge461 Multiplying rational expressions involving quadratics with leading coefficients greater than 1
alge462 Multiplying rational expressions involving multivariate quadratics
APPENDIX B. SYLLABI IN ALEKS

alge054 Dividing rational expressions involving multivariate monomials
alge463 Dividing rational expressions involving linear expressions
alge766 Dividing rational expressions involving quadratics with leading coefficients of 1
alge464 Dividing rational expressions involving quadratics with leading coefficients greater than 1
alge465 Dividing rational expressions involving multivariate quadratics
alge466 Multiplication and division of 3 rational expressions
alge737 Introduction to the LCM of two monomials
alge055 Least common multiple of two monomials
alge427 Finding the LCD of rational expressions with linear denominators: Relatively prime
alge428 Finding the LCD of rational expressions with linear denominators: Common factors
alge429 Finding the LCD of rational expressions with quadratic denominators
alge430 Writing equivalent rational expressions with monomial denominators
alge431 Writing equivalent rational expressions with polynomial denominators
alge304 Writing equivalent rational expressions involving opposite factors
alge433 Adding rational expressions with common denominators and monomial numerators
alge434 Adding rational expressions with common denominators and binomial numerators
alge435 Adding rational expressions with common denominators and quadratic factoring
alge437 Adding rational expressions with denominators ax and bx: Basic
alge438 Adding rational expressions with denominators ax and bx: Advanced
alge439 Adding rational expressions with denominators axn and bxm
alge440 Adding rational expressions with multivariate monomial denominators: Basic
alge226 Adding rational expressions with multivariate monomial denominators: Advanced
alge441 Adding rational expressions with linear denominators without common factors: Basic
alge442 Adding rational expressions with linear denominators without common factors: Advanced
alge443 Adding rational expressions with linear denominators with common factors: Basic
alge444 Adding rational expressions with linear denominators with common factors: Advanced
alge445 Adding rational expressions with denominators ax-b and b-ax
alge661 Adding rational expressions involving different quadratic denominators
alge446 Adding 3 rational expressions with different quadratic denominators
alge470 Complex fraction involving univariate monomials
alge058 Complex fraction involving multivariate monomials
alge471 Complex fraction: GCF factoring
alge472 Complex fraction: Quadratic factoring
alge473 Complex fraction made of sums involving rational expressions: Problem type 1
alge474 Complex fraction made of sums involving rational expressions: Problem type 2
alge475 Complex fraction made of sums involving rational expressions: Problem type 3
alge476 Complex fraction made of sums involving rational expressions: Problem type 4
alge477 Complex fraction made of sums involving rational expressions: Problem type 5
alge478 Complex fraction made of sums involving rational expressions: Problem type 6
alge479 Complex fraction made of sums involving rational expressions: Multivariate
alge480 Complex fraction with negative exponents: Problem type 1
alge481 Complex fraction with negative exponents: Problem type 2
alge162 Complex fraction that contains a complex fraction
alge271 Solving a proportion of the form a/(x+b) = c/x
alge060 Solving a rational equation that simplifies to linear: Denominator x
alge205 Solving a rational equation that simplifies to linear: Denominator x+a
alge769 Solving a rational equation that simplifies to linear: Denominators a, x, or ax
alge421 Solving a rational equation that simplifies to linear: Denominators ax and bx
alge422 Solving a rational equation that simplifies to linear: Like binomial denominators
alge206 Solving a rational equation that simplifies to linear: Unlike binomial denominators
alge423 Solving a rational equation that simplifies to linear: Factorable quadratic denominator
alge424 Solving a rational equation that simplifies to quadratic: Proportional form, basic
alge425 Solving a rational equation that simplifies to quadratic: Denominator x
alge212 Solving a rational equation that simplifies to quadratic: Binomial denominators, constant numerators
alge662 Solving a rational equation that simplifies to quadratic: Binomial denominators and numerators
alge426 Solving a rational equation that simplifies to quadratic: Factorable quadratic denominator
alge047 Solving a rational equation that simplifies to quadratic: Proportional form, advanced
alge508 Solving for a variable in terms of other variables in a rational equation: Problem type 1
alge509 Solving for a variable in terms of other variables in a rational equation: Problem type 2
alge510 Solving for a variable in terms of other variables in a rational equation: Problem type 3
arith612 Word problem involving multiple rates
B.3. PRE-ALGEBRA AND INTRODUCTORY ALGEBRA

alge770 Solving a work problem using a rational equation
alge450 Solving a distance, rate, time problem using a rational equation
alge059 Ordering fractions with variables
alge982 Identifying direct variation equations
alge938 Identifying direct variation from ordered pairs and writing equations
alge904 Writing a direct variation equation
alge175 Word problem on direct variation
alge828 Interpreting direct variation from a graph
alge905 Writing an inverse variation equation
alge903 Identifying direct and inverse variation from ordered pairs and writing equations
alge902 Identifying direct and inverse variation from ordered pairs and writing equations
alge176 Word problem on inverse variation
alge220 Word problem on inverse proportions
pcalc681 Writing an equation that models variation
alge772 Word problem on combined variation

Radicals and Quadratic Equations

alge413 Finding all square roots of a number
arith760 Square roots of perfect squares with signs
alge415 Introduction to simplifying a radical expression with an even exponent
alge264 Square root of a perfect square monomial
arith694 Cube root of an integer
alge549 Finding nth roots of perfect nth powers with signs
arith768 Finding the nth root of a perfect nth power fraction
alge550 Finding the nth root of a perfect nth power monomial
arith693 Simplifying the square root of a whole number less than 100
arith762 Simplifying the square root of a whole number greater than 100
alge080 Simplifying a radical expression with an even exponent
alge520 Introduction to simplifying a radical expression with an odd exponent
alge521 Simplifying a radical expression with an odd exponent
alge275 Simplifying a radical expression with two variables
alge273 Simplifying a higher root of a whole number
alge551 Introduction to simplifying a higher radical expression
alge552 Simplifying a higher radical expression: Univariate
alge811 Simplifying a higher radical expression: Multivariate
arith767 Introduction to square root addition or subtraction
arith632 Square root addition or subtraction
alge533 Square root addition or subtraction with three terms
alge531 Introduction to simplifying a sum or difference of radical expressions: Univariate
alge532 Simplifying a sum or difference of radical expressions: Univariate
alge084 Simplifying a sum or difference of radical expressions: Multivariate
alge554 Simplifying a sum or difference of higher roots
alge555 Simplifying a sum or difference of higher radical expressions
arith764 Introduction to square root multiplication
arith765 Square root multiplication: Basic
arith639 Square root multiplication: Advanced
alge522 Introduction to simplifying a product of radical expressions: Univariate
alge523 Simplifying a product of radical expressions: Univariate
alge640 Simplifying a product of radical expressions: Multivariate
alge556 Introduction to simplifying a product of higher roots
alge557 Simplifying a product of higher radical expressions
alge525 Introduction to simplifying a product involving square roots using the distributive property
alge526 Simplifying a product involving square roots using the distributive property: Basic
alge276 Simplifying a product involving square roots using the distributive property: Advanced
alge774 Special products of radical expressions: Conjugates and squaring
alge904 Classifying sums and products as rational or irrational
arith766 Simplifying a quotient of square roots
alge530 Simplifying a quotient involving a sum or difference with a square root
alge527 Rationalizing a denominator: Quotient involving square roots
APPENDIX B. SYLLABI IN ALEKS

alg528 Rationalizing a denominator: Square root of a fraction
alg529 Rationalizing a denominator: Quotient involving a monomial
alg534 Rationalizing a denominator using conjugates: Integer numerator
alg535 Rationalizing a denominator using conjugates: Square root in numerator
alg536 Rationalizing a denominator using conjugates: Variable in denominator
alg564 Rationalizing a denominator: Quotient involving a higher radical
alg400 Introduction to solving a radical equation
alg089 Solving a radical equation that simplifies to a linear equation: One radical, basic
alg090 Solving a radical equation that simplifies to a linear equation: Two radicals
alg405 Solving a radical equation with two radicals that simplifies to $\sqrt{x} = a$
alg403 Solving a radical equation that simplifies to a quadratic equation: One radical, basic
alg404 Solving a radical equation that simplifies to a quadratic equation: One radical, advanced
alg411 Solving a radical equation with a quadratic expression under the radical
alg182 Solving a radical equation that simplifies to a quadratic equation: Two radicals
alg410 Solving an equation with a root index greater than 2: Problem type 1
alg417 Solving an equation with a root index greater than 2: Problem type 2
alg412 Algebraic symbol manipulation with radicals
alg542 Word problem involving radical equations: Basic
alg409 Word problem involving radical equations: Advanced
alg132 Distance between two points in the plane: Exact answers
alg539 Table for a square root function
alg540 Domain of a square root function: Basic
pcalc763 Domain of a square root function: Advanced
alg543 Graphing a square root function: Problem type 1
alg544 Graphing a square root function: Problem type 2
alg812 Converting between radical form and exponent form
alg560 Rational exponents: Unit fraction exponents and whole number bases
alg561 Rational exponents: Unit fraction exponents and bases involving signs
alg250 Rational exponents: Non-unit fraction exponent with a whole number base
alg251 Rational exponents: Negative exponents and fractional bases
alg558 Rational exponents: Product rule
alg559 Rational exponents: Quotient rule
alg773 Rational exponents: Products and quotients with negative exponents
alg562 Rational exponents: Power of a power rule
alg249 Rational exponents: Powers of powers with negative exponents
alg563 Simplifying products or quotients of higher radicals with different indices: Univariate
alg778 Using $i$ to rewrite square roots of negative numbers
alg779 Simplifying a product and quotient involving square roots of negative numbers
pcalc048 Adding or subtracting complex numbers
pcalc049 Multiplying complex numbers
pcalc050 Dividing complex numbers
pcalc053 Simplifying a power of $i$
alg092 Solving an equation of the form $x^2 = a$ using the square root property
alg092 Solving a quadratic equation using the square root property: Exact answers, basic
alg227 Solving a quadratic equation using the square root property: Exact answers, advanced
alg094 Completing the square
alg780 Solving a quadratic equation by completing the square: Exact answers
alg095 Applying the quadratic formula: Exact answers
alg963 Applying the quadratic formula: Decimal answers
pcalc51 Solving a quadratic equation with complex roots
alg214 Discriminant of a quadratic equation
alg524 Solving a word problem using a quadratic equation with irrational roots
alg974 Finding the vertex, x-intercepts, and axis of symmetry from the graph of a parabola
alg953 Translating the graph of a parabola: One step
alg253 Graphing a parabola of the form $y = (x-h)^2 + k$
alg569 Graphing a parabola of the form $y = x^2 + bx + c$
pcalc746 Graphing a parabola of the form $y = ax^2 + bx + c$: Integer coefficients
pcalc747 Graphing a parabola of the form $y = ax^2 + bx + c$: Rational coefficients
alg277 Finding the x-intercept(s) and the vertex of a parabola
pcalc774 Rewriting a quadratic function to find the vertex of its graph
pcalc775 Finding the maximum or minimum of a quadratic function
B.4. Math Literacy

Arithmetic Readiness

- arith126 Multiplication as repeated addition
- arith711 Division involving zero
- arith130 Word problem with multiplication and addition or subtraction of whole numbers
- arith078 Rounding to tens or hundreds
- arith123 Rounding to hundreds or thousands
- arith061 Rounding to thousands, ten thousands, or hundred thousands
- arith101 Estimating a sum of whole numbers
- arith102 Estimating a difference of whole numbers
- arith080 Estimating a product or quotient of whole numbers
- arith655 Introduction to properties of addition
- arith656 Introduction to properties of multiplication
- arith692 Writing expressions using exponents
- arith233 Introduction to exponents
- arith683 Power of 10: Positive exponent
- arith645 Introduction to parentheses
- arith681 Introduction to order of operations
- arith648 Order of operations with whole numbers
- arith651 Order of operations with whole numbers and grouping symbols
- arith693 Order of operations with whole numbers and exponents: Basic
- arith713 Order of operations with whole numbers and exponents: Advanced
- arith657 Understanding the distributive property
- arith646 Even and odd numbers
- arith647 Divisibility rules for 2, 5, and 10
- arith648 Divisibility rules for 3 and 9
- arith656 Factors
- arith634 Prime numbers
- arith635 Prime factorization
- arith633 Greatest common factor of 2 numbers
- arith670 Least common multiple of 2 numbers
- arith804 Least common multiple of 3 numbers
- arith240 Word problem with common multiples
- alge925 Finding the next terms of an arithmetic sequence with whole numbers
- alge933 Finding the next terms of a geometric sequence with whole numbers
- alge732 Finding patterns in shapes
- alge284 Evaluating an algebraic expression: Whole number addition or subtraction
- alge683 Evaluating an algebraic expression: Whole number multiplication or division
- alge285 Evaluating an algebraic expression: Whole numbers with two operations
- alge832 Evaluating an algebraic expression: Whole number operations and exponents
- alge009 Additive property of equality with whole numbers
APPENDIX B. SYLLABI IN ALEKS

alge008 Multiplicative property of equality with whole numbers
alge083 Using two steps to solve an equation with whole numbers
arith623 Introduction to fractions
arith665 Understanding equivalent fractions
arith212 Equivalent fractions
arith666 Introduction to simplifying a fraction
arith067 Simplifying a fraction
arith687 Fractional position on a number line
arith667 Plotting fractions on a number line
arith044 Ordering fractions with the same denominator
arith091 Ordering fractions with the same numerator
arith092 Using a common denominator to order fractions
arith079 Product of a unit fraction and a whole number
arith086 Product of a fraction and a whole number: Problem type 1
arith119 Introduction to fraction multiplication
arith053 Fraction multiplication
arith012 Product of a fraction and a whole number: Problem type 2
arith013 Multiplication of 3 fractions
arith018 Word problem involving fractions and multiplication
arith095 Multi-step word problem involving fractions and multiplication
arith088 The reciprocal of a number
arith094 Division involving a whole number and a fraction
arith022 Fraction division
arith019 Word problem involving fractions and division
arith018 Addition or subtraction of fractions with the same denominator
arith002 Addition or subtraction of fractions with the same denominator and simplification
arith001 Finding the LCD of two fractions
arith109 Addition or subtraction of unit fractions
arith664 Introduction to addition or subtraction of fractions with different denominators
arith230 Addition or subtraction of fractions with different denominators
arith03 Addition and subtraction of 3 fractions with different denominators
arith05 Word problem involving addition or subtraction of fractions with different denominators
arith100 Fractional part of a circle
arith021 Exponents and fractions
arith059 Order of operations with fractions: Problem type 1
arith060 Order of operations with fractions: Problem type 2
arith061 Order of operations with fractions: Problem type 3
arith065 Complex fraction without variables: Problem type 1
arith062 Writing a mixed number and an improper fraction for a shaded region
arith015 Writing an improper fraction as a mixed number
arith019 Writing a mixed number as an improper fraction
arith215 Addition or subtraction of mixed numbers with the same denominator
arith084 Addition of mixed numbers with the same denominator and carry
arith016 Subtraction of mixed numbers with the same denominator and borrowing
arith006 Addition or subtraction of mixed numbers with different denominators and no carry or borrow
arith008 Addition of mixed numbers with different denominators and carry
arith009 Subtraction of mixed numbers with different denominators and borrowing
arith007 Addition and subtraction of 3 mixed numbers with different denominators
arith010 Word problem involving addition or subtraction of mixed numbers with different denominators
arith015 Mixed number multiplication
arith016 Multiplication of a mixed number and a whole number
arith017 Division with a mixed number and a whole number
arith008 Mixed number division
arith020 Word problem involving multiplication or division with mixed numbers
arith127 Writing a decimal and a fraction for a shaded region
arith110 Decimal place value: Tenths and hundredths
arith220 Decimal place value: Hundreds to ten thousandths
arith714 Writing a decimal number less than 1 given its name
arith715 Writing a decimal number greater than 1 given its name
arith716 Writing a decimal number given its name: Advanced
arith029 Reading decimal position on a number line: Tenths
arith30 Reading decimal position on a number line: Hundredths
B.4. MATH LITERACY

arith831 Understanding decimal position on a number line using zoom: Hundredths
arith832 Understanding decimal position on a number line using zoom: Thousandths
arith129 Introduction to ordering decimals
arith608 Ordering decimals
arith221 Rounding decimals
arith624 Addition of aligned decimals
arith013 Decimal addition with 3 numbers
arith734 Subtraction of aligned decimals
arith735 Decimal subtraction: Basic
arith736 Decimal subtraction: Advanced
arith737 Decimal addition and subtraction with 3 or more numbers
arith131 Estimating a decimal sum or difference
arith132 Word problem with addition or subtraction of 2 decimals
arith133 Word problem with addition of 3 or 4 decimals and whole numbers
arith134 Word problem with subtraction of a whole number and a decimal: Regrouping with zeros
arith739 Introduction to decimal multiplication
arith617 Multiplication of a decimal by a whole number
arith655 Decimal multiplication: Problem type 1
arith606 Decimal multiplication: Problem type 2
arith082 Multiplication of a decimal by a power of ten
arith738 Multiplication of a decimal by a power of 0.1
arith740 Multiplication of decimals that have a product less than 0.1
arith752 Estimating a product of decimals
arith135 Word problem with multiplication of a decimal and a whole number
arith137 Word problem with multiplication of two decimals
arith224 Word problem with decimal addition and multiplication
arith744 Whole number division with decimal answers
arith743 Division of a decimal by a 1-digit decimal
arith019 Division of a decimal by a 2-digit decimal
arith803 Division of a decimal by a power of ten
arith742 Division of a decimal by a power of 0.1
arith745 Decimal division with rounding
arith136 Word problem with division of a decimal and a whole number
arith138 Word problem with division of two decimals
arith227 Word problem with decimal subtraction and division
arith753 Squaring decimal bases: Products greater than 0.1
arith741 Exponents and decimals: Products less than 0.1
arith720 Order of operations with decimals: Problem type 1
arith746 Order of operations with decimals: Problem type 2
arith747 Order of operations with decimals: Problem type 3
arith717 Converting a decimal to a proper fraction without simplifying: Basic
arith719 Converting a decimal to a proper fraction without simplifying: Advanced
arith718 Converting a decimal to a proper fraction in simplest form: Basic
arith087 Converting a decimal to a proper fraction in simplest form: Advanced
arith721 Converting a decimal to a mixed number and an improper fraction without simplifying
arith722 Converting a decimal to a mixed number and an improper fraction in simplest form: Basic
arith724 Converting a decimal to a mixed number and an improper fraction in simplest form: Advanced
arith725 Converting a fraction with a denominator of 10 or 100 to a decimal
arith726 Converting a fraction with a denominator of 100 or 1000 to a decimal
arith727 Converting a fraction to a terminating decimal: Basic
arith728 Converting a fraction to a terminating decimal: Advanced
arith730 Converting a fraction to a repeating decimal: Basic
arith731 Converting a fraction to a repeating decimal: Advanced
arith733 Using a calculator to convert a fraction to a rounded decimal
arith111 Converting a mixed number to a terminating decimal: Basic
arith112 Converting a mixed number to a terminating decimal: Advanced
arith732 Converting a fraction or mixed number to a rounded decimal
arith609 Ordering fractions and decimals
arith748 Addition or subtraction with a decimal and a mixed number
arith749 Multiplication with a decimal and a fraction
### Geometry

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>geom339</td>
<td>Perimeter of a polygon</td>
</tr>
<tr>
<td>geom300</td>
<td>Perimeter of a square or a rectangle</td>
</tr>
<tr>
<td>geom618</td>
<td>Perimeter of a polygon involving mixed numbers and fractions</td>
</tr>
<tr>
<td>geom078</td>
<td>Sides of polygons having the same perimeter</td>
</tr>
<tr>
<td>geom221</td>
<td>Finding the missing length in a figure</td>
</tr>
<tr>
<td>geom353</td>
<td>Perimeter of a piecewise rectangular figure</td>
</tr>
<tr>
<td>geom349</td>
<td>Identifying parallel and perpendicular lines</td>
</tr>
<tr>
<td>geom151</td>
<td>Naming segments, rays, and lines</td>
</tr>
<tr>
<td>geom152</td>
<td>Measuring an angle with the protractor</td>
</tr>
<tr>
<td>geom303</td>
<td>Drawing an angle with the protractor</td>
</tr>
<tr>
<td>geom339</td>
<td>Acute, obtuse, and right angles</td>
</tr>
<tr>
<td>geom339</td>
<td>Finding supplementary and complementary angles</td>
</tr>
<tr>
<td>geom305</td>
<td>Identifying supplementary and vertical angles</td>
</tr>
<tr>
<td>geom304</td>
<td>Identifying corresponding and alternate angles</td>
</tr>
<tr>
<td>geom306</td>
<td>Acute, obtuse, and right triangles</td>
</tr>
<tr>
<td>geom307</td>
<td>Classifying scalene, isosceles, and equilateral triangles by side lengths or angles</td>
</tr>
<tr>
<td>geom001</td>
<td>Finding an angle measure of a triangle given two angles</td>
</tr>
<tr>
<td>geom001</td>
<td>Finding an angle measure for a triangle with an extended side</td>
</tr>
<tr>
<td>geom812</td>
<td>Finding an angle measure given extended triangles</td>
</tr>
<tr>
<td>geom813</td>
<td>Finding an angle measure given a triangle and parallel lines</td>
</tr>
<tr>
<td>geom361</td>
<td>Naming polygons</td>
</tr>
<tr>
<td>mstat042</td>
<td>Interpreting a Venn diagram of 2 sets</td>
</tr>
<tr>
<td>geom380</td>
<td>Identifying parallelograms, rectangles, and squares</td>
</tr>
<tr>
<td>geom310</td>
<td>Properties of quadrilaterals</td>
</tr>
<tr>
<td>geom352</td>
<td>Classifying parallelograms</td>
</tr>
<tr>
<td>geom019</td>
<td>Area of a square or a rectangle</td>
</tr>
<tr>
<td>geom866</td>
<td>Perimeter and area on a grid</td>
</tr>
<tr>
<td>geom620</td>
<td>Area of a rectangle involving fractions</td>
</tr>
<tr>
<td>geom619</td>
<td>Area of a rectangle involving mixed numbers and fractions</td>
</tr>
<tr>
<td>geom350</td>
<td>Distinguishing between the area and perimeter of a rectangle</td>
</tr>
<tr>
<td>geom351</td>
<td>Areas of rectangles with the same perimeter</td>
</tr>
<tr>
<td>geom217</td>
<td>Finding the side length of a rectangle given its perimeter or area</td>
</tr>
<tr>
<td>geom340</td>
<td>Area of a piecewise rectangular figure</td>
</tr>
<tr>
<td>geom142</td>
<td>Word problem involving the area between two rectangles</td>
</tr>
<tr>
<td>geom801</td>
<td>Area of a triangle</td>
</tr>
<tr>
<td>geom344</td>
<td>Area involving rectangles and triangles</td>
</tr>
<tr>
<td>geom822</td>
<td>Area of a parallelogram</td>
</tr>
<tr>
<td>geom823</td>
<td>Area of a trapezoid</td>
</tr>
<tr>
<td>geom347</td>
<td>Introduction to a circle: Diameter, radius, and chord</td>
</tr>
<tr>
<td>geom016</td>
<td>Circumference of a circle</td>
</tr>
<tr>
<td>geom301</td>
<td>Perimeter involving rectangles and circles</td>
</tr>
<tr>
<td>geom892</td>
<td>Circumference and area of a circle</td>
</tr>
<tr>
<td>geom302</td>
<td>Area involving rectangles and circles</td>
</tr>
<tr>
<td>geom036</td>
<td>Word problem involving the area between two concentric circles</td>
</tr>
<tr>
<td>geom214</td>
<td>Area involving inscribed figures</td>
</tr>
<tr>
<td>geom868</td>
<td>Classifying solids</td>
</tr>
<tr>
<td>geom348</td>
<td>Vertices, edges, and faces of a solid</td>
</tr>
<tr>
<td>geom830</td>
<td>Counting the cubes in a solid made of cubes</td>
</tr>
<tr>
<td>geom354</td>
<td>Volume of a rectangular prism made of unit cubes</td>
</tr>
<tr>
<td>geom211</td>
<td>Volume of a rectangular prism</td>
</tr>
<tr>
<td>geom505</td>
<td>Volume of a piecewise rectangular prism</td>
</tr>
<tr>
<td>geom090</td>
<td>Volume of a triangular prism</td>
</tr>
<tr>
<td>geom033</td>
<td>Volume of a pyramid</td>
</tr>
<tr>
<td>geom035</td>
<td>Volume of a cylinder</td>
</tr>
<tr>
<td>geom822</td>
<td>Volume of a cone</td>
</tr>
<tr>
<td>geom841</td>
<td>Volume of a sphere</td>
</tr>
<tr>
<td>geom219</td>
<td>Nets of solids</td>
</tr>
<tr>
<td>geom816</td>
<td>Side views of a solid made of cubes</td>
</tr>
<tr>
<td>geom031</td>
<td>Surface area of a cube or a rectangular prism</td>
</tr>
<tr>
<td>geom345</td>
<td>Surface area of a piecewise rectangular prism made of unit cubes</td>
</tr>
</tbody>
</table>
B.4. MATH LITERACY

geom091 Surface area of a triangular prism
geom621 Surface area of a cylinder
geom842 Surface area of a sphere
arith016 Square root of a perfect square
arith763 Using a calculator to approximate a square root
arith602 Estimating a square root
arith601 Square root of a rational perfect square
alge407 Introduction to the Pythagorean Theorem
geom044 Pythagorean Theorem
alge408 Word problem involving the Pythagorean Theorem

Ratios, Proportions, and Percents

arith823 Writing ratios using different notations
arith663 Writing ratios for real-world situations
arith824 Simplifying a ratio of whole numbers: Problem type 1
arith825 Simplifying a ratio of decimals
arith827 Finding a unit price
arith828 Computing unit prices to find the better buy
arith064 Solving a word problem on proportions using a unit rate
arith228 Word problem on unit rates associated with ratios of whole numbers: Decimal answers
alge823 Solving a one-step word problem using the formula d = rt
alge272 Solving a proportion of the form x/a = b/c
arith610 Word problem on proportions: Problem type 1
arith611 Word problem on proportions: Problem type 2
arith045 Word problem with powers of ten
geom359 Identifying congruent shapes on a grid
geom520 Identifying and naming congruent triangles
geom360 Identifying similar or congruent shapes on a grid
geom837 Similar polygons
geom638 Similar right triangles
geom838 Similar triangles
arith836 Converting a fraction with a denominator of 100 to a percentage
arith837 Converting a percentage to a fraction with a denominator of 100
arith674 Finding the percentage of a grid that is shaded
arith723 Introduction to converting a percentage to a decimal
arith833 Introduction to converting a decimal to a percentage
arith834 Converting between percentages and decimals
arith841 Converting a mixed number percentage to a decimal
arith835 Converting between percentages and decimals in a real-world situation
arith690 Converting a percentage to a fraction in simplest form
arith839 Converting a decimal percentage to a fraction
arith838 Converting a fraction to a percentage: Denominator of 4, 5, or 10
arith002 Converting a fraction to a percentage: Denominator of 20, 25, or 50
arith843 Using a calculator to convert a fraction to a rounded percentage
arith842 Converting a fraction to a percentage in a real-world situation
arith840 Finding a percentage of a whole number
arith844 Finding a percentage of a whole number without a calculator: Basic
arith845 Finding a percentage of a whole number without a calculator: Advanced
arith862 Applying the percent equation: Problem type 1
arith863 Applying the percent equation: Problem type 2
arith845 Finding a percentage of a total amount: Real-world situations
arith846 Finding a percentage of a total amount without a calculator: Sales tax, commission, discount
arith857 Estimating a tip without a calculator
arith869 Writing a ratio as a percentage without a calculator
mstat049 Computing a percentage from a table of values
arith850 Finding the rate of a tax or commission
arith849 Finding the total amount given the percentage of a partial amount
arith852 Finding the multiplier to give a final amount after a percentage increase or decrease
arith851 Finding the final amount given the original amount and a percentage increase or decrease
arithmetic Finding the sale price given the original price and percent discount
arithmetic Finding the sale price without a calculator given the original price and percent discount
arithmetic Finding the total cost including tax or markup
arithmetic Finding the original amount given the result of a percentage increase or decrease
arithmetic Finding the original price given the sale price and percent discount
arithmetic Finding the percentage increase or decrease: Basic
arithmetic Finding the percentage increase or decrease: Advanced
arithmetic Finding simple interest without a calculator

Measurement

mstat Choosing U.S. Customary measurement units
unit Choosing U.S. Customary unit conversion with whole number values
mstat Conversions involving measurements in feet and inches
unit Adding measurements in feet and inches
unit Choosing U.S. Customary unit conversion with whole number values: Two-step conversion
unit Choosing U.S. Customary unit conversion with mixed number values: One-step conversion
unit Choosing U.S. Customary unit conversion with mixed number values: Two-step conversion
unit Choosing U.S. Customary area unit conversion with whole number values
unit Choosing metric measurement units
unit Choosing metric measurement units
unit Choosing metric measurement units
unit Choosing metric measurement units
unit Choosing metric measurement units
unit Choosing metric measurement units
unit Choosing metric measurement units
unit Choosing metric measurement units
unit Choosing metric measurement units
unit Choosing metric measurement units
unit Choosing metric measurement units
unit Choosing metric measurement units
time Adding time
time Elapsed time
mstat Converting between temperatures in Fahrenheit and Celsius
arith Simplifying a ratio of whole numbers: Problem type 2
unit Converting between metric and U.S. Customary unit systems
unit Converting between compound units: Basic
unit Converting between compound units: Advanced

Data Analysis

mstat Interpreting a tally table
mstat Constructing a line plot
mstat Constructing a bar graph for non-numerical data
mstat Constructing a histogram for numerical data
mstat Interpreting a bar graph
mstat Interpreting a double bar graph
mstat Interpreting a pictograph table
mstat Interpreting a stem-and-leaf plot
mstat Interpreting a line graph
stat Interpreting a circle graph or pie chart
arith Finding a percentage of a total amount in a circle graph
stat Computation from a circle graph
geom Angle measure in a circle graph
stat Calculating relative frequencies in a contingency table
stat Making a reasonable inference based on proportion statistics
mstat Finding if a question can be answered by the data
mstat Mode of a data set
mstat Finding the mode and range of a data set
arith Average of two numbers
mstat Mean of a data set
mstat Mean and median of a data set
mstat How changing a value affects the mean and median
mstat053 Choosing the best measure to describe data
stat802 Rejecting unreasonable claims based on average statistics
mstat066 Weighted mean
mstat027 Using back-to-back stem-and-leaf plots to compare data sets
mstat072 Five-number summary and interquartile range
mstat006 Constructing a box-and-whisker plot
mstat073 Using box-and-whisker plots to compare data sets
mstat043 Interpreting a Venn diagram of 3 sets
mstat041 Interpreting a tree diagram
mstat040 Introduction to the counting principle
mstat015 Counting principle
pcalc082 Factorial expressions
mstat008 Computing permutations and combinations
mstat009 Word problem involving permutations
mstat026 Introduction to the probability of an event
mstat016 Probability of an event
mstat039 Understanding likelihood
mstat048 Odds of an event
stat106 Outcomes and event probability
stat112 Probabilities involving two dice
mstat011 Area as probability
mstat046 Experimental and theoretical probability
mstat017 Introduction to expectation
mstat012 Probability of independent events
mstat013 Probability of dependent events
mstat032 Probability of the union of two events

Real Numbers

alge286 Plotting integers on a number line
arith605 Plotting rational numbers on a number line
mstat038 Reading the temperature from a thermometer
arith699 Writing a signed number for a real-world situation
arith691 Ordering integers
arith691 Absolute value of a number
arith712 Ordering real numbers
arith200 Integer addition: Problem type 1
arith108 Integer addition: Problem type 2
arith688 Integer subtraction: Problem type 1
arith689 Integer subtraction: Problem type 2
arith690 Integer subtraction: Problem type 3
arith754 Addition and subtraction with 3 integers
arith755 Addition and subtraction with 4 or 5 integers
arith701 Word problem with addition or subtraction of integers
arith231 Integer multiplication and division
arith800 Multiplication of 3 or 4 integers
alge061 Identifying numbers as integers or non-integers
alge002 Identifying numbers as rational or irrational
arith116 Signed fraction addition or subtraction: Basic
arith864 Signed fraction subtraction involving double negation
arith106 Signed fraction addition or subtraction: Advanced
arith811 Addition and subtraction of 3 fractions involving signs
arith822 Signed fraction multiplication: Basic
arith105 Signed fraction multiplication: Advanced
arith814 Signed fraction division
arith117 Signed decimal addition and subtraction
arith234 Signed decimal addition and subtraction with 3 numbers
arith750 Signed decimal multiplication
arith751 Signed decimal division
APPENDIX B. SYLLABI IN ALEKS

arith104 Operations with absolute value: Problem type 2
geom525 Computing distances between decimals on the number line
unit052 Finding the absolute error and percent error of a measurement
arith702 Exponents and integers: Problem type 1
arith703 Exponents and integers: Problem type 2
arith704 Exponents and signed fractions
arith118 Order of operations with integers
arith600 Order of operations with integers and exponents
arith808 Evaluating a linear expression: Integer multiplication with addition or subtraction
arith302 Evaluating a linear expression: Signed decimal addition and subtraction
arith303 Evaluating a linear expression: Signed decimal multiplication with addition or subtraction
arith004 Evaluating a quadratic expression: Integers
alge700 Combining like terms: Whole number coefficients
alge607 Combining like terms: Integer coefficients
alge187 Properties of addition
alge310 Multiplying a constant and a linear monomial
alge606 Distributive property: Whole number coefficients
alge604 Distributive property: Integer coefficients
alge188 Properties of real numbers
alge608 Using distribution and combining like terms to simplify: Univariate
alge609 Using distribution with double negation and combining like terms to simplify: Multivariate
alge293 Combining like terms in a quadratic expression
arith767 Introduction to square root addition or subtraction

Linear Equations and Inequalities

alge801 Additive property of equality with fractions and mixed numbers
alge800 Additive property of equality with decimals
alge010 Additive property of equality with integers
alge836 Additive property of equality with signed fractions
alge820 Multiplicative property of equality with fractions
alge825 Multiplicative property of equality with decimals
alge797 Multiplicative property of equality with integers
alge012 Multiplicative property of equality with signed fractions
alge834 Identifying solutions to a linear equation in one variable: Two-step equations
alge266 Additive property of equality with a negative coefficient
alge006 Solving a two-step equation with integers
alge200 Solving an equation to find the value of an expression
alge920 Introduction to solving an equation with parentheses
alge837 Solving a multi-step equation given in fractional form
alge986 Identifying properties used to solve a linear equation
alge824 Solving a two-step equation with signed decimals
alge838 Introduction to solving an equation with variables on the same side
alge862 Solving a linear equation with several occurrences of the variable: Variables on the same side
alge863 Solving a linear equation with several occurrences of the variable: Variables on both sides
alge011 Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
alge013 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
alge209 Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions
alge420 Solving a linear equation with several occurrences of the variable: Fractional forms with monomial numerators
alge208 Solving a two-step equation with signed fractions
alge061 Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
alge179 Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators
alge742 Solving equations with zero, one, or infinitely many solutions
B.4. MATH LITERACY

alge840 Solving a proportion of the form \((x+a)/b = c/d\)
alge603 Introduction to solving an absolute value equation
alge864 Solving an absolute value equation: Problem type 1
alge511 Solving for a variable in terms of other variables using addition or subtraction: Basic
alge512 Solving for a variable in terms of other variables using addition or subtraction: Advanced
alge513 Solving for a variable in terms of other variables using multiplication or division: Basic
alge514 Solving for a variable in terms of other variables using multiplication or division: Advanced
alge517 Solving for a variable in terms of other variables using addition or subtraction with division
alge518 Solving for a variable inside parentheses in terms of other variables
alge507 Solving for a variable in terms of other variables in a linear equation with fractions
alge733 Writing a one-step expression for a real-world situation
alge831 Translating a phrase into a one-step expression
alge291 Translating a phrase into a two-step expression
alge016 Translating a sentence into a one-step equation
alge841 Translating a sentence into a multi-step equation
alge802 Solving a fraction word problem using a linear equation of the form \(Ax = B\)
alge014 Solving a word problem with two unknowns using a linear equation
alge173 Solving a decimal word problem using a linear equation of the form \(Ax + B = C\)
alge730 Writing a multi-step equation for a real-world situation
alge219 Solving a decimal word problem using a linear equation with the variable on both sides
alge704 Solving a fraction word problem using a linear equation with the variable on both sides
alge792 Solving a word problem with three unknowns using a linear equation
alge842 Solving a word problem involving consecutive integers
alge794 Solving a value mixture problem using a linear equation
alge218 Solving a word problem involving rates and time conversion
alge796 Solving a distance, rate, time problem using a linear equation
arith854 Computing a percent mixture
alge795 Solving a percent mixture problem using a linear equation
geom817 Finding a side length given the perimeter and side lengths with variables
geom143 Finding the perimeter or area of a rectangle given one of these values
geom218 Finding the radius or the diameter of a circle given its circumference
geom838 Circumference ratios
geom892 Word problem involving the rate of filling or emptying a cylinder
geom530 Solving equations involving vertical angles
geom531 Solving equations involving angles and a pair of parallel lines
geom623 Finding angle measures of a triangle given angles with variables
geom502 Finding angle measures of a right or isosceles triangle given angles with variables
stat803 Finding the value for a new score that will yield a given mean
alge015 Translating a sentence by using an inequality symbol
alge845 Translating a sentence into a one-step inequality
alge846 Translating a sentence into a multi-step inequality
alge748 Writing an inequality for a real-world situation
alge017 Graphing a linear inequality on the number line
alge822 Writing an inequality given a graph on the number line
alge186 Translating a sentence into a compound inequality
alge166 Graphing a compound inequality on the number line
alge847 Writing a compound inequality given a graph on the number line
set001 Set builder notation
set004 Set builder and interval notation
set002 Union and intersection of finite sets
alge844 Identifying solutions to a two-step linear inequality in one variable
alge848 Additive property of inequality with whole numbers
alge849 Additive property of inequality with integers
alge852 Additive property of inequality with signed fractions
alge853 Additive property of inequality with signed decimals
alge854 Multiplicative property of inequality with integers
alge964 Multiplicative property of inequality with signed fractions
alge855 Solving a two-step linear inequality: Problem type 1
alge856 Solving a two-step linear inequality: Problem type 2
alge857 Solving a two-step linear inequality with a fractional coefficient
alge977 Solving a linear inequality with multiple occurrences of the variable: Problem type 1
alge858 Solving a linear inequality with multiple occurrences of the variable: Problem type 2
alge859 Solving a linear inequality with multiple occurrences of the variable: Problem type 3
alge860 Solving inequalities with no solution or all real numbers as solutions
alge746 Solving a compound linear inequality: Graph solution, basic
alge747 Solving a compound linear inequality: Interval notation
alge749 Solving a decimal word problem using a two-step linear inequality
alge750 Solving a decimal word problem using a linear inequality with the variable on both sides
alge868 Solving an absolute value inequality: Problem type 1

Lines

alge064 Reading a point in the coordinate plane
alge067 Plotting a point in the coordinate plane
alge850 Table for a linear equation
alge873 Identifying solutions to a linear equation in two variables
alge066 Finding a solution to a linear equation in two variables
alge191 Midpoint of a line segment in the plane
alge132 Distance between two points in the plane: Exact answers
alge877 Graphing a linear equation of the form y = mx
alge878 Graphing a line given its equation in slope-intercept form: Integer slope
alge879 Graphing a line given its equation in slope-intercept form: Fractional slope
alge880 Graphing a line given its equation in standard form
alge198 Graphing a vertical or horizontal line
alge884 Finding x- and y-intercepts given the graph of a line on a grid
alge924 Finding x- and y-intercepts of a line given the equation: Basic
alge210 Finding x- and y-intercepts of a line given the equation: Advanced
alge197 Graphing a line given its x- and y-intercepts
alge881 Graphing a line by first finding its x- and y-intercepts
alge875 Classifying slopes given graphs of lines
alge886 Finding slope given the graph of a line on a grid
alge887 Finding slope given two points on the line
alge885 Finding the slope of horizontal and vertical lines
alge888 Finding the coordinate that yields a given slope
alge259 Graphing a line given its slope and y-intercept
alge196 Graphing a line through a given point with a given slope
alge876 Identifying linear equations: Advanced
alge874 Identifying linear functions given ordered pairs
alge891 Rewriting a linear equation in the form Ax + By = C
alge889 Finding the slope and y-intercept of a line given its equation in the form y = mx + b
alge890 Finding the slope and y-intercept of a line given its equation in the form Ax+By=C
alge882 Graphing a line by first finding its slope and y-intercept
alge892 Writing an equation and graphing a line given its slope and y-intercept
alge893 Writing an equation in slope-intercept form given the slope and a point
alge883 Graphing a line given its equation in point-slope form
alge894 Writing an equation in point-slope form given the slope and a point
alge070 Writing an equation of a line given the y-intercept and another point
alge072 Writing the equation of the line through two given points
alge073 Writing the equations of vertical and horizontal lines through a given point
geom807 Finding slopes of lines parallel and perpendicular to a line given in slope-intercept form
geom805 Identifying parallel and perpendicular lines from equations
geom808 Writing equations of lines parallel and perpendicular to a given line through a point
alge897 Writing and evaluating a function that models a real-world situation: Advanced
alge802 Writing an equation and drawing its graph to model a real-world situation: Advanced
fun005 Writing a function rule given a table of ordered pairs: One-step rules
fun006 Writing a function rule given a table of ordered pairs: Two-step rules
alge992 Combining functions to write a new function that models a real-world situation
alge987 Comparing properties of linear functions given in different forms
alge989 Interpreting the parameters of a linear function that models a real-world situation
alge805 Application problem with a linear function: Finding a coordinate given the slope and a point
B.4. MATH LITERACY

alge806 Application problem with a linear function: Finding a coordinate given two points
mstat052 Identifying independent and dependent variables from equations or real-world situations
alge991 Solving a linear equation by graphing
alge898 Translating the graph of an absolute value function: One step
alge899 Translating the graph of an absolute value function: Two steps
alge913 Graphing an absolute value equation of the form y = A—x—
alge900 Graphing an absolute value equation in the plane: Basic
alge168 Graphing an absolute value equation in the plane: Advanced
alge901 How the leading coefficient affects the graph of an absolute value function
mstat030 Sketching the line of best fit
mstat023 Scatter plots and correlation
mstat068 Predictions from the line of best fit
mstat067 Approximating the equation of a line of best fit and making predictions
mstat069 Computing residuals
mstat070 Interpreting residual plots
mstat074 Linear relationship and the correlation coefficient
mstat073 Identifying correlation and causation
alge960 Solving a rational equation that simplifies to linear: Denominator x
alge982 Identifying direct variation equations
alge938 Identifying direct variation from ordered pairs and writing equations
alge904 Writing a direct variation equation
alge175 Word problem on direct variation
alge828 Interpreting direct variation from a graph
alge905 Writing an inverse variation equation
alge906 Identifying direct and inverse variation equations
alge902 Identifying direct and inverse variation from ordered pairs and writing equations
alge176 Word problem on inverse variation
alge220 Word problem on inverse proportions
pcalc681 Writing an equation that models variation
alge772 Word problem on combined variation
stat021 Population standard deviation
stat852 Word problem involving calculations from a normal distribution

Functions

fun032 Identifying functions from relations
fun010 Vertical line test
fun016 Domain and range from ordered pairs
fun001 Table for a linear function
pcalc760 Evaluating functions: Linear and quadratic or cubic
fun033 Variable expressions as inputs of functions: Problem type 1
alge294 Finding outputs of a one-step function that models a real-world situation: Function notation
alge295 Finding outputs of a two-step function with decimals that models a real-world situation: Function notation
alge296 Finding inputs and outputs of a two-step function that models a real-world situation: Function notation
alge990 Domain and range of a linear function that models a real-world situation
fun026 Finding an output of a function from its graph
pcalc761 Finding inputs and outputs of a function from its graph
fun007 Domain and range from the graph of a discrete relation
fun024 Domain and range from the graph of a continuous function
alge896 Graphing an integer function and finding its range for a given domain
alge570 Graphing a function of the form f(x) = ax + b: Integer slope
alge571 Graphing a function of the form f(x) = ax + b: Fractional slope
alge572 Graphing a function of the form f(x) = ax^2
alge573 Graphing a function of the form f(x) = ax^2 + c
pcalc750 Finding intercepts of a nonlinear function given its graph
alge999 Finding where a function is increasing, decreasing, or constant given the graph
pcalc751 Finding where a function is increasing, decreasing, or constant given the graph: Interval notation
pcalc752 Finding local maxima and minima of a function given the graph
mstat018 Choosing a graph to fit a narrative: Basic
Systems

alge914 Identifying solutions to a system of linear equations
alge075 Classifying systems of linear equations from graphs
alge725 Graphically solving a system of linear equations
alge751 Solving a system of linear equations using substitution
alge915 Solving a system of linear equations using elimination with addition
alge076 Solving a system of linear equations using elimination with multiplication and addition
alge916 Solving a system of linear equations with fractional coefficients
alge917 Solving a system of linear equations with decimal coefficients
alge752 Solving a 2x2 system of linear equations that is inconsistent or consistent dependent
alge988 Identifying the operations used to create equivalent systems of equations
alge753 Solving a 3x3 system of linear equations: Problem type 1
alge263 Interpreting the graphs of two functions
alge078 Solving a word problem involving a sum and another basic relationship using a system of linear equations
alge919 Solving a word problem using a system of linear equations of the form $Ax + By = C$
alge918 Solving a word problem using a system of linear equations of the form $y = mx + b$
alge184 Solving a value mixture problem using a system of linear equations
alge192 Solving a percent mixture problem using a system of linear equations
alge224 Solving a distance, rate, time problem using a system of linear equations
alge172 Solving a tax rate or interest rate problem using a system of linear equations
alge793 Solving a word problem using a 3x3 system of linear equations: Problem type 1
alge912 Identifying solutions to a linear inequality in two variables
alge225 Graphing a linear inequality in the plane: Vertical or horizontal line
alge720 Graphing a linear inequality in the plane: Slope-intercept form
alge018 Graphing a linear inequality in the plane: Standard form
alge079 Graphing a system of two linear inequalities: Basic
alge921 Graphing a system of two linear inequalities: Advanced
alge922 Graphing a system of three linear inequalities
alge729 Writing a multi-step inequality for a real-world situation
pcalc093 Solving a word problem using a system of linear inequalities: Problem type 1

Exponents and Polynomials

alge821 Understanding the product rule of exponents
alge024 Introduction to the product rule of exponents
alge311 Product rule with positive exponents: Univariate
alge030 Product rule with positive exponents: Multivariate
arith029 Ordering numbers with positive exponents
alge826 Understanding the power rules of exponents
alge306 Introduction to the power of a power rule of exponents
alge305 Introduction to the power of a product rule of exponents
alge307 Power rules with positive exponents: Multivariate products
alge308 Power rules with positive exponents: Multivariate quotients
alge756 Power and product rules with positive exponents
alge451 Simplifying a ratio of multivariate monomials: Basic
alge827 Introduction to the quotient rule of exponents
alge452 Simplifying a ratio of univariate monomials
alge026 Quotient of expressions involving exponents
alge453 Simplifying a ratio of multivariate monomials: Advanced
alge927 Power and quotient rules with positive exponents
alge790 Evaluating expressions with exponents of zero
arith684 Power of 10: Negative exponent
arith729 Evaluating an expression with a negative exponent: Whole number base
arith042 Evaluating an expression with a negative exponent: Positive fraction base
arith043 Evaluating an expression with a negative exponent: Negative integer base
B.4. MATH LITERACY

arith024 Ordering numbers with negative exponents
alge791 Rewriting an algebraic expression without a negative exponent
alge961 Introduction to the product rule with negative exponents
alge028 Product rule with negative exponents
alge755 Quotient rule with negative exponents: Problem type 1
alge926 Quotient rule with negative exponents: Problem type 2
alge025 Power of a power rule with negative exponents
alge799 Power rules with negative exponents
alge928 Power and quotient rules with negative exponents: Problem type 1
alge929 Power and quotient rules with negative exponents: Problem type 2
alge757 Power, product, and quotient rules with negative exponents
arith036 Scientific notation with positive exponent
arith037 Scientific notation with negative exponent
scinot012 Converting between scientific notation and standard form in a real-world situation
scinot008 Multiplying numbers written in scientific notation: Basic
scinot009 Multiplying numbers written in scientific notation: Advanced
scinot010 Dividing numbers written in scientific notation: Basic
scinot011 Dividing numbers written in scientific notation: Advanced
alge758 Degree and leading coefficient of a univariate polynomial
alge031 Degree of a multivariate polynomial
alge798 Simplifying a sum or difference of two univariate polynomials
alge029 Simplifying a sum or difference of three univariate polynomials
alge932 Simplifying a sum or difference of multivariate polynomials
alge735 Multiplying a univariate polynomial by a monomial with a positive coefficient
alge972 Multiplying a univariate polynomial by a monomial with a negative coefficient
alge835 Multiplying a univariate polynomial polynomial by a monomial
alge033 Multiplying binomials with leading coefficients of 1
alge983 Multiplying binomials with leading coefficients greater than 1
alge765 Multiplying binomials in two variables
alge764 Multiplying conjugate binomials: Univariate
alge081 Multiplying conjugate binomials: Multivariate
alge032 Squaring a binomial: Univariate
alge068 Squaring a binomial: Multivariate
alge973 Multiplying binomials with negative coefficients
alge935 Multiplication involving binomials and trinomials in one variable
alge180 Multiplication involving binomials and trinomials in two variables
alge759 Dividing a polynomial by a monomial: Univariate
alge760 Dividing a polynomial by a monomial: Multivariate
alge761 Polynomial long division: Problem type 1
alge762 Polynomial long division: Problem type 2
alge763 Polynomial long division: Problem type 3
alge985 Closure properties of integers and polynomials
alge685 Factoring a linear binomial
alge736 Introduction to the GCF of two monomials
alge930 Greatest common factor of three univariate monomials
alge037 Greatest common factor of two multivariate monomials
alge738 Factoring out a monomial from a polynomial: Univariate
alge739 Factoring out a monomial from a polynomial: Multivariate
alge949 Factoring out a binomial from a polynomial: GCF factoring, basic
alge923 Factoring a univariate polynomial by grouping: Problem type 1
alge950 Factoring a univariate polynomial by grouping: Problem type 2
alge951 Factoring a multivariate polynomial by grouping: Problem type 1
alge952 Factoring a multivariate polynomial by grouping: Problem type 2
alge039 Factoring a quadratic with leading coefficient 1
alge942 Factoring a quadratic in two variables with leading coefficient 1
alge936 Factoring out a constant before factoring a quadratic
alge939 Factoring a quadratic with leading coefficient greater than 1: Problem type 1
alge940 Factoring a quadratic with leading coefficient greater than 1: Problem type 2
alge941 Factoring a quadratic with leading coefficient greater than 1: Problem type 3
alge978 Factoring a quadratic by the ac-method
alge265 Factoring a quadratic in two variables with leading coefficient greater than 1
alge907 Factoring a quadratic with a negative leading coefficient
APPENDIX B. SYLLABI IN ALEKS

alge944 Factoring a perfect square trinomial with leading coefficient 1
alge945 Factoring a perfect square trinomial with leading coefficient greater than 1
alge946 Factoring a perfect square trinomial in two variables
alge290 Factoring a difference of squares in one variable: Basic
alge947 Factoring a difference of squares in one variable: Advanced
alge839 Factoring a difference of squares in two variables
alge948 Factoring a polynomial involving a GCF and a difference of squares: Univariate
alge833 Factoring a polynomial involving a GCF and a difference of squares: Multivariate
alge041 Factoring a product of a quadratic trinomial and a monomial
alge042 Factoring with repeated use of the difference of squares formula
alge044 Factoring a sum or difference of two cubes

Quadratic and Exponential Functions

alge681 Solving an equation written in factored form
alge956 Finding the roots of a quadratic equation of the form ax^2 + bx = 0
alge045 Finding the roots of a quadratic equation with leading coefficient 1
alge048 Finding the roots of a quadratic equation with leading coefficient greater than 1
alge211 Solving a quadratic equation needing simplification
alge703 Solving a word problem using a quadratic equation with rational roots
alge713 Using the Pythagorean Theorem and a quadratic equation to find side lengths of a right triangle
arith760 Square roots of perfect squares with signs
arith993 Simplifying the square root of a whole number less than 100
alge962 Solving an equation of the form x^2 = a using the square root property
alge092 Solving a quadratic equation using the square root property: Exact answers, basic
alge227 Solving a quadratic equation using the square root property: Exact answers, advanced
alge094 Completing the square
alge780 Solving a quadratic equation by completing the square: Exact answers
alge095 Applying the quadratic formula: Exact answers
alge963 Applying the quadratic formula: Decimal answers
alge214 Discriminant of a quadratic equation
alge524 Solving a word problem using a quadratic equation with irrational roots
alge974 Finding the vertex, x-intercepts, and axis of symmetry from the graph of a parabola
alge954 Graphing a parabola of the form y = ax^2
alge955 Graphing a parabola of the form y = ax^2 + c
alge953 Translating the graph of a parabola: One step
alge253 Graphing a parabola of the form y = (x-h)^2 + k
alge569 Graphing a parabola of the form y = x^2 + bx + c
pcalc746 Graphing a parabola of the form y = ax^2 + bx + c: Integer coefficients
pcalc747 Graphing a parabola of the form y = ax^2 + bx + c: Rational coefficients
alge727 Finding the x-intercept(s) and the vertex of a parabola
pcalc774 Rewriting a quadratic function to find the vertex of its graph
pcalc775 Finding the maximum or minimum of a quadratic function
alge785 Word problem involving the maximum or minimum of a quadratic function
alge975 Domain and range from the graph of a parabola
pcalc762 Range of a quadratic function
alge957 Solving a quadratic equation by graphing
alge996 Comparing properties of quadratic functions given in different forms
alge702 Classifying the graph of a function
alge723 How the leading coefficient affects the shape of a parabola
alge971 Table for an exponential function
alge830 Evaluating an exponential function that models a real-world situation
arith853 Introduction to compound interest
alge177 Finding a final amount in a word problem on exponential growth or decay
alge741 Finding the final amount in a word problem on compound interest
alge966 Finding the initial amount and rate of change given an exponential function
alge968 Writing an equation that models exponential growth or decay
alge301 Solving an exponential equation by finding common bases: Linear exponents
alge969 Graphing an exponential function: f(x) = ax
alge970 Graphing an exponential function: f(x) = a(b)x
B.5. LIBERAL ARTS MATH

alge967 Writing an exponential function rule given a table of ordered pairs
alge993 Comparing linear, polynomial, and exponential functions
alge965 Identifying linear, quadratic, and exponential functions given ordered pairs

B.5  Liberal Arts Math

Problem Solving, Sets, and Logic

arith124 Whole number place value: Problem type 1
arith125 Whole number place value: Problem type 2
arith066 Expanded form
arith643 Expanded form with zeros
arith778 Rounding to tens or hundreds
arith123 Rounding to hundreds or thousands
arith061 Rounding to thousands, ten thousands, or hundred thousands
arith110 Decimal place value: Tenths and hundredths
arith220 Decimal place value: Hundreds to ten thousandths
arith221 Rounding decimals
arith101 Estimating a sum of whole numbers
arith102 Estimating a difference of whole numbers
arith604 Estimating a product or quotient of whole numbers
arith131 Estimating a decimal sum or difference
arith752 Estimating a product of decimals
arith130 Word problem with multiplication and addition or subtraction of whole numbers
alge732 Finding patterns in shapes
alge925 Finding the next terms of an arithmetic sequence with whole numbers
arith013 Decimal addition with 3 numbers
arith132 Word problem with addition or subtraction of 2 decimals
arith017 Multiplication of a decimal by a whole number
arith055 Decimal multiplication: Problem type 1
arith135 Word problem with multiplication of a decimal and a whole number
arith137 Word problem with multiplication of two decimals
arith224 Word problem with decimal addition and multiplication
arith081 Division of a decimal by a whole number
arith019 Division of a decimal by a 2-digit decimal
arith083 Division of a decimal by a power of ten
arith136 Word problem with division of a decimal and a whole number
arith227 Word problem with decimal subtraction and division
arith827 Finding a unit price
arith828 Computing unit prices to find the better buy
arith064 Solving a word problem on proportions using a unit rate
arith228 Word problem on unit rates associated with ratios of whole numbers: Decimal answers
mstat007 Interpreting a line graph
mstat024 Interpreting a bar graph
mstat044 Interpreting a double bar graph
alge263 Interpreting the graphs of two functions
set001 Set builder notation
set002 Union and intersection of finite sets
mstat042 Interpreting a Venn diagram of 2 sets
mstat043 Interpreting a Venn diagram of 3 sets
glogic001 Conditional statements and negations
glogic005 The converse, inverse, and contrapositive of a conditional statement
glogic008 Conditional statements and deductive reasoning

The Real Number System
APPENDIX B. SYLLABI IN ALEKS

arith655 Introduction to properties of addition
arith656 Introduction to properties of multiplication
arith692 Writing expressions using exponents
arith233 Introduction to exponents
arith683 Power of 10: Positive exponent
arith645 Introduction to parentheses
arith681 Introduction to order of operations
arith648 Order of operations with whole numbers
arith651 Order of operations with whole numbers and grouping symbols
arith693 Order of operations with whole numbers and exponents: Basic
arith713 Order of operations with whole numbers and exponents: Advanced
arith657 Understanding the distributive property
arith647 Divisibility rules for 2, 5, and 10
arith648 Divisibility rules for 3 and 9
arith556 Factors
arith634 Prime numbers
arith635 Prime factorization
arith633 Greatest common factor of 2 numbers
arith670 Least common multiple of 2 numbers
arith804 Least common multiple of 3 numbers
arith240 Word problem with common multiples
alge284 Evaluating an algebraic expression: Whole number addition or subtraction
alge683 Evaluating an algebraic expression: Whole number multiplication or division
alge285 Evaluating an algebraic expression: Whole numbers with two operations
alge286 Plotting integers on a number line
mstat038 Reading the temperature from a thermometer
arith699 Writing a signed number for a real-world situation
arith691 Ordering integers
arith200 Integer addition: Problem type 1
arith108 Integer addition: Problem type 2
arith688 Integer subtraction: Problem type 1
arith689 Integer subtraction: Problem type 2
arith690 Integer subtraction: Problem type 3
arith754 Addition and subtraction with 3 integers
arith231 Integer multiplication and division
arith800 Multiplication of 3 or 4 integers
arith118 Order of operations with integers
arith071 Absolute value of a number
arith744 Whole number division with decimal answers
arith623 Introduction to fractions
arith212 Equivalent fractions
arith666 Introduction to simplifying a fraction
arith67 Simplifying a fraction
arith687 Fractional position on a number line
arith6667 Plotting fractions on a number line
arith109 Using a common denominator to order fractions
arith079 Product of a unit fraction and a whole number
arith868 Product of a fraction and a whole number: Problem type 1
arith119 Introduction to fraction multiplication
arith60 Fraction multiplication
arith813 Multiplication of 3 fractions
arith805 Multi-step word problem involving fractions and multiplication
arith688 The reciprocal of a number
arith622 Fraction division
arith819 Word problem involving fractions and division
arith618 Addition or subtraction of fractions with the same denominator
arith802 Addition or subtraction of fractions with the same denominator and simplification
arith801 Finding the LCD of two fractions
arith109 Addition or subtraction of unit fractions
arith664 Introduction to addition or subtraction of fractions with different denominators
arith230 Addition or subtraction of fractions with different denominators
B.5. LIBERAL ARTS MATH

arith803 Addition and subtraction of 3 fractions with different denominators
arith805 Word problem involving addition or subtraction of fractions with different denominators
arith100 Fractional part of a circle
arith821 Exponents and fractions
arith859 Order of operations with fractions: Problem type 1
arith860 Order of operations with fractions: Problem type 2
arith861 Order of operations with fractions: Problem type 3
arith695 Complex fraction without variables: Problem type 1
arith822 Signed fraction multiplication: Basic
arith814 Signed fraction division
arith116 Signed fraction addition or subtraction: Basic
arith864 Signed fraction subtraction involving double negation
arith811 Addition and subtraction of 3 fractions involving signs
arith815 Writing an improper fraction as a mixed number
arith819 Writing a mixed number as an improper fraction
arith804 Addition of mixed numbers with the same denominator and carry
arith816 Subtraction of mixed numbers with the same denominator and borrowing
arith806 Addition or subtraction of mixed numbers with different denominators and no carry or borrow
arith808 Addition of mixed numbers with different denominators and carry
arith809 Subtraction of mixed numbers with different denominators and borrowing
arith807 Addition and subtraction of 3 mixed numbers with different denominators
arith810 Word problem involving addition or subtraction of mixed numbers with different denominators
arith815 Mixed number multiplication
arith816 Mixed number division
arith820 Word problem involving multiplication or division with mixed numbers
arith717 Converting a decimal to a proper fraction without simplifying: Basic
arith719 Converting a decimal to a proper fraction without simplifying: Advanced
arith718 Converting a decimal to a proper fraction in simplest form: Basic
arith807 Converting a decimal to a proper fraction in simplest form: Advanced
arith721 Converting a decimal to a mixed number and an improper fraction without simplifying
arith722 Converting a decimal to a mixed number and an improper fraction in simplest form: Basic
arith725 Converting a fraction with a denominator of 10 or 100 to a decimal
arith726 Converting a fraction with a denominator of 100 or 1000 to a decimal
arith727 Converting a fraction to a terminating decimal: Basic
arith728 Converting a fraction to a terminating decimal: Advanced
arith730 Converting a fraction to a repeating decimal: Basic
arith731 Converting a fraction to a repeating decimal: Advanced
alge001 Identifying numbers as integers or non-integers
alge002 Identifying numbers as rational or irrational
alge187 Properties of addition
alge188 Properties of real numbers
arith702 Exponents and integers: Problem type 1
arith703 Exponents and integers: Problem type 2
arith704 Exponents and signed fractions
arith699 Order of operations with integers and exponents
alge821 Understanding the product rule of exponents
alge024 Introduction to the product rule of exponents
alge790 Evaluating expressions with exponents of zero
arith684 Power of 10: Negative exponent
arith729 Evaluating an expression with a negative exponent: Whole number base
arith642 Evaluating an expression with a negative exponent: Positive fraction base
arith643 Evaluating an expression with a negative exponent: Negative integer base
alge961 Introduction to the product rule with negative exponents
alge827 Introduction to the quotient rule of exponents
alge755 Quotient rule with negative exponents: Problem type 1
alge306 Introduction to the power of a power rule of exponents
arith636 Scientific notation with positive exponent
arith637 Scientific notation with negative exponent
sci1002 Converting between scientific notation and standard form in a real-world situation
scienot008 Multiplying numbers written in scientific notation: Basic
scinot009 Multiplying numbers written in scientific notation: Advanced
scinot010 Dividing numbers written in scientific notation: Basic
scinot011 Dividing numbers written in scientific notation: Advanced
arith016 Square root of a perfect square
arith760 Square roots of perfect squares with signs
arith763 Using a calculator to approximate a square root
arith602 Estimating a square root
arith603 Simplifying the square root of a whole number less than 100
arith762 Simplifying the square root of a whole number greater than 100
arith601 Square root of a rational perfect square
arith767 Introduction to square root addition or subtraction
arith632 Square root addition or subtraction
arith634 Introduction to square root multiplication
arith765 Square root multiplication: Basic
alge527 Rationalizing a denominator: Quotient involving square roots
alge528 Rationalizing a denominator: Square root of a fraction
alge933 Finding the next terms of a geometric sequence with whole numbers
alge644 Finding the first terms of an arithmetic sequence using an explicit rule
alge645 Finding the first terms of a geometric sequence using an explicit rule
pcalc080 Finding the first terms of a sequence using an explicit rule with multiple occurrences of n
pcalc085 Finding a specified term of an arithmetic sequence given the common difference and first term
pcalc715 Finding a specified term of an arithmetic sequence given two terms of the sequence
alge906 Finding the next terms of an arithmetic sequence with integers
alge979 Identifying arithmetic sequences and finding the common difference
alge901 Finding a specified term of an arithmetic sequence given the first terms
alge909 Writing an explicit rule for an arithmetic sequence
alge910 Writing a recursive rule for an arithmetic sequence

Basics of Algebra

alge700 Combining like terms: Whole number coefficients
alge607 Combining like terms: Integer coefficients
alge310 Multiplying a constant and a linear monomial
alge606 Distributive property: Whole number coefficients
alge604 Distributive property: Integer coefficients
alge608 Using distribution and combining like terms to simplify: Univariate
alge293 Combining like terms in a quadratic expression
alge798 Simplifying a sum or difference of two univariate polynomials
alge629 Simplifying a sum or difference of three univariate polynomials
alge605 Evaluating a linear expression: Integer multiplication with addition or subtraction
alge808 Evaluating a linear expression: Signed fraction multiplication with addition or subtraction
alge302 Evaluating a linear expression: Signed decimal addition and subtraction
alge303 Evaluating a linear expression: Signed decimal multiplication with addition or subtraction
alge004 Evaluating a quadratic expression: Integers
alge733 Writing a one-step expression for a real-world situation
alge831 Translating a phrase into a one-step expression
alge291 Translating a phrase into a two-step expression
alge016 Translating a sentence into a one-step equation
alge841 Translating a sentence into a multi-step equation
alge009 Additive property of equality with whole numbers
alge801 Additive property of equality with fractions and mixed numbers
alge800 Additive property of equality with decimals
alge010 Additive property of equality with integers
alge836 Additive property of equality with signed fractions
alge608 Multiplicative property of equality with whole numbers
alge820 Multiplicative property of equality with fractions
alge825 Multiplicative property of equality with decimals
alge797 Multiplicative property of equality with integers
alge012 Multiplicative property of equality with signed fractions
alge834 Identifying solutions to a linear equation in one variable: Two-step equations
alge266 Additive property of equality with a negative coefficient
alge803 Using two steps to solve an equation with whole numbers
alge006 Solving a two-step equation with integers
alge920 Introduction to solving an equation with parentheses
alge837 Solving a multi-step equation given in fractional form
alge824 Solving a two-step equation with signed decimals
alge838 Introduction to solving an equation with variables on the same side
alge863 Solving a linear equation with several occurrences of the variable: Variables on the same side
alge011 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
alge013 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
alge209 Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions
alge420 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
alge802 Solving a fraction word problem using a linear equation of the form Ax = B
alge014 Solving a word problem with two unknowns using a linear equation
alge218 Solving a word problem involving rates and time conversion
geom817 Finding a side length given the perimeter and side lengths with variables
geom530 Solving equations involving vertical angles
geom531 Solving equations involving angles and a pair of parallel lines
stat803 Finding the value for a new score that will yield a given mean
arith825 Simplifying a ratio of decimals
arith823 Writing ratios using different notations
arith663 Writing ratios for real-world situations
arith824 Simplifying a ratio of whole numbers: Problem type 1
alge272 Solving a proportion of the form x/a = b/c
alge840 Solving a proportion of the form (x+a)/c = b/d
arith610 Word problem on proportions: Problem type 1
arithmetic11 Word problem on proportions: Problem type 2
alge060 Solving a rational equation that simplifies to linear: Denominator x
alge982 Identifying direct variation equations
alge903 Identifying direct and inverse variation equations
alge904 Writing a direct variation equation
alge905 Writing an inverse variation equation
alge175 Word problem on direct variation
alge220 Word problem on inverse proportions
alge772 Word problem on combined variation
APPENDIX B. SYLLABI IN ALEKS

alge015 Translating a sentence by using an inequality symbol
alge845 Translating a sentence into a one-step inequality
alge846 Translating a sentence into a multi-step inequality
alge186 Translating a sentence into a compound inequality
alge748 Writing an inequality for a real-world situation
alge822 Writing an inequality given a graph on the number line
alge017 Graphing a linear inequality on the number line
alge166 Graphing a compound inequality on the number line
alge848 Additive property of inequality with whole numbers
alge852 Additive property of inequality with signed fractions
alge853 Additive property of inequality with signed decimals
alge854 Multiplicative property of inequality with integers
alge964 Multiplicative property of inequality with signed fractions
alge855 Solving a two-step linear inequality: Problem type 1
alge856 Solving a two-step linear inequality: Problem type 2
alge857 Solving a two-step linear inequality with a fractional coefficient
alge977 Solving a linear inequality with multiple occurrences of the variable: Problem type 1
alge858 Solving a linear inequality with multiple occurrences of the variable: Problem type 2
alge746 Solving a compound linear inequality: Graph solution, basic
alge749 Solving a decimal word problem using a two-step linear inequality
alge750 Solving a decimal word problem using a linear inequality with the variable on both sides
alge033 Multiplying binomials with leading coefficients of 1
alge983 Multiplying binomials with leading coefficients greater than 1
alge764 Multiplying conjugate binomials: Univariate
alge809 Factoring a quadratic with leading coefficient 1
alge944 Factoring a perfect square trinomial with leading coefficient 1
alge936 Factoring out a constant before factoring a quadratic
alge939 Factoring a quadratic with leading coefficient greater than 1: Problem type 1
alge940 Factoring a quadratic with leading coefficient greater than 1: Problem type 2
alge941 Factoring a quadratic with leading coefficient greater than 1: Problem type 3
alge681 Solving an equation written in factored form
alge956 Finding the roots of a quadratic equation of the form $ax^2 + bx = 0$
alge645 Finding the roots of a quadratic equation with leading coefficient 1
alge048 Finding the roots of a quadratic equation with leading coefficient greater than 1
alge211 Solving a quadratic equation needing simplification
alge703 Solving a word problem using a quadratic equation with rational roots
alge227 Solving a quadratic equation using the square root property: Exact answers, advanced
alge955 Applying the quadratic formula: Exact answers
alge963 Applying the quadratic formula: Decimal answers
alge214 Discriminant of a quadratic equation
alge524 Solving a word problem using a quadratic equation with irrational roots

Graphs and Functions

alge064 Reading a point in the coordinate plane
alge067 Plotting a point in the coordinate plane
alge850 Table for a linear equation
alge873 Identifying solutions to a linear equation in two variables
alge877 Graphing a linear equation of the form $y = mx$
alge197 Graphing a line given its x- and y-intercepts
alge878 Graphing a line given its equation in slope-intercept form: Integer slope
alge879 Graphing a line given its equation in slope-intercept form: Fractional slope
alge198 Graphing a vertical or horizontal line
alge984 Finding x- and y-intercepts given the graph of a line on a grid
alge924 Finding x- and y-intercepts of a line given the equation: Basic
alge210 Finding x- and y-intercepts of a line given the equation: Advanced
alge881 Graphing a line by first finding its x- and y-intercepts
alge880 Graphing a line given its equation in standard form
alge875 Classifying slopes given graphs of lines
alge886 Finding slope given the graph of a line on a grid
alge887 Finding slope given two points on the line
alge885 Finding the slope of horizontal and vertical lines
alge888 Finding the coordinate that yields a given slope
alge259 Graphing a line given its slope and y-intercept
alge196 Graphing a line through a given point with a given slope
alge889 Finding the slope and y-intercept of a line given its equation in the form \( y = mx + b \)
alge890 Finding the slope and y-intercept of a line given its equation in the form \( Ax + By = C \)
alge882 Graphing a line by first finding its slope and y-intercept
alge258 Writing an equation of a line given its slope and y-intercept
alge892 Writing an equation and graphing a line given its slope and y-intercept
alge883 Graphing a line given its equation in point-slope form
alge070 Writing an equation of a line given the y-intercept and another point
alge072 Writing the equation of the line through two given points
alge897 Writing and evaluating a function that models a real-world situation: Advanced
alge701 Writing an equation and drawing its graph to model a real-world situation: Advanced
alge992 Combining functions to write a new function that models a real-world situation
alge989 Interpreting the parameters of a linear function that models a real-world situation
alge805 Application problem with a linear function: Finding a coordinate given the slope and a point
alge806 Application problem with a linear function: Finding a coordinate given two points
alge914 Identifying solutions to a system of linear equations
alge075 Classifying systems of linear equations from graphs
alge725 Graphically solving a system of linear equations
alge751 Solving a system of linear equations using substitution
alge915 Solving a system of linear equations using elimination with addition
alge076 Solving a system of linear equations using elimination with multiplication and addition
alge916 Solving a system of linear equations with fractional coefficients
alge917 Solving a system of linear equations with decimal coefficients
alge752 Solving a 2x2 system of linear equations that is inconsistent or consistent dependent
alge753 Solving a 3x3 system of linear equations: Problem type 1
alge078 Solving a word problem involving a sum and another basic relationship using a system of linear equations
alge919 Solving a word problem using a system of linear equations of the form \( Ax + By = C \)
alge918 Solving a word problem using a system of linear equations of the form \( y = mx + b \)
alge184 Solving a value mixture problem using a system of linear equations
alge172 Solving a tax rate or interest rate problem using a system of linear equations
alge912 Identifying solutions to a linear inequality in two variables
alge225 Graphing a linear inequality in the plane: Vertical or horizontal line
alge720 Graphing a linear inequality in the plane: Slope-intercept form
alge018 Graphing a linear inequality in the plane: Standard form
alge079 Graphing a system of two linear inequalities: Basic
alge921 Graphing a system of two linear inequalities: Advanced
alge922 Graphing a system of three linear inequalities
alge729 Writing a multi-step inequality for a real-world situation
pcalc093 Solving a word problem using a system of linear inequalities: Problem type 1
pcalc095 Linear programming
pcalc094 Solving a word problem using linear programming
pcalc037 Scalar multiplication of a matrix
pcalc038 Addition or subtraction of matrices
pcalc740 Linear combination of matrices
pcalc039 Multiplication of matrices: Basic
pcalc712 Gauss-Jordan elimination with a 2x2 matrix
fun032 Identifying functions from relations
fun010 Vertical line test
fun016 Domain and range from ordered pairs
fun001 Table for a linear function
pcalc760 Evaluating functions: Linear and quadratic or cubic
alge294 Finding outputs of a one-step function that models a real-world situation: Function notation
alge295 Finding outputs of a two-step function with decimals that models a real-world situation: Function notation
alge296 Finding inputs and outputs of a two-step function that models a real-world situation: Function notation
alge990 Domain and range of a linear function that models a real-world situation
fun026 Finding an output of a function from its graph
pcalc761 Finding inputs and outputs of a function from its graph
fun024 Domain and range from the graph of a continuous function
alge570 Graphing a function of the form \( f(x) = ax + b \): Integer slope
alge571 Graphing a function of the form \( f(x) = ax + b \): Fractional slope
alge572 Graphing a function of the form \( f(x) = ax^2 \)
alge573 Graphing a function of the form \( f(x) = ax^2 + c \)
alge999 Finding where a function is increasing, decreasing, or constant given the graph
mstat018 Choosing a graph to fit a narrative: Basic
alge974 Finding the vertex, x-intercepts, and axis of symmetry from the graph of a parabola
alge954 Graphing a parabola of the form \( y = ax^2 \)
alge955 Graphing a parabola of the form \( y = ax^2 + c \)
alge253 Graphing a parabola of the form \( y = (x-h)^2 + k \)
alge569 Graphing a parabola of the form \( y = x^2 + bx + c \)
pcalc746 Graphing a parabola of the form \( y = ax^2 + bx + c \): Integer coefficients
pcalc747 Graphing a parabola of the form \( y = ax^2 + bx + c \): Rational coefficients
alge277 Finding the x-intercept(s) and the vertex of a parabola
pcalc775 Finding the maximum or minimum of a quadratic function
alge785 Word problem involving the maximum or minimum of a quadratic function
alge975 Domain and range from the graph of a parabola
pcalc762 Range of a quadratic function
alge723 How the leading coefficient affects the shape of a parabola
alge971 Table for an exponential function
alge830 Evaluating an exponential function that models a real-world situation
alge177 Finding a final amount in a word problem on exponential growth or decay
alge906 Finding the initial amount and rate of change given an exponential function
alge968 Writing an equation that models exponential growth or decay
alge969 Graphing an exponential function: \( f(x) = ax \)
alge970 Graphing an exponential function: \( f(x) = a(b)x \)
alge993 Comparing linear, polynomial, and exponential functions
alge108 Converting between logarithmic and exponential equations
pcalc612 Change of base for logarithms: Problem type 1
pcalc799 Converting between natural logarithmic and exponential equations
alge788 Graphing a logarithmic function: Basic

Consumer Mathematics

arithmetic836 Converting a fraction with a denominator of 100 to a percentage
arithmetic837 Converting a percentage to a fraction with a denominator of 100
arithmetic723 Introduction to converting a percentage to a decimal
arithmetic833 Introduction to converting a decimal to a percentage
arithmetic834 Converting between percentages and decimals
arithmetic841 Converting a mixed number percentage to a decimal
arithmetic835 Converting between percentages and decimals in a real-world situation
arithmetic890 Converting a percentage to a fraction in simplest form
arithmetic839 Converting a decimal percentage to a fraction
arithmetic838 Converting a fraction to a percentage: Denominator of 4, 5, or 10
arithmetic602 Converting a fraction to a percentage: Denominator of 20, 25, or 50
arithmetic843 Using a calculator to convert a fraction to a rounded percentage
arithmetic842 Converting a fraction to a percentage in a real-world situation
arithmetic840 Finding a percentage of a whole number
arithmetic862 Applying the percent equation: Problem type 1
arithmetic863 Applying the percent equation: Problem type 2
arithmetic845 Finding a percentage of a total amount: Real-world situations
arithmetic846 Finding a percentage of a total amount without a calculator: Sales tax, commission, discount
mstat049 Computing a percentage from a table of values
arithmetic850 Finding the rate of a tax or commission
arithmetic849 Finding the total amount given the percentage of a partial amount
arithmetic852 Finding the multiplier to give a final amount after a percentage increase or decrease
arithmetic851 Finding the final amount given the original amount and a percentage increase or decrease
arithmetic847 Finding the sale price given the original price and percent discount
B.5. LIBERAL ARTS MATH

arith848 Finding the total cost including tax or markup
arith855 Finding the original amount given the result of a percentage increase or decrease
arith831 Finding the original price given the sale price and percent discount
arith858 Finding the percentage increase or decrease: Basic
arith225 Finding the percentage increase or decrease: Advanced
arith859 Finding simple interest without a calculator
arith837 Simple interest and maturity value
bmath038 Exact and ordinary methods for simple interest and maturity value
bmath039 Solving for principal, rate, or time in simple interest problems
bmath101 The U. S. Rule: Making partial note payments before due date
arith853 Introduction to compound interest
alge741 Finding the final amount in a word problem on compound interest
bmath042 Compound interest for daily compounding
bmath041 Compound interest for annual, semiannual, and quarterly compounding
bmath043 Present value tables
bmath044 Ordinary annuity
bmath045 Annuity due
bmath047 Sinking funds
bmath048 Amount financed, finance charge, and deferred payment
bmath049 Cost of installment buying: Computing the APR
bmath050 Cost of installment buying: Computing the monthly payment
bmath052 Revolving charge credit cards
bmath053 Monthly mortgage payment tables
bmath054 Total cost of interest for a mortgage
bmath055 Amortization schedule: Interest, principal, and new mortgage balance
bmath083 Reading stock quotations
bmath085 Calculating return on stock investment
bmath139 Stock yield, earnings per share, and price-earnings ratio
bmath084 Stock dividends
bmath087 Calculating bond yields
bmath088 Net asset value of a mutual fund

Measurement

mstat059 Choosing U.S. Customary measurement units
unit005 U.S. Customary unit conversion with whole number values
mstat035 Conversions involving measurements in feet and inches
unit006 U.S. Customary unit conversion with whole number values: Two-step conversion
unit009 U.S. Customary area unit conversion with whole number values
mstat060 Choosing metric measurement units
unit001 Metric distance conversion with whole number values
unit002 Metric mass or capacity conversion with whole number values
unit003 Metric distance conversion with decimal values
unit004 Metric conversion with decimal values: Two-step problem
unit010 Metric area unit conversion with decimal values
mstat065 Converting between temperatures in Fahrenheit and Celsius
unit034 Converting between metric and U.S. Customary unit systems
unit035 Converting between compound units: Basic
unit036 Converting between compound units: Advanced

Geometry

gem358 Identifying parallel and perpendicular lines
gem349 Naming segments, rays, and lines
gem151 Measuring an angle with the protractor
gem152 Drawing an angle with the protractor
gem030 Acute, obtuse, and right angles
gem039 Finding supplementary and complementary angles
APPENDIX B. SYLLABI IN ALEKS

.geom305 Identifying supplementary and vertical angles
.geom304 Identifying corresponding and alternate angles
.geom306 Acute, obtuse, and right triangles
.geom307 Classifying scalene, isosceles, and equilateral triangles by side lengths or angles
.geom401 Finding an angle measure of a triangle given two angles
.geom508 Finding an angle measure for a triangle with an extended side
.geom612 Finding an angle measure given extended triangles
.geom713 Finding an angle measure given a triangle and parallel lines
.alge407 Introduction to the Pythagorean Theorem
.geom404 Pythagorean Theorem
.alge408 Word problem involving the Pythagorean Theorem
.geom339 Perimeter of a polygon
.geom300 Perimeter of a square or a rectangle
.geom078 Sides of polygons having the same perimeter
.geom221 Finding the missing length in a figure
.geom353 Perimeter of a piecewise rectangular figure
.geom361 Naming polygons
.geom867 Identifying parallelograms, rectangles, and squares
.geom310 Properties of quadrilaterals
.geom352 Classifying parallelograms
.geom019 Area of a square or a rectangle
.geom866 Perimeter and area on a grid
.geom619 Area of a rectangle involving mixed numbers and fractions
.geom350 Distinguishing between the area and perimeter of a rectangle
.geom351 Areas of rectangles with the same perimeter
.geom340 Area of a piecewise rectangular figure
.geom142 Word problem involving the area between two rectangles
.geom801 Area of a triangle
.geom344 Area involving rectangles and triangles
.geom022 Area of a parallelogram
.geom023 Area of a trapezoid
.geom016 Circumference of a circle
.geom301 Perimeter involving rectangles and circles
.geom302 Area involving rectangles and circles
.geom303 Area involving inscribed figures
.geom868 Classifying solids
.geom348 Vertices, edges, and faces of a solid
.geom354 Volume of a rectangular prism made of unit cubes
.geom311 Volume of a rectangular prism
.geom505 Volume of a piecewise rectangular prism
.geom090 Volume of a triangular prism
.geom033 Volume of a pyramid
.geom035 Volume of a cylinder
.geom622 Volume of a cone
.geom841 Volume of a sphere
.geom031 Surface area of a cube or a rectangular prism
.geom345 Surface area of a piecewise rectangular prism made of unit cubes
.geom091 Surface area of a triangular prism
.geom021 Surface area of a cylinder
.geom842 Surface area of a sphere
.geom359 Identifying congruent shapes on a grid
.geom520 Identifying and naming congruent triangles
.geom360 Identifying similar or congruent shapes on a grid
.geom037 Similar polygons
.geom038 Similar right triangles
.geom337 Indirect measurement
.geom510 Triangles and parallel lines
.geom846 Computing ratios of side lengths, surface areas, and volumes for similar solids
.geom0357 Identifying transformations
.geom330 Translating a polygon
B.5. LIBERAL ARTS MATH

geom332 Reflecting a polygon over a vertical or horizontal line
geom334 Drawing lines of symmetry
geom335 Rotating a figure about the origin
geom815 Finding an angle of rotation
pcalc609 Sine, cosine, and tangent ratios: Numbers for side lengths
pcalc600 Sine, cosine, and tangent ratios: Variables for side lengths
geom506 Special right triangles: Exact answers
pcalc606 Using the Pythagorean Theorem to find a trigonometric ratio
pcalc607 Using a trigonometric ratio to find a side length in a right triangle
pcalc610 Using trigonometry to find a length in a word problem with one right triangle
pcalc608 Using a trigonometric ratio to find an angle measure in a right triangle
pcalc611 Using trigonometry to find angles of elevation or depression in a word problem
pcalc642 Solving a right triangle
pcalc648 Simplifying trigonometric expressions
pcalc631 Solving a triangle with the law of sines: Problem type 1
pcalc644 Solving a word problem using the law of sines
pcalc633 Solving a triangle with the law of cosines
pcalc645 Solving a word problem using the law of cosines
pcalc646 Finding the area of a triangle using trigonometry
pcalc647 Heron’s formula

Counting and Probability

mstat041 Interpreting a tree diagram
mstat040 Introduction to the counting principle
mstat015 Counting principle
pcalc082 Factorial expressions
pcalc089 Introduction to permutations and combinations
mstat017 Computing permutations and combinations
mstat008 Word problem involving permutations
mstat009 Word problem involving combinations
pcalc010 Permutations and combinations: Problem type 1
pcalc009 Permutations and combinations: Problem type 3
mstat026 Introduction to the probability of an event
mstat010 Probability of an event
mstat039 Understanding likelihood
mstat046 Experimental and theoretical probability
mstat048 Odds of an event
stat106 Outcomes and event probability
stat226 Die rolling
mstat011 Area as probability
stat118 Probabilities of draws without replacement
mstat012 Probability of independent events
mstat047 Introduction to expectation
stat020 Calculating relative frequencies in a contingency table
stat085 Making a reasonable inference based on proportion statistics
mstat032 Probability of the union of two events
stat114 Probability of intersection or union: Word problems
mstat013 Probability of dependent events
stat116 Conditional probability: Basic
stat109 Intersection and conditional probability
stat174 Binomial problems: Basic
stat155 Binomial problems: Advanced

Statistics

mstat056 Interpreting a tally table
mstat005 Constructing a bar graph for non-numerical data
APPENDIX B. SYLLABI IN ALEKS

mstat004 Constructing a histogram for numerical data
mstat031 Interpreting a stem-and-leaf plot
stat804 Interpreting a circle graph or pie chart
arithmetic856 Finding a percentage of a total amount in a circle graph
stat801 Computations from a circle graph
gometry814 Angle measure in a circle graph
stat901 Computations from pie charts
stat904 Interpreting pie charts
stat702 Histograms for grouped data
stat703 Frequency polygons for grouped data
stat831 Interpreting a stem-and-leaf display
mstat003 Mode of a data set
mstat055 Finding the mode and range of a data set
mstat001 Mean of a data set
mstat028 Mean and median of a data set
mstat029 How changing a value affects the mean and median
mstat053 Choosing the best measure to describe data
mstat066 Weighted mean
stat719 Estimating the mean of grouped data
stat798 Mean, median, and mode: Comparisons
stat706 Mean, median, and mode: Computations
stat165 Comparing standard deviations without calculation
stat011 Sample standard deviation
stat730 Chebyshev’s theorem and the empirical rule
stat009 Percentiles
mstat072 Five-number summary and interquartile range
mstat006 Constructing a box-and-whisker plot
stat023 Box-and-whisker plots
stat157 Standard normal probabilities
stat760 Standard normal values: Basic
stat160 Standard normal values: Advanced
stat159 Normal versus standard normal density curves
stat161 Normal distribution raw scores
stat163 Normal distribution: Word problems
stat852 Word problem involving calculations from a normal distribution
stat185 Central limit theorem: Sample mean
mstat052 Identifying independent and dependent variables from equations or real-world situations
mstat030 Sketching the line of best fit
mstat023 Scatter plots and correlation
mstat068 Predictions from the line of best fit
mstat071 Linear relationship and the correlation coefficient

B.6 Beginning Algebra

Arithmetic Readiness

arith692 Writing expressions using exponents
arith233 Introduction to exponents
arith683 Power of 10: Positive exponent
arith048 Order of operations with whole numbers
arith051 Order of operations with whole numbers and grouping symbols
arith693 Order of operations with whole numbers and exponents: Basic
arith713 Order of operations with whole numbers and exponents: Advanced
arith285 Evaluating an algebraic expression: Whole numbers with two operations
arith832 Evaluating an algebraic expression: Whole number operations and exponents
arith056 Factors
arith034 Prime numbers
arith635 Prime factorization
arith033 Greatest common factor of 2 numbers
arith070 Least common multiple of 2 numbers
arith804 Least common multiple of 3 numbers
arith240 Word problem with common multiples
arith064 Solving a word problem on proportions using a unit rate
arith212 Equivalent fractions
arith067 Simplifying a fraction
arith081 Addition or subtraction of fractions with the same denominator
arith082 Addition or subtraction of fractions with the same denominator and simplification
arith801 Finding the LCD of two fractions
arith664 Introduction to addition or subtraction of fractions with different denominators
arith230 Addition or subtraction of fractions with different denominators
arith803 Addition and subtraction of 3 fractions with different denominators
arith805 Word problem involving addition or subtraction of fractions with different denominators
arith100 Fractional part of a circle
arith079 Product of a unit fraction and a whole number
arith086 Product of a fraction and a whole number: Problem type 1
arith119 Introduction to fraction multiplication
arith653 Fraction multiplication
arith812 Product of a fraction and a whole number: Problem type 2
arith813 Multiplication of 3 fractions
arith821 Exponents and fractions
arith053 Fraction multiplication
arith812 Product of a fraction and a whole number: Problem type 1
arith813 Multiplication of 3 fractions
arith814 Product of a fraction and a whole number: Problem type 2
arith815 Multiplication of a mixed number and a whole number
arith820 Word problem involving multiplication or division with mixed numbers
arith110 Decimal place value: Tenths and hundredths
arith221 Rounding decimals
arith718 Converting a decimal to a proper fraction in simplest form: Basic
arith887 Converting a decimal to a proper fraction in simplest form: Advanced
arith722 Converting a decimal to a mixed number and an improper fraction in simplest form: Basic
arith724 Converting a decimal to a mixed number and an improper fraction in simplest form: Advanced
arith013 Decimal addition with 3 numbers
arith735 Decimal subtraction: Basic
arith736 Decimal subtraction: Advanced
arith737 Decimal addition and subtraction with 3 or more numbers
arith131 Estimating a decimal sum or difference
arith133 Word problem with addition of 3 or 4 decimals and whole numbers
arith134 Word problem with subtraction of a whole number and a decimal: Regrouping with zeros
arith017 Multiplication of a decimal by a whole number
arith055 Decimal multiplication: Problem type 1
arith882 Multiplication of a decimal by a power of ten
arith752 Estimating a product of decimals
APPENDIX B. SYLLABI IN ALEKS

arith753 Squaring decimal bases: Products greater than 0.1
arith741 Exponents and decimals: Products less than 0.1
arith137 Word problem with multiplication of two decimals
arith224 Word problem with decimal addition and multiplication
arith081 Division of a decimal by a whole number
arith743 Division of a decimal by a 1-digit decimal
arith019 Division of a decimal by a 2-digit decimal
arith083 Division of a decimal by a power of ten
arith227 Word problem with division of two decimals
arith727 Converting a fraction to a terminating decimal: Basic
arith728 Converting a fraction to a terminating decimal: Advanced
arith730 Converting a fraction to a repeating decimal: Basic
arith111 Converting a mixed number to a terminating decimal: Basic
arith112 Converting a mixed number to a terminating decimal: Advanced
arith720 Order of operations with decimals: Problem type 1
arith746 Order of operations with decimals: Problem type 2
arith747 Order of operations with decimals: Problem type 3
arith736 Converting a fraction with a denominator of 100 to a percentage
arith837 Converting a percentage to a fraction with a denominator of 100
arith723 Introduction to converting a percentage to a decimal
arith833 Introduction to converting a decimal to a percentage
arith834 Converting between percentages and decimals
arith841 Converting a mixed number percentage to a decimal
arith835 Converting between percentages and decimals in a real-world situation
arith090 Converting a percentage to a fraction in simplest form
arith839 Converting a decimal percentage to a fraction
arith838 Converting a fraction to a percentage: Denominator of 4, 5, or 10
arith802 Converting a fraction to a percentage: Denominator of 20, 25, or 50
arith843 Using a calculator to convert a fraction to a rounded percentage
arith842 Converting a fraction to a percentage in a real-world situation
mstat003 Mode of a data set
arith103 Average of two numbers
mstat001 Mean of a data set
mstat028 Mean and median of a data set
mstat066 Weighted mean
mstat024 Interpreting a bar graph
mstat007 Interpreting a line graph
geom395 Perimeter of a polygon
geom300 Perimeter of a square or a rectangle
geom618 Perimeter of a polygon involving mixed numbers and fractions
geom678 Sides of polygons having the same perimeter
geom019 Area of a square or a rectangle
geom350 Distinguishing between the area and perimeter of a rectangle
geom620 Area of a rectangle involving fractions
geom619 Area of a rectangle involving mixed numbers and fractions
geom221 Finding the missing length in a figure
geom340 Area of a piecewise rectangular figure
geom142 Word problem involving the area between two rectangles
geom801 Area of a triangle
geom022 Area of a parallelogram
geom023 Area of a trapezoid
geom016 Circumference of a circle
geom301 Perimeter involving rectangles and circles
geom302 Circumference and area of a circle
geom302 Area involving rectangles and circles
geom036 Word problem involving the area between two concentric circles
geom214 Area involving inscribed figures
geom311 Volume of a rectangular prism
geom090 Volume of a triangular prism
geom033 Volume of a pyramid
B.6. BEGINNING ALGEBRA

geom035 Volume of a cylinder
geom092 Word problem involving the rate of filling or emptying a cylinder
geom622 Volume of a cone
geom841 Volume of a sphere
geom031 Surface area of a cube or a rectangular prism
geom091 Surface area of a triangular prism
geom621 Surface area of a cylinder
geom842 Surface area of a sphere
geom039 Finding supplementary and complementary angles
geom036 Acute, obtuse, and right triangles
geom037 Classifying scalene, isosceles, and equilateral triangles by side lengths or angles

Real Numbers and Algebraic Expressions

arith687 Fractional position on a number line
arith829 Reading decimal position on a number line: Tenths
arith830 Reading decimal position on a number line: Hundredths
alge286 Plotting integers on a number line
arith605 Plotting rational numbers on a number line
arith699 Writing a signed number for a real-world situation
arith092 Using a common denominator to order fractions
arith129 Introduction to ordering decimals
arith608 Ordering decimals
arith609 Ordering fractions and decimals
arith691 Ordering integers
arith016 Square root of a perfect square
arith763 Using a calculator to approximate a square root
arith602 Estimating a square root
arith712 Ordering real numbers
arith071 Absolute value of a number
arith200 Integer addition: Problem type 1
arith108 Integer addition: Problem type 2
arith688 Integer subtraction: Problem type 1
arith689 Integer subtraction: Problem type 2
arith690 Integer subtraction: Problem type 3
arith754 Addition and subtraction with 3 integers
arith755 Addition and subtraction with 4 or 5 integers
arith701 Word problem with addition or subtraction of integers
arith231 Integer multiplication and division
arith800 Multiplication of 3 or 4 integers
arith711 Division involving zero
alge001 Identifying numbers as integers or non-integers
alge002 Identifying numbers as rational or irrational
arith116 Signed fraction addition or subtraction: Basic
arith864 Signed fraction subtraction involving double negation
arith106 Signed fraction addition or subtraction: Advanced
arith811 Addition and subtraction of 3 fractions involving signs
arith822 Signed fraction multiplication: Basic
arith105 Signed fraction multiplication: Advanced
arith814 Signed fraction division
arith117 Signed decimal addition and subtraction
arith234 Signed decimal addition and subtraction with 3 numbers
arith750 Signed decimal multiplication
arith751 Signed decimal division
arith104 Operations with absolute value: Problem type 2
geom525 Computing distances between decimals on the number line
arith702 Exponents and integers: Problem type 1
arith703 Exponents and integers: Problem type 2
arith704 Exponents and signed fractions
APPENDIX B. SYLLABI IN ALEKS

arith118 Order of operations with integers
arith600 Order of operations with integers and exponents
alge005 Evaluating a linear expression: Integer multiplication with addition or subtraction
alge004 Evaluating a quadratic expression: Integers
alge808 Evaluating a linear expression: Signed fraction multiplication with addition or subtraction
alge302 Evaluating a linear expression: Signed decimal addition and subtraction
alge303 Evaluating a linear expression: Signed decimal multiplication with addition or subtraction
alge700 Combining like terms: Whole number coefficients
alge607 Combining like terms: Integer coefficients
arith555 Introduction to properties of addition
alge187 Properties of addition
arith657 Understanding the distributive property
alge310 Multiplying a constant and a linear monomial
alge606 Distributive property: Whole number coefficients
alge604 Distributive property: Integer coefficients
arith656 Introduction to properties of multiplication
alge188 Properties of real numbers
alge608 Using distribution and combining like terms to simplify: Univariate
alge609 Using distribution with double negation and combining like terms to simplify: Multivariate
alge293 Combining like terms in a quadratic expression

Linear Equations

alge009 Additive property of equality with whole numbers
alge801 Additive property of equality with fractions and mixed numbers
alge800 Additive property of equality with decimals
alge010 Additive property of equality with integers
alge836 Additive property of equality with signed fractions
alge008 Multiplicative property of equality with whole numbers
alge820 Multiplicative property of equality with fractions
alge825 Multiplicative property of equality with decimals
alge797 Multiplicative property of equality with integers
alge012 Multiplicative property of equality with signed fractions
alge834 Identifying solutions to a linear equation in one variable: Two-step equations
alge803 Using two steps to solve an equation with whole numbers
alge266 Additive property of equality with a negative coefficient
alge906 Solving a two-step equation with integers
alge200 Solving an equation to find the value of an expression
alge920 Introduction to solving an equation with parentheses
alge837 Solving a multi-step equation given in fractional form
alge986 Identifying properties used to solve a linear equation
alge824 Solving a two-step equation with signed decimals
alge838 Introduction to solving an equation with variables on the same side
alge862 Solving a linear equation with several occurrences of the variable: Variables on the same side
alge863 Solving a linear equation with several occurrences of the variable: Variables on both sides
alge011 Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
alge013 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
alge209 Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions
alge420 Solving a linear equation with several occurrences of the variable: Fractional forms with monomial numerators
alge208 Solving a two-step equation with signed fractions
alge061 Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
alge179 Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators
alge742 Solving equations with zero, one, or infinitely many solutions
alge603 Introduction to solving an absolute value equation
B.6. BEGINNING ALGEBRA

alge864 Solving an absolute value equation: Problem type 1
alge272 Solving a proportion of the form $x/a = b/c$
alge840 Solving a proportion of the form $(x+a)/b = c/d$
alge511 Solving for a variable in terms of other variables using addition or subtraction: Basic
alge512 Solving for a variable in terms of other variables using addition or subtraction: Advanced
alge513 Solving for a variable in terms of other variables using multiplication or division: Basic
alge514 Solving for a variable in terms of other variables using multiplication or division: Advanced
alge517 Solving for a variable in terms of other variables using addition or subtraction with division
alge518 Solving for a variable inside parentheses in terms of other variables
alge507 Solving for a variable in terms of other variables in a linear equation with fractions
alge733 Writing a one-step expression for a real-world situation
alge831 Translating a phrase into a one-step expression
alge291 Translating a phrase into a two-step expression
alge016 Translating a sentence into a one-step equation
alge841 Translating a sentence into a multi-step equation
alge802 Solving a fraction word problem using a linear equation of the form $Ax = B$
alge014 Solving a word problem with two unknowns using a linear equation
alge173 Solving a decimal word problem using a linear equation of the form $Ax + B = C$
alge219 Solving a decimal word problem using a linear equation with the variable on both sides
alge704 Solving a fraction word problem using a linear equation with the variable on both sides
alge792 Solving a word problem with three unknowns using a linear equation
alge842 Solving a word problem involving consecutive integers
alge730 Writing a multi-step equation for a real-world situation
alge794 Solving a value mixture problem using a linear equation
alge823 Solving a one-step word problem using the formula $d = rt$
alge218 Solving a word problem involving rates and time conversion
alge796 Solving a distance, rate, time problem using a linear equation
mstat065 Converting between temperatures in Fahrenheit and Celsius
g geom217 Finding the side length of a rectangle given its perimeter or area
g geom817 Finding a side length given the perimeter and side lengths with variables
g geom143 Finding the perimeter or area of a rectangle given one of these values
g geom218 Finding the radius or the diameter of a circle given its circumference
g geom530 Solving equations involving vertical angles
g geom01 Finding an angle measure of a triangle given two angles
g geom223 Finding angle measures of a triangle given angles with variables
g geom502 Finding angle measures of a right or isosceles triangle given angles with variables
g geom812 Finding an angle measure given extended triangles
g geom813 Finding an angle measure given a triangle and parallel lines
stat803 Finding the value for a new score that will yield a given mean
arith840 Finding a percentage of a whole number
arith030 Finding a percentage of a whole number without a calculator: Basic
arith844 Finding a percentage of a whole number without a calculator: Advanced
arith862 Applying the percent equation: Problem type 1
arith863 Applying the percent equation: Problem type 2
arith845 Finding a percentage of a total amount: Real-world situations
arith846 Finding a percentage of a total amount without a calculator: Sales tax, commission, discount
arith857 Estimating a tip without a calculator
arith069 Writing a ratio as a percentage without a calculator
mstat049 Computing a percentage from a table of values
arith850 Finding the rate of a tax or commission
arith849 Finding the total amount given the percentage of a partial amount
arith852 Finding the multiplier to give a final amount after a percentage increase or decrease
arith851 Finding the final amount given the original amount and a percentage increase or decrease
arith847 Finding the sale price given the original price and percent discount
arith074 Finding the sale price without a calculator given the original price and percent discount
arith848 Finding the total cost including tax or markup
arith855 Finding the original amount given the result of a percentage increase or decrease
arith831 Finding the original price given the sale price and percent discount
arith858 Finding the percentage increase or decrease: Basic
arith225 Finding the percentage increase or decrease: Advanced
unit052 Finding the absolute error and percent error of a measurement
arith854 Computing a percent mixture
APPENDIX B. SYLLABI IN ALEKS

alge795 Solving a percent mixture problem using a linear equation
stat804 Interpreting a circle graph or pie chart
arith856 Finding a percentage of a total amount in a circle graph
stat801 Computations from a circle graph
arith232 Finding simple interest without a calculator

Linear Inequalities

alge015 Translating a sentence by using an inequality symbol
alge845 Translating a sentence into a one-step inequality
alge846 Translating a sentence into a multi-step inequality
alge748 Writing an inequality for a real-world situation
alge017 Graphing a linear inequality on the number line
alge822 Writing an inequality given a graph on the number line
alge186 Translating a sentence into a compound inequality
alge166 Graphing a compound inequality on the number line
alge847 Writing a compound inequality given a graph on the number line
set001 Set builder notation
set004 Set builder and interval notation
set002 Union and intersection of finite sets
alge844 Identifying solutions to a two-step linear inequality in one variable
alge848 Additive property of inequality with whole numbers
alge849 Additive property of inequality with integers
alge852 Additive property of inequality with signed fractions
alge853 Additive property of inequality with signed decimals
alge854 Multiplicative property of inequality with integers
alge964 Multiplicative property of inequality with signed fractions
alge855 Solving a two-step linear inequality: Problem type 1
alge856 Solving a two-step linear inequality: Problem type 2
alge857 Solving a two-step linear inequality with a fractional coefficient
alge977 Solving a linear inequality with multiple occurrences of the variable: Problem type 1
alge858 Solving a linear inequality with multiple occurrences of the variable: Problem type 2
alge859 Solving a linear inequality with multiple occurrences of the variable: Problem type 3
alge860 Solving inequalities with no solution or all real numbers as solutions
alge746 Solving a compound linear inequality: Graph solution, basic
alge747 Solving a compound linear inequality: Interval notation
alge868 Solving an absolute value inequality: Problem type 1
alge749 Solving a decimal word problem using a two-step linear inequality
alge750 Solving a decimal word problem using a linear inequality with the variable on both sides

Lines and Functions

alge064 Reading a point in the coordinate plane
alge067 Plotting a point in the coordinate plane
alge850 Table for a linear equation
alge873 Identifying solutions to a linear equation in two variables
alge066 Finding a solution to a linear equation in two variables
alge191 Midpoint of a line segment in the plane
alge877 Graphing a linear equation of the form \( y = mx \)
alge878 Graphing a line given its equation in slope-intercept form: Integer slope
alge879 Graphing a line given its equation in slope-intercept form: Fractional slope
alge880 Graphing a line given its equation in standard form
alge198 Graphing a vertical or horizontal line
alge884 Finding x- and y-intercepts given the graph of a line on a grid
alge924 Finding x- and y-intercepts of a line given the equation: Basic
alge210 Finding x- and y-intercepts of a line given the equation: Advanced
alge197 Graphing a line given its x- and y-intercepts
alge881 Graphing a line by first finding its x- and y-intercepts
B.6. BEGINNING ALGEBRA

alge875 Classifying slopes given graphs of lines
alge886 Finding slope given the graph of a line on a grid
alge887 Finding slope given two points on the line
alge885 Finding the slope of horizontal and vertical lines
alge888 Finding the coordinate that yields a given slope
alge259 Graphing a line given its slope and y-intercept
alge196 Graphing a line through a given point with a given slope
alge876 Identifying linear equations: Advanced
alge874 Identifying linear functions given ordered pairs
alge891 Rewriting a linear equation in the form Ax + By = C
alge889 Finding the slope and y-intercept of a line given its equation in the form y = mx + b
alge890 Finding the slope and y-intercept of a line given its equation in the form Ax+By=C
alge882 Graphing a line by first finding its slope and y-intercept
alge258 Writing an equation of a line given its slope and y-intercept
alge892 Writing an equation and graphing a line given its slope and y-intercept
alge893 Writing an equation in slope-intercept form given the slope and a point
alge883 Graphing a line given its equation in point-slope form
alge894 Writing an equation in point-slope form given the slope and a point
alge072 Writing the equation of the line through two given points
alge073 Writing the equations of vertical and horizontal lines through a given point
geom806 Finding slopes of lines parallel and perpendicular to a line given in slope-intercept form
geom807 Finding slopes of lines parallel and perpendicular to a given line in the form Ax + By = C
alge895 Identifying parallel and perpendicular lines from equations
geom808 Writing equations of lines parallel and perpendicular to a given line through a point
alge897 Writing and evaluating a function that models a real-world situation: Advanced
alge701 Writing an equation and drawing its graph to model a real-world situation: Advanced
fun005 Writing a function rule given a table of ordered pairs: One-step rules
fun006 Writing a function rule given a table of ordered pairs: Two-step rules
alge992 Combining functions to write a new function that models a real-world situation
alge987 Comparing properties of linear functions given in different forms
alge989 Interpreting the parameters of a linear function that models a real-world situation
alge805 Application problem with a linear function: Finding a coordinate given the slope and a point
alge806 Application problem with a linear function: Finding a coordinate given two points
mstat052 Identifying independent and dependent variables from equations or real-world situations
alge991 Solving a linear equation by graphing
mstat030 Sketching the line of best fit
mstat023 Scatter plots and correlation
mstat068 Predictions from the line of best fit
mstat067 Approximating the equation of a line of best fit and making predictions
mstat069 Computing residuals
mstat070 Interpreting residual plots
mstat071 Linear relationship and the correlation coefficient
mstat074 Identifying correlation and causation
alge898 Translating the graph of an absolute value function: One step
alge899 Translating the graph of an absolute value function: Two steps
alge913 Graphing an absolute value equation of the form y = A—x—
alge900 Graphing an absolute value equation in the plane: Basic
alge168 Graphing an absolute value equation in the plane: Advanced
alge901 How the leading coefficient affects the graph of an absolute value function
fun032 Identifying functions from relations
fun010 Vertical line test
fun016 Domain and range from ordered pairs
fun001 Table for a linear function
pcalc760 Evaluating functions: Linear and quadratic or cubic
fun033 Variable expressions as inputs of functions: Problem type 1
alge294 Finding outputs of a one-step function that models a real-world situation: Function notation
alge295 Finding outputs of a two-step function with decimals that models a real-world situation: Function notation
alge296 Finding inputs and outputs of a two-step function that models a real-world situation: Function notation
alge990 Domain and range of a linear function that models a real-world situation
fun026 Finding an output of a function from its graph
APPENDIX B. SYLLABI IN ALEKS

pcalc761 Finding inputs and outputs of a function from its graph
fun007 Domain and range from the graph of a discrete relation
fun024 Domain and range from the graph of a continuous function
alge896 Graphing an integer function and finding its range for a given domain
alge570 Graphing a function of the form \( f(x) = ax + b \): Integer slope
alge571 Graphing a function of the form \( f(x) = ax + b \): Fractional slope
alge954 Graphing a parabola of the form \( y = ax^2 \)
alge955 Graphing a parabola of the form \( y = ax^2 + c \)
alge572 Graphing a function of the form \( f(x) = ax^2 \)
alge573 Graphing a function of the form \( f(x) = ax^2 + c \)
pcalc750 Finding intercepts of a nonlinear function given its graph
pcalc751 Finding where a function is increasing, decreasing, or constant given the graph: Interval notation
pcalc752 Finding local maxima and minima of a function given the graph
mstat018 Choosing a graph to fit a narrative: Basic
mstat051 Choosing a graph to fit a narrative: Advanced

Systems

alge914 Identifying solutions to a system of linear equations
alge075 Classifying systems of linear equations from graphs
alge725 Graphically solving a system of linear equations
alge751 Solving a system of linear equations using substitution
alge915 Solving a system of linear equations using elimination with addition
alge076 Solving a system of linear equations using elimination with multiplication and addition
alge916 Solving a system of linear equations with fractional coefficients
alge917 Solving a system of linear equations with decimal coefficients
alge752 Solving a 2x2 system of linear equations that is inconsistent or consistent dependent
alge988 Identifying the operations used to create equivalent systems of equations
alge753 Solving a 3x3 system of linear equations: Problem type 1
alge263 Interpreting the graphs of two functions
alge078 Solving a word problem involving a sum and another basic relationship using a system of linear equations
alge919 Solving a word problem using a system of linear equations of the form \( Ax + By = C \)
alge918 Solving a word problem using a system of linear equations of the form \( y = mx + b \)
alge184 Solving a value mixture problem using a system of linear equations
alge192 Solving a percent mixture problem using a system of linear equations
alge224 Solving a distance, rate, time problem using a system of linear equations
alge172 Solving a tax rate or interest rate problem using a system of linear equations
alge703 Solving a word problem using a 3x3 system of linear equations: Problem type 1
alge912 Identifying solutions to a linear inequality in two variables
alge225 Graphing a linear inequality in the plane: Vertical or horizontal line
alge720 Graphing a linear inequality in the plane: Slope-intercept form
alge018 Graphing a linear inequality in the plane: Standard form
alge079 Graphing a system of two linear inequalities: Basic
alge921 Graphing a system of two linear inequalities: Advanced
alge922 Graphing a system of three linear inequalities
alge729 Writing a multi-step inequality for a real-world situation
pcalc093 Solving a word problem using a system of linear inequalities: Problem type 1

Exponents

alge821 Understanding the product rule of exponents
alge024 Introduction to the product rule of exponents
alge311 Product rule with positive exponents: Univariate
alge030 Product rule with positive exponents: Multivariate
arith029 Ordering numbers with positive exponents
alge826 Understanding the power rules of exponents
alge306 Introduction to the power of a power rule of exponents
alge305 Introduction to the power of a product rule of exponents
alge307 Power rules with positive exponents: Multivariate products
alge308 Power rules with positive exponents: Multivariate quotients
alge756 Power and product rules with positive exponents
alge451 Simplifying a ratio of multivariate monomials: Basic
alge827 Introduction to the quotient rule of exponents
alge452 Simplifying a ratio of univariate monomials
alge026 Quotient of expressions involving exponents
alge453 Simplifying a ratio of multivariate monomials: Advanced
alge790 Evaluating expressions with exponents of zero
arith684 Power of 10: Negative exponent
arith729 Evaluating an expression with a negative exponent: Whole number base
arith042 Evaluating an expression with a negative exponent: Positive fraction base
arith043 Evaluating an expression with a negative exponent: Negative integer base
arith024 Ordering numbers with negative exponents
alge791 Rewriting an algebraic expression without a negative exponent
alge901 Introduction to the product rule with negative exponents
alge028 Product rule with negative exponents
alge755 Quotient rule with negative exponents: Problem type 1
alge926 Quotient rule with negative exponents: Problem type 2
alge025 Power of a power rule with negative exponents
alge799 Power rules with negative exponents
alge928 Power and quotient rules with negative exponents: Problem type 1
alge929 Power and quotient rules with negative exponents: Problem type 2
alge757 Power, product, and quotient rules with negative exponents
arith036 Scientific notation with positive exponent
arith037 Scientific notation with negative exponent
scinot012 Converting between scientific notation and standard form in a real-world situation
arith008 Multiplying numbers written in scientific notation: Basic
arith009 Multiplying numbers written in scientific notation: Advanced
arith010 Dividing numbers written in scientific notation: Basic
arith011 Dividing numbers written in scientific notation: Advanced
alge971 Table for an exponential function
alge830 Evaluating an exponential function that models a real-world situation
arith033 Introduction to compound interest
alge177 Finding a final amount in a word problem on exponential growth or decay
alge741 Finding the final amount in a word problem on compound interest
alge966 Finding the initial amount and rate of change given an exponential function
alge968 Writing an equation that models exponential growth or decay
alge301 Solving an exponential equation by finding common bases: Linear exponents
alge969 Graphing an exponential function: f(x) = ax
alge970 Graphing an exponential function: f(x) = a(b)x
alge967 Writing an exponential function rule given a table of ordered pairs
alge993 Comparing linear, polynomial, and exponential functions

Polynomials and Factoring

alge758 Degree and leading coefficient of a univariate polynomial
alge031 Degree of a multivariate polynomial
alge798 Simplifying a sum or difference of two univariate polynomials
alge029 Simplifying a sum or difference of three univariate polynomials
alge932 Simplifying a sum or difference of multivariate polynomials
alge735 Multiplying a univariate polynomial by a monomial with a positive coefficient
alge972 Multiplying a univariate polynomial by a monomial with a negative coefficient
alge835 Multiplying a multivariate polynomial by a monomial
alge033 Multiplying binomials with leading coefficients of 1
alge983 Multiplying binomials with leading coefficients greater than 1
alge765 Multiplying binomials in two variables
alge764 Multiplying conjugate binomials: Univariate
alge081 Multiplying conjugate binomials: Multivariate
APPENDIX B. SYLLABI IN ALEKS

alge032 Squaring a binomial: Univariate
alge068 Squaring a binomial: Multivariate
alge973 Multiplying binomials with negative coefficients
alge935 Multiplication involving binomials and trinomials in one variable
alge180 Multiplication involving binomials and trinomials in two variables
alge759 Dividing a polynomial by a monomial: Univariate
alge760 Dividing a polynomial by a monomial: Multivariate
alge761 Polynomial long division: Problem type 1
alge762 Polynomial long division: Problem type 2
alge763 Polynomial long division: Problem type 3
alge985 Closure properties of integers and polynomials
alge605 Factoring a linear binomial
alge736 Introduction to the GCF of two monomials
alge930 Greatest common factor of three univariate monomials
alge037 Greatest common factor of two multivariate monomials
alge738 Factoring out a monomial from a polynomial: Univariate
alge739 Factoring out a monomial from a polynomial: Multivariate
alge949 Factoring out a binomial from a polynomial: GCF factoring, basic
alge923 Factoring a univariate polynomial by grouping: Problem type 1
alge950 Factoring a univariate polynomial by grouping: Problem type 2
alge951 Factoring a multivariate polynomial by grouping: Problem type 1
alge952 Factoring a multivariate polynomial by grouping: Problem type 2
alge939 Factoring out a constant before factoring a quadratic
alge940 Factoring a quadratic with leading coefficient greater than 1: Problem type 1
alge941 Factoring a quadratic with leading coefficient greater than 1: Problem type 2
alge942 Factoring a quadratic with leading coefficient greater than 1: Problem type 3
alge978 Factoring a quadratic by the ac-method
alge265 Factoring a quadratic in two variables with leading coefficient greater than 1
alge937 Factoring a quadratic with a negative leading coefficient
alge944 Factoring a perfect square trinomial with leading coefficient 1
alge945 Factoring a perfect square trinomial with leading coefficient greater than 1
alge946 Factoring a perfect square trinomial in two variables
alge290 Factoring a difference of squares in one variable: Basic
alge947 Factoring a difference of squares in one variable: Advanced
alge839 Factoring a difference of squares in two variables
alge948 Factoring a polynomial involving a GCF and a difference of squares: Univariate
alge833 Factoring a polynomial involving a GCF and a difference of squares: Multivariate
alge041 Factoring a product of a quadratic trinomial and a monomial
alge042 Factoring with repeated use of the difference of squares formula
alge044 Factoring a sum or difference of two cubes
alge691 Solving an equation written in factored form
alge956 Finding the roots of a quadratic equation of the form \( ax^2 + bx = 0 \)
alge045 Finding the roots of a quadratic equation with leading coefficient 1
alge048 Finding the roots of a quadratic equation with leading coefficient greater than 1
alge211 Solving a quadratic equation needing simplification
alge703 Solving a word problem using a quadratic equation with rational roots
alge407 Introduction to the Pythagorean Theorem
geom044 Pythagorean Theorem
alge408 Word problem involving the Pythagorean Theorem
alge713 Using the Pythagorean Theorem and a quadratic equation to find side lengths of a right triangle

Rational Expressions

alge049 Restriction on a variable in a denominator: Linear
alge467 Restriction on a variable in a denominator: Quadratic
alge468 Evaluating a rational function: Problem type 1
alge469 Evaluating a rational function: Problem type 2
alge715 Domain of a rational function: Excluded values
APPENDIX B. SYLLABI IN ALEKS

alge271 Solving a proportion of the form \( \frac{a}{x+b} = \frac{c}{x} \)
alge060 Solving a rational equation that simplifies to linear: Denominator \( x \)
alge205 Solving a rational equation that simplifies to linear: Denominator \( x+a \)
alge769 Solving a rational equation that simplifies to linear: Denominators \( a, x, \) or \( ax \)
alge421 Solving a rational equation that simplifies to linear: Denominators \( ax \) and \( bx \)
alge422 Solving a rational equation that simplifies to linear: Like binomial denominators
alge206 Solving a rational equation that simplifies to linear: Unlike binomial denominators
alge423 Solving a rational equation that simplifies to linear: Factorable quadratic denominator
alge424 Solving a rational equation that simplifies to quadratic: Proportional form, basic
alge425 Solving a rational equation that simplifies to quadratic: Denominator \( x \)
alge212 Solving a rational equation that simplifies to quadratic: Binomial denominators, constant numerators
alge062 Solving a rational equation that simplifies to quadratic: Binomial denominators and numerators
alge426 Solving a rational equation that simplifies to quadratic: Factorable quadratic denominator
alge047 Solving a rational equation that simplifies to quadratic: Proportional form, advanced
arith823 Writing ratios using different notations
arith663 Writing ratios for real-world situations
arith824 Simplifying a ratio of whole numbers: Problem type 1
arith826 Simplifying a ratio of whole numbers: Problem type 2
arith825 Simplifying a ratio of decimals
arith827 Finding a unit price
arith828 Computing unit prices to find the better buy
arith605 U.S. Customary unit conversion with whole number values
unit001 Metric distance conversion with whole number values
unit034 Converting between metric and U.S. Customary unit systems
unit035 Converting between compound units: Basic
unit036 Converting between compound units: Advanced
alge509 Solving for a variable in terms of other variables in a rational equation: Problem type 1
alge509 Solving for a variable in terms of other variables in a rational equation: Problem type 2
alge510 Solving for a variable in terms of other variables in a rational equation: Problem type 3
arith610 Word problem on proportions: Problem type 1
arith611 Word problem on proportions: Problem type 2
geom037 Similar polygons
geom038 Similar right triangles
geom337 Indirect measurement
geom838 Circumference ratios
arith612 Word problem involving multiple rates
alge770 Solving a work problem using a rational equation
alge450 Solving a distance, rate, time problem using a rational equation
alge059 Ordering fractions with variables
alge982 Identifying direct variation equations
alge938 Identifying direct variation from ordered pairs and writing equations
alge904 Writing a direct variation equation
alge175 Word problem on direct variation
alge828 Interpreting direct variation from a graph
alge905 Writing an inverse variation equation
alge903 Identifying direct and inverse variation equations
alge902 Identifying direct and inverse variation from ordered pairs and writing equations
alge176 Word problem on inverse variation
alge220 Word problem on inverse proportions
pcalc681 Writing an equation that models variation
alge772 Word problem on combined variation

Radicals

alge413 Finding all square roots of a number
arith601 Square root of a rational perfect square
arith760 Square roots of perfect squares with signs
alge415 Introduction to simplifying a radical expression with an even exponent
alge264 Square root of a perfect square monomial
arith094 Cube root of an integer
alge549 Finding nth roots of perfect nth powers with signs
arith768 Finding the nth root of a perfect nth power fraction
alge550 Finding the nth root of a perfect nth power monomial
arith093 Simplifying the square root of a whole number less than 100
arith762 Simplifying the square root of a whole number greater than 100
alge080 Simplifying a radical expression with an even exponent
alge520 Introduction to simplifying a radical expression with an odd exponent
alge275 Simplifying a radical expression with two variables
alge273 Simplifying a higher root of a whole number
alge551 Introduction to simplifying a higher radical expression
alge552 Simplifying a higher radical expression: Univariate
alge811 Simplifying a higher radical expression: Multivariate
arith767 Introduction to square root addition or subtraction
arith032 Square root addition or subtraction
alge533 Square root addition or subtraction with three terms
alge531 Introduction to simplifying a sum or difference of radical expressions: Univariate
alge532 Simplifying a sum or difference of radical expressions: Univariate
alge084 Simplifying a sum or difference of radical expressions: Multivariate
alge554 Simplifying a sum or difference of higher roots
alge555 Simplifying a sum or difference of higher radical expressions
arith764 Introduction to square root multiplication
arith765 Square root multiplication: Basic
arith039 Square root multiplication: Advanced
alge522 Introduction to simplifying a product of radical expressions: Univariate
alge523 Simplifying a product of radical expressions: Univariate
alge560 Simplifying a product of radical expressions: Multivariate
alge530 Introduction to simplifying a product of higher roots
alge557 Simplifying a product of higher radical expressions
alge525 Introduction to simplifying a product involving square roots using the distributive property
alge526 Simplifying a product involving square roots using the distributive property: Basic
alge276 Simplifying a product involving square roots using the distributive property: Advanced
alge774 Special products of radical expressions: Conjugates and squaring
alge084 Classifying sums and products as rational or irrational
arith766 Simplifying a quotient of square roots
alge530 Simplifying a quotient involving a sum or difference with a square root
alge527 Rationalizing a denominator: Quotient involving square roots
alge528 Rationalizing a denominator: Square root of a fraction
alge529 Rationalizing a denominator: Quotient involving a monomial
alge534 Rationalizing a denominator using conjugates: Integer numerator
alge535 Rationalizing a denominator using conjugates: Square root in numerator
alge536 Rationalizing a denominator using conjugates: Variable in denominator
alge538 Rationalizing a denominator: Quotient involving a higher radical
alge400 Introduction to solving a radical equation
alge089 Solving a radical equation that simplifies to a linear equation: One radical, basic
alge402 Solving a radical equation that simplifies to a linear equation: One radical, advanced
alge090 Solving a radical equation that simplifies to a linear equation: Two radicals
alge405 Solving a radical equation with two radicals that simplifies to sqrt(x) = a
alge403 Solving a radical equation that simplifies to a quadratic equation: One radical, basic
alge404 Solving a radical equation that simplifies to a quadratic equation: One radical, advanced
alge411 Solving a radical equation with a quadratic expression under the radical
alge182 Solving a radical equation that simplifies to a quadratic equation: Two radicals
alge410 Solving an equation with a root index greater than 2: Problem type 1
alge417 Solving an equation with a root index greater than 2: Problem type 2
alge412 Algebraic symbol manipulation with radicals
alge542 Word problem involving radical equations: Basic
alge409 Word problem involving radical equations: Advanced
alge132 Distance between two points in the plane: Exact answers
alge539 Table for a square root function
alge540 Domain of a square root function: Basic
pcalc763 Domain of a square root function: Advanced
alge543 Graphing a square root function: Problem type 1
alge544 Graphing a square root function: Problem type 2
alge812 Converting between radical form and exponent form
alge560 Rational exponents: Unit fraction exponents and whole number bases
alge561 Rational exponents: Unit fraction exponents and bases involving signs
alge250 Rational exponents: Non-unit fraction exponent with a whole number base
alge251 Rational exponents: Negative exponents and fractional bases
alge558 Rational exponents: Product rule
alge559 Rational exponents: Quotient rule
alge773 Rational exponents: Products and quotients with negative exponents
alge562 Rational exponents: Power of a power rule
alge249 Rational exponents: Powers of powers with negative exponents
alge563 Simplifying products or quotients of higher radicals with different indices: Univariate

Complex Numbers and Quadratic Equations

alge778 Using i to rewrite square roots of negative numbers
alge779 Simplifying a product and quotient involving square roots of negative numbers
pcalc048 Adding or subtracting complex numbers
pcalc049 Multiplying complex numbers
pcalc050 Dividing complex numbers
pcalc053 Simplifying a power of i
alge962 Solving an equation of the form $x^2 = a$ using the square root property
alge969 Solving a quadratic equation using the square root property: Exact answers, basic
alge227 Solving a quadratic equation using the square root property: Exact answers, advanced
alge994 Completing the square
alge780 Solving a quadratic equation by completing the square: Exact answers
alge963 Applying the quadratic formula: Decimal answers
alge214 Discriminant of a quadratic equation
alge524 Solving a word problem using a quadratic equation with irrational roots
alge974 Finding the vertex, x-intercepts, and axis of symmetry from the graph of a parabola
alge953 Translating the graph of a parabola: One step
alge253 Graphing a parabola of the form $y = (x-h)^2 + k$
alge569 Graphing a parabola of the form $y = x^2 + bx + c$
pcalc746 Graphing a parabola of the form $y = ax^2 + bx + c$: Integer coefficients
pcalc747 Graphing a parabola of the form $y = ax^2 + bx + c$: Rational coefficients
alge277 Finding the x-intercept(s) and the vertex of a parabola
pcalc774 Rewriting a quadratic function to find the vertex of its graph
pcalc775 Finding the maximum or minimum of a quadratic function
alge785 Word problem involving the maximum or minimum of a quadratic function
alge975 Domain and range from the graph of a parabola
pcalc762 Range of a quadratic function
alge957 Solving a quadratic equation by graphing
alge996 Comparing properties of quadratic functions given in different forms
alge702 Classifying the graph of a function
alge723 How the leading coefficient affects the shape of a parabola
alge965 Identifying linear, quadratic, and exponential functions given ordered pairs
alge262 Graphing a cubic function of the form $y = ax^3$
fun019 Sum, difference, and product of two functions
fun022 Composition of two functions: Basic
pcalc776 Expressing a function as a composition of two functions
pcalc924 Determining whether an equation defines a function: Basic
pcalc757 Determining whether an equation defines a function: Advanced
B.7 Intro. to Geometry

Algebra and Deductive Reasoning

- Order of operations with whole numbers
- Order of operations with whole numbers and grouping symbols
- Factors
- Least common multiple of 2 numbers
- Finding the next terms of a sequence with whole numbers
- Equivalent fractions
- Simplifying a fraction
- Addition or subtraction of fractions with different denominators
- Product of a fraction and a whole number: Problem type 1
- Fraction multiplication
- Fraction division
- Writing ratios for real-world situations
- Writing an improper fraction as a mixed number
- Decimal place value: Hundreds to ten thousandths
- Rounding decimals
- Finding a percentage of a whole number without a calculator: Basic
- Integer addition: Problem type 1
- Integer addition: Problem type 2
- Integer subtraction
- Integer multiplication and division
- Absolute value of a number
- Evaluating a linear expression: Integer multiplication with addition or subtraction
- Evaluating a quadratic expression: Integers
- Translating a sentence into a one-step equation
- Combining like terms: Integer coefficients
- Additive property of equality: Problem type 3
- Multiplicative property of equality with signed fractions
- Solving a two-step equation with integers
- Solving a two-step equation with signed fractions
- Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
- Solving a linear inequality: Problem type 1
- Graphing a linear inequality on the number line
- Graphing a compound inequality on the number line
- Solving a rational equation that simplifies to linear: Denominator x
- Solving a proportion of the form \( x/a = b/c \)
- Solving a proportion of the form \( a/(x+b) = c/x \)
- Word problem on proportions: Problem type 1
- Evaluating expressions with exponents: Problem type 1
- Square root of a perfect square
- Simplifying the square root of a whole number less than 100
- Rationalizing the denominator of a radical expression
- Interpreting a Venn diagram of 2 sets
- Interpreting a Venn diagram of 3 sets
- Conditional statements and negations
- The converse, inverse, and contrapositive of a conditional statement
- Conditional statements and deductive reasoning

Lines and Angles

- Naming segments, rays, and lines
- Measuring length to the nearest quarter or half inch
- Computing distances between decimals on the number line
- Midpoint of a number line segment
APPENDIX B. SYLLABI IN ALEKS

geom521 Segment addition and midpoints
geom616 Introduction to proofs: Justifying statements
geom614 Proofs involving segment congruence
geom358 Identifying parallel and perpendicular lines
geom154 Constructing the perpendicular bisector of a line segment
geom150 Constructing a pair of perpendicular lines
geom157 Constructing a pair of parallel lines
geom835 Introduction to proofs involving parallel lines
geom836 Proofs involving parallel lines
geom151 Measuring an angle with the protractor
geom152 Drawing an angle with the protractor
geom303 Acute, obtuse, and right angles
geom539 Finding supplementary and complementary angles
geom304 Identifying corresponding and alternate angles
geom800 Identifying linear pairs and vertical angles
geom500 Solving equations involving vertical angles and linear pairs
geom503 Solving equations involving angles and two pairs of parallel lines
geom159 Constructing congruent angles
geom158 Constructing an angle bisector
geom850 Angle addition with relationships between angles
geom851 Angle addition and angle bisectors
geom611 Proofs involving angle congruence

gem306 Acute, obtuse, and right triangles
geom307 Classifying scalene, isosceles, and equilateral triangles by side lengths or angles
geom801 Area of a triangle
geom812 Finding an angle measure of a triangle given two angles
geom813 Finding an angle measure given extended triangles
geom815 Finding an angle measure given a triangle and parallel lines
geom502 Finding angle measures of a right or isosceles triangle given angles with variables
geom908 Finding an angle measure for a triangle with an extended side
geom309 Finding an angle measure for a triangle sharing a side with another triangle
geom844 Using triangle inequality to determine if side lengths form a triangle
geom845 Using triangle inequality to determine possible lengths of a third side
geom854 Relationship between angle measures and side lengths in a triangle
geom855 Relationship between angle measures and side lengths in two triangles
geom505 Indirect proof (proof by contradiction)
geom520 Identifying and naming congruent triangles
geom617 Proofs involving congruent triangles and vertical angles or the reflexive property
geom837 Proofs involving congruent triangles and segment or angle bisectors
geom840 Proofs involving congruent triangles that overlap: Basic
geom839 Proofs involving congruent triangles, parallel or perpendicular segments, and CPCTC
geom843 Proofs involving congruent triangles that overlap: Advanced
geom844 Pythagorean Theorem
geom808 Computing an area using the Pythagorean Theorem
geom506 Special right triangles: Exact answers
geom212 Circles inscribed in and circumscribed about regular polygons
pcalc590 Sine, cosine, and tangent ratios: Variables for side lengths
pcalc607 Using a trigonometric ratio to find a side length in a right triangle
pcalc610 Using trigonometry to find a length in a word problem with one right triangle
pcalc608 Using a trigonometric ratio to find an angle measure in a right triangle
pcalc611 Using trigonometry to find angles of elevation or depression in a word problem
pcalc631 Solving a triangle with the law of sines: Problem type 1
pcalc632 Solving a triangle with the law of sines: Problem type 2
pcalc633 Solving a triangle with the law of cosines

Polygons and Circles
B.7. INTRO. TO GEOMETRY

geom310 Properties of quadrilaterals
geom523 Conditions for quadrilaterals
geom532 Classifying parallelograms
geom528 Finding measures involving diagonals of parallelograms
geom527 Conditions for parallelograms
geom533 Finding measures involving diagonals of rectangles
geom534 Finding measures involving diagonals of rhombi
geom852 The sum of interior angle measures in a convex polygon
geom853 Interior and exterior angle measures in a regular polygon
geom339 Perimeter of a polygon
geom300 Perimeter of a square or a rectangle
geom353 Perimeter of a piecewise rectangular figure
geom078 Sides of polygons having the same perimeter
geom817 Finding a side length given the perimeter and side lengths with variables
geom919 Area of a square or a rectangle
geom350 Distinguishing between the area and perimeter of a rectangle
geom351 Areas of rectangles with the same perimeter
geom240 Area of a piecewise rectangular figure
geom217 Finding the side length of a rectangle given its perimeter or area
geom143 Finding the perimeter or area of a rectangle given one of these values
geom022 Area of a parallelogram
geom023 Area of a trapezoid
geom142 Word problem involving the area between two rectangles
geom344 Area involving rectangles and triangles
geom213 Area of a regular polygon
geom347 Introduction to a circle: Diameter, radius, and chord
geom343 Identifying central angles, inscribed angles, arcs, chords, and tangents of a circle
geom848 Tangents of a circle: Problem type 1
geom849 Tangents of a circle: Problem type 2
geom511 Lengths of chords, secants, and tangents
geom514 Inscribed angles of a circle
geom512 Central angles and inscribed angles of a circle
geom513 Angles of intersecting secants and tangents
geom814 Angle measure in a circle graph
geom218 Finding the radius or the diameter of a circle given its circumference
geom802 Circumference and area of a circle
geom301 Perimeter involving rectangles and circles
geom838 Circumference ratios
geom805 Arc length and area of a sector of a circle
geom036 Word problem involving the area between two concentric circles
geom302 Area involving rectangles and circles
geom211 Area involving rectangles and circles: Advanced problem
mstat011 Area as probability

Similarities and Transformations

geom359 Identifying congruent shapes on a grid
geom360 Identifying similar or congruent shapes on a grid
geom037 Similar polygons
geom510 Triangles and parallel lines
geom038 Similar right triangles
geom507 Right triangles and geometric mean
geom337 Indirect measurement
geom846 Computing ratios of side lengths, surface areas, and volumes for similar solids
geom847 Similar solids: Problem type 2
geom357 Identifying transformations
geom330 Translating a polygon
geom331 Using a translated point to find coordinates of other translated points
geom332 Reflecting a polygon over a vertical or horizontal line
geom333 Finding the coordinates of three points reflected over an axis
APPENDIX B. SYLLABI IN ALEKS

Volumes and Surface Areas

- geom334 Drawing lines of symmetry
- geom335 Rotating a figure about the origin
- geom815 Finding an angle of rotation
- geom831 Rotational and point symmetries
- geom336 Dilating a figure

- geom830 Counting the cubes in a solid made of cubes
- geom354 Volume of a rectangular prism made of unit cubes
- geom311 Volume of a rectangular prism
- geom505 Volume of a piecewise rectangular prism
- geom690 Volume of a triangular prism
- geom933 Volume of a pyramid
- geom935 Volume of a cylinder
- geom896 Volume of a cone: Exact answers in terms of pi
- geom841 Volume of a sphere
- geom892 Word problem involving the rate of filling or emptying a cylinder
- geom133 Ratio of volumes
- geom348 Vertices, edges, and faces of a solid
- geom219 Nets of solids
- geom816 Side views of a solid made of cubes
- geom345 Surface area of a piecewise rectangular prism made of unit cubes
- geom331 Surface area of a cube or a rectangular prism
- geom911 Surface area of a triangular prism
- geom834 Surface area of a cylinder: Exact answers in terms of pi
- geom338 Surface area involving prisms or cylinders
- geom842 Surface area of a sphere

Coordinate Geometry

- alge067 Plotting a point in the coordinate plane
- alge191 Midpoint of a line segment in the plane
- alge132 Distance between two points in the plane: Exact answers
- geom819 Finding coordinates of vertices of polygons
- geom818 Finding the coordinates of a point to make a parallelogram
- geom832 Area of quadrilaterals in the coordinate plane
- alge197 Graphing a line given its x- and y-intercepts
- alge194 Graphing a line given its equation in slope-intercept form
- alge210 Finding x- and y-intercepts of a line given the equation: Advanced
- alge195 Graphing a line given its equation in standard form
- alge196 Graphing a line through a given point with a given slope
- alg637 Determining the slope of a line given its graph
- alg631 Finding the slope of a line given its equation
- geom807 Finding slopes of lines parallel and perpendicular to a line given in the form Ax + By = C
- geom808 Writing equations of lines parallel and perpendicular to a given line through a point
- alg070 Writing an equation of a line given the y-intercept and another point
- alg071 Writing the equation of a line given the slope and a point on the line
- alg072 Writing the equation of the line through two given points
- pcalc065 Graphing a circle given its equation in standard form
- pcalc065 Writing an equation of a circle given its center and a point on the circle
- pcalc066 Writing an equation of a circle given the endpoints of a diameter
- geom58 Scalar multiplication of a vector: Geometric Approach
- geom587 Vector addition: Geometric approach
- geom586 Vector addition and scalar multiplication: Component form
- pcalc060 Magnitude of a vector given in component form
- vector002 Finding the magnitude and direction of a vector given its graph
- vector005 Finding the components of a vector given its graph
B.8 Intermediate Algebra

Real Numbers

arith687 Fractional position on a number line
arith829 Reading decimal position on a number line: Tenths
arith830 Reading decimal position on a number line: Hundredths
alge286 Plotting integers on a number line
arith605 Plotting rational numbers on a number line
arith691 Ordering integers
arith016 Square root of a perfect square
arith763 Using a calculator to approximate a square root
arith602 Estimating a square root
arith712 Ordering real numbers
arith671 Absolute value of a number
arith200 Integer addition: Problem type 1
arith108 Integer addition: Problem type 2
arith688 Integer subtraction: Problem type 1
arith689 Integer subtraction: Problem type 2
arith690 Integer subtraction: Problem type 3
arith754 Addition and subtraction with 3 integers
arith755 Addition and subtraction with 4 or 5 integers
arith701 Word problem with addition or subtraction of integers
arith231 Integer multiplication and division
arith800 Multiplication of 3 or 4 integers
arith711 Division involving zero
alg001 Identifying numbers as integers or non-integers
alg002 Identifying numbers as rational or irrational
arith070 Least common multiple of 2 numbers
arith116 Signed fraction addition or subtraction: Basic
arith864 Signed fraction subtraction involving double negation
arith106 Signed fraction addition or subtraction: Advanced
arith811 Addition and subtraction of 3 fractions involving signs
arith822 Signed fraction multiplication: Basic
arith105 Signed fraction multiplication: Advanced
arith814 Signed fraction division
arith117 Signed decimal addition and subtraction
arith234 Signed decimal addition and subtraction with 3 numbers
arith750 Signed decimal multiplication
arith751 Signed decimal division
arith104 Operations with absolute value: Problem type 2
arith702 Exponents and integers: Problem type 1
arith703 Exponents and integers: Problem type 2
arith704 Exponents and signed fractions
arith118 Order of operations with integers
arith600 Order of operations with integers and exponents
alg005 Evaluating a linear expression: Integer multiplication with addition or subtraction
alg004 Evaluating a quadratic expression: Integers
alg808 Evaluating a linear expression: Signed fraction multiplication with addition or subtraction
alg302 Evaluating a linear expression: Signed decimal addition and subtraction
alg303 Evaluating a linear expression: Signed decimal multiplication with addition or subtraction
alg700 Combining like terms: Whole number coefficients
alg607 Combining like terms: Integer coefficients
arith655 Introduction to properties of addition
APPENDIX B. SYLLABI IN ALEKS

alge187 Properties of addition
alge310 Multiplying a constant and a linear monomial
alge606 Distributive property: Whole number coefficients
alge604 Distributive property: Integer coefficients
arith656 Introduction to properties of multiplication
alge188 Properties of real numbers
alge608 Using distribution and combining like terms to simplify: Univariate
alge609 Using distribution with double negation and combining like terms to simplify: Multivariate
geom300 Perimeter of a square or a rectangle
geom078 Sides of polygons having the same perimeter
geom019 Area of a square or a rectangle
geom620 Area of a rectangle involving fractions
geom340 Area of a piecewise rectangular figure
geom142 Word problem involving the area between two rectangles
geom801 Area of a triangle
geom022 Area of a parallelogram
geom023 Area of a trapezoid
geom016 Circumference of a circle
geom301 Perimeter involving rectangles and circles
geom802 Circumference and area of a circle
geom302 Area involving rectangles and circles
geom636 Word problem involving the area between two concentric circles
geom214 Area involving inscribed figures
geom311 Volume of a rectangular prism
geom090 Volume of a triangular prism
geom033 Volume of a pyramid
geom035 Volume of a cylinder
geom092 Word problem involving the rate of filling or emptying a cylinder
geom622 Volume of a cone
geom841 Volume of a sphere
geom031 Surface area of a cube or a rectangular prism
geom091 Surface area of a triangular prism
geom021 Surface area of a cylinder
geom042 Surface area of a sphere

Linear Equations and Inequalities

alge800 Additive property of equality with decimals
alge010 Additive property of equality with integers
alge836 Additive property of equality with signed fractions
alge088 Multiplicative property of equality with whole numbers
alge820 Multiplicative property of equality with fractions
alge825 Multiplicative property of equality with decimals
alge797 Multiplicative property of equality with integers
alge012 Multiplicative property of equality with signed fractions
alge834 Identifying solutions to a linear equation in one variable: Two-step equations
alge266 Additive property of equality with a negative coefficient
alge066 Solving a two-step equation with integers
alge200 Solving an equation to find the value of an expression
alge837 Solving a multi-step equation given in fractional form
alge986 Identifying properties used to solve a linear equation
alge824 Solving a two-step equation with signed decimals
alge862 Solving a linear equation with several occurrences of the variable: Variables on the same side
alge863 Solving a linear equation with several occurrences of the variable: Variables on both sides
alge011 Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
alge013 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
alge209 Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions
B.8. INTERMEDIATE ALGEBRA

alge420 Solving a linear equation with several occurrences of the variable: Fractional forms with monomial numerators
alge208 Solving a two-step equation with signed fractions
alge061 Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
alge179 Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators
alge742 Solving equations with zero, one, or infinitely many solutions
alge272 Solving a proportion of the form \( \frac{x}{a} = \frac{b}{c} \)
alge840 Solving a proportion of the form \( \frac{x+a}{b} = \frac{c}{d} \)
alge511 Solving for a variable in terms of other variables using addition or subtraction: Basic
alge512 Solving for a variable in terms of other variables using addition or subtraction: Advanced
alge513 Solving for a variable in terms of other variables using multiplication or division: Basic
alge514 Solving for a variable in terms of other variables using multiplication or division: Advanced
alge517 Solving for a variable in terms of other variables using addition or subtraction with division
alge518 Solving for a variable inside parentheses in terms of other variables
alge507 Solving for a variable in terms of other variables in a linear equation with fractions
mstat065 Converting between temperatures in Fahrenheit and Celsius
alge733 Writing a one-step expression for a real-world situation
alge831 Translating a phrase into a one-step expression
alge291 Translating a phrase into a two-step expression
alge016 Translating a sentence into a one-step equation
alge841 Translating a sentence into a multi-step equation
alge802 Solving a fraction word problem using a linear equation of the form \( Ax = B \)
alge014 Solving a word problem with two unknowns using a linear equation
alge173 Solving a decimal word problem using a linear equation of the form \( Ax + B = C \)
alge219 Solving a decimal word problem using a linear equation with the variable on both sides
alge704 Solving a fraction word problem using a linear equation with the variable on both sides
alge792 Solving a word problem with three unknowns using a linear equation
alge842 Solving a word problem involving consecutive integers
alge730 Writing a multi-step equation for a real-world situation
alge794 Solving a value mixture problem using a linear equation
arith228 Word problem on unit rates associated with ratios of whole numbers: Decimal answers
alge823 Solving a one-step word problem using the formula \( d = rt \)
alge218 Solving a word problem involving rates and time conversion
alge796 Solving a distance, rate, time problem using a linear equation
geom217 Finding the side length of a rectangle given its perimeter or area
geom817 Finding a side length given the perimeter and side lengths with variables
geom143 Finding the perimeter or area of a rectangle given one of these values
geom838 Circumference ratios
geom530 Solving equations involving vertical angles
geom623 Finding angle measures of a triangle given angles with variables
geom502 Finding angle measures of a right or isosceles triangle given angles with variables
stat803 Finding the value for a new score that will yield a given mean
mstat049 Computing a percentage from a table of values
arith852 Finding the multiplier to give a final amount after a percentage increase or decrease
arith851 Finding the final amount given the original amount and a percentage increase or decrease
arith847 Finding the sale price given the original price and percent discount
arith074 Finding the sale price without a calculator given the original price and percent discount
arith848 Finding the total cost including tax or markup
arith855 Finding the original amount given the result of a percentage increase or decrease
arith831 Finding the original price given the sale price and percent discount
arith858 Finding the percentage increase or decrease: Basic
arith225 Finding the percentage increase or decrease: Advanced
arith854 Computing a percent mixture
alge795 Solving a percent mixture problem using a linear equation
arith856 Finding a percentage of a total amount in a circle graph
stat801 Computations from a circle graph
arith232 Finding simple interest without a calculator
alge015 Translating a sentence by using an inequality symbol
alge845 Translating a sentence into a one-step inequality
alge846 Translating a sentence into a multi-step inequality
APPENDIX B. SYLLABI IN ALEKS

alge748 Writing an inequality for a real-world situation
alge017 Graphing a linear inequality on the number line
alge822 Writing an inequality given a graph on the number line
alge186 Translating a sentence into a compound inequality
alge166 Graphing a compound inequality on the number line
alge847 Writing a compound inequality given a graph on the number line
set001 Set builder notation
set004 Set builder and interval notation
set002 Union and intersection of finite sets
set005 Union and intersection of intervals
alge844 Identifying solutions to a two-step linear inequality in one variable
alge848 Additive property of inequality with whole numbers
alge849 Additive property of inequality with integers
alge852 Additive property of inequality with signed fractions
alge853 Additive property of inequality with signed decimals
alge854 Multiplicative property of inequality with integers
alge964 Multiplicative property of inequality with signed fractions
alge855 Solving a two-step linear inequality: Problem type 1
alge856 Solving a two-step linear inequality: Problem type 2
alge857 Solving a two-step linear inequality with a fractional coefficient
alge977 Solving a linear inequality with multiple occurrences of the variable: Problem type 1
alge858 Solving a linear inequality with multiple occurrences of the variable: Problem type 2
alge859 Solving a linear inequality with multiple occurrences of the variable: Problem type 3
alge860 Solving inequalities with no solution or all real numbers as solutions
alge746 Solving a compound linear inequality: Graph solution, basic
alge747 Solving a compound linear inequality: Interval notation
alge749 Solving a decimal word problem using a two-step linear inequality
alge750 Solving a decimal word problem using a linear inequality with the variable on both sides
alge603 Introduction to solving an absolute value equation
alge864 Solving an absolute value equation: Problem type 1
alge865 Solving an absolute value equation: Problem type 2
alge866 Solving an absolute value equation: Problem type 3
alge867 Solving an absolute value equation: Problem type 4
alge167 Solving an absolute value equation of the form $—ax+b— = —cx+d—$
alge868 Solving an absolute value inequality: Problem type 1
alge943 Writing an absolute value inequality given a graph on the number line
alge869 Solving an absolute value inequality: Problem type 2
alge870 Solving an absolute value inequality: Problem type 3
alge871 Solving an absolute value inequality: Problem type 4
alge872 Solving an absolute value inequality: Problem type 5

Lines and Functions

alge064 Reading a point in the coordinate plane
alge067 Plotting a point in the coordinate plane
alge850 Table for a linear equation
alge873 Identifying solutions to a linear equation in two variables
alge066 Finding a solution to a linear equation in two variables
alge877 Graphing a linear equation of the form $y = mx$
alge878 Graphing a line given its equation in slope-intercept form: Integer slope
alge879 Graphing a line given its equation in slope-intercept form: Fractional slope
alge880 Graphing a line given its equation in standard form
alge198 Graphing a vertical or horizontal line
alge884 Finding $x$- and $y$-intercepts given the graph of a line on a grid
alge924 Finding $x$- and $y$-intercepts of a line given the equation: Basic
alge210 Finding $x$- and $y$-intercepts of a line given the equation: Advanced
alge197 Graphing a line given its $x$- and $y$-intercepts
alge881 Graphing a line by first finding its $x$- and $y$-intercepts
alge875 Classifying slopes given graphs of lines
alge886 Finding slope given the graph of a line on a grid
B.8. INTERMEDIATE ALGEBRA

alge887 Finding slope given two points on the line
alge885 Finding the slope of horizontal and vertical lines
alge888 Finding the coordinate that yields a given slope
alge259 Graphing a line given its slope and y-intercept
alge196 Graphing a line through a given point with a given slope
alge876 Identifying linear equations: Advanced
alge874 Identifying linear functions given ordered pairs
alge891 Rewriting a linear equation in the form $Ax + By = C$
alge889 Finding the slope and y-intercept of a line given its equation in the form $y = mx + b$
alge890 Finding the slope and y-intercept of a line given its equation in the form $Ax + By = C$
alge882 Graphing a line by first finding its slope and y-intercept
alge258 Writing an equation of a line given its slope and y-intercept
alge892 Writing an equation and graphing a line given its slope and y-intercept
alge893 Writing an equation in slope-intercept form given the slope and a point
alge883 Graphing a line given its equation in point-slope form
alge894 Writing an equation in point-slope form given the slope and a point
alge070 Writing an equation of a line given the y-intercept and another point
alge072 Writing the equation of the line through two given points
alge073 Writing the equations of vertical and horizontal lines through a given point
geom806 Finding slopes of lines parallel and perpendicular to a line given in slope-intercept form
geom807 Finding slopes of lines parallel and perpendicular to a line given in the form $Ax + By = C$
alge895 Identifying parallel and perpendicular lines from equations
geom808 Writing equations of lines parallel and perpendicular to a given line through a point
alge897 Writing and evaluating a function that models a real-world situation: Advanced
alge701 Writing an equation and drawing its graph to model a real-world situation: Advanced
alge992 Combining functions to write a new function that models a real-world situation
alge987 Comparing properties of linear functions given in different forms
alge989 Interpreting the parameters of a linear function that models a real-world situation
alge805 Application problem with a linear function: Finding a coordinate given the slope and a point
alge806 Application problem with a linear function: Finding a coordinate given two points
mstat052 Identifying independent and dependent variables from equations or real-world situations
alge991 Solving a linear equation by graphing
mstat030 Sketching the line of best fit
mstat023 Scatter plots and correlation
mstat068 Predictions from the line of best fit
mstat067 Approximating the equation of a line of best fit and making predictions
fun032 Identifying functions from relations
fun010 Vertical line test
fun016 Domain and range from ordered pairs
fun001 Table for a linear function
pcalc760 Evaluating functions: Linear and quadratic or cubic
fun030 Evaluating a piecewise-defined function
fun033 Variable expressions as inputs of functions: Problem type 1
alge294 Finding outputs of a one-step function that models a real-world situation: Function notation
alge295 Finding outputs of a two-step function with decimals that models a real-world situation: Function notation
alge296 Finding inputs and outputs of a two-step function that models a real-world situation: Function notation
alge990 Domain and range of a linear function that models a real-world situation
fun026 Finding an output of a function from its graph
pcalc761 Finding inputs and outputs of a function from its graph
fun007 Domain and range from the graph of a discrete relation
fun024 Domain and range from the graph of a continuous function
fun025 Domain and range from the graph of a piecewise function
pcalc750 Finding intercepts of a nonlinear function given its graph
pcalc751 Finding where a function is increasing, decreasing, or constant given the graph: Interval notation
pcalc752 Finding local maxima and minima of a function given the graph
mstat018 Choosing a graph to fit a narrative: Basic
mstat051 Choosing a graph to fit a narrative: Advanced
alge896 Graphing an integer function and finding its range for a given domain
alge570 Graphing a function of the form $f(x) = ax + b$: Integer slope
alge571 Graphing a function of the form $f(x) = ax + b$: Fractional slope
alge913 Graphing an absolute value equation of the form $y = A−x$—
APPENDIX B. SYLLABI IN ALEKS

alge954 Graphing a parabola of the form \( y = ax^2 \)
alge955 Graphing a parabola of the form \( y = ax^2 + c \)
alge572 Graphing a function of the form \( f(x) = ax^2 \)
alge573 Graphing a function of the form \( f(x) = ax^2 + c \)
alge262 Graphing a cubic function of the form \( y = ax^3 \)
fun031 Graphing a piecewise-defined function: Problem type 1

Systems of Linear Equations

alge914 Identifying solutions to a system of linear equations
alge075 Classifying systems of linear equations from graphs
alge725 Graphically solving a system of linear equations
alge751 Solving a system of linear equations using substitution
alge915 Solving a system of linear equations using elimination with addition
alge076 Solving a system of linear equations using elimination with multiplication and addition
alge916 Solving a system of linear equations with fractional coefficients
alge917 Solving a system of linear equations with decimal coefficients
alge752 Solving a 2x2 system of linear equations that is inconsistent or consistent dependent
alge077 Creating an inconsistent system of linear equations
alge988 Identifying the operations used to create equivalent systems of equations
alge753 Solving a 3x3 system of linear equations: Problem type 1
alge263 Interpreting the graphs of two functions
alge078 Solving a word problem involving a sum and another basic relationship using a system of linear equations
alge919 Solving a word problem using a system of linear equations of the form \( Ax + By = C \)
alge918 Solving a word problem using a system of linear equations of the form \( y = mx + b \)
alge184 Solving a value mixture problem using a system of linear equations
alge192 Solving a percent mixture problem using a system of linear equations
alge224 Solving a distance, rate, time problem using a system of linear equations
alge172 Solving a tax rate or interest rate problem using a system of linear equations
alge703 Solving a word problem using a 3x3 system of linear equations: Problem type 1
alge912 Identifying solutions to a linear inequality in two variables
alge225 Graphing a linear inequality in the plane: Vertical or horizontal line
alge720 Graphing a linear inequality in the plane: Slope-intercept form
alge018 Graphing a linear inequality in the plane: Standard form
alge079 Graphing a system of two linear inequalities: Basic
alge921 Graphing a system of two linear inequalities: Advanced
alge729 Writing a multi-step inequality for a real-world situation
pcalc093 Solving a word problem using a system of linear inequalities: Problem type 1
pcalc095 Linear programming
pcalc094 Solving a word problem using linear programming
pcalc037 Scalar multiplication of a matrix
pcalc038 Addition or subtraction of matrices
pcalc740 Linear combination of matrices
pcalc042 Finding the determinant of a 2x2 matrix
pcalc043 Finding the determinant of a 3x3 matrix
pcalc045 Using Cramer's rule to solve a 2x2 system of linear equations
pcalc047 Using Cramer's rule to solve a 3x3 system of linear equations
pcalc712 Gauss-Jordan elimination with a 2x2 matrix
pcalc046 Solving a system of linear equations given its augmented matrix

Exponents and Polynomials

alge821 Understanding the product rule of exponents
alge624 Introduction to the product rule of exponents
alge311 Product rule with positive exponents: Univariate
alge030 Product rule with positive exponents: Multivariate
arith029 Ordering numbers with positive exponents
Factoring Polynomials

- arith034 Prime numbers
- arith035 Prime factorization
- arith033 Greatest common factor of 2 numbers
- alge605 Factoring a linear binomial
- alge736 Introduction to the GCF of two monomials
- alge930 Greatest common factor of three univariate monomials
- alge037 Greatest common factor of two multivariate monomials
- alge738 Factoring out a monomial from a polynomial: Univariate
- alge739 Factoring out a monomial from a polynomial: Multivariate
- alge949 Factoring out a binomial from a polynomial: GCF factoring, basic
- alge923 Factoring a univariate polynomial by grouping: Problem type 1
- alge950 Factoring a univariate polynomial by grouping: Problem type 2
- alge951 Factoring a multivariate polynomial by grouping: Problem type 1
- alge952 Factoring a multivariate polynomial by grouping: Problem type 2
- alge039 Factoring a quadratic with leading coefficient 1
- alge942 Factoring a quadratic in two variables with leading coefficient 1
- alge937 Factoring a quadratic with leading coefficient greater than 1: Problem type 1
- alge940 Factoring a quadratic with leading coefficient greater than 1: Problem type 2
- alge941 Factoring a quadratic with leading coefficient greater than 1: Problem type 3
- alge978 Factoring a quadratic by the ac-method
- alge265 Factoring a quadratic in two variables with leading coefficient greater than 1
- alge944 Factoring a perfect square trinomial with leading coefficient 1
- alge945 Factoring a perfect square trinomial with leading coefficient greater than 1
- alge946 Factoring a perfect square trinomial in two variables
- alge290 Factoring a difference of squares in one variable: Basic
- alge947 Factoring a difference of squares in one variable: Advanced
- alge839 Factoring a difference of squares in two variables
- alge948 Factoring a polynomial involving a GCF and a difference of squares: Univariate
- alge833 Factoring a polynomial involving a GCF and a difference of squares: Multivariate
- alge041 Factoring a product of a quadratic trinomial and a monomial
- alge042 Factoring with repeated use of the difference of squares formula
- alge044 Factoring a sum or difference of two cubes
- alge681 Solving an equation written in factored form
- alge956 Finding the roots of a quadratic equation of the form $ax^2 + bx = 0$
- alge045 Finding the roots of a quadratic equation with leading coefficient 1
- alge048 Finding the roots of a quadratic equation with leading coefficient greater than 1
- alge211 Solving a quadratic equation needing simplification
- alge703 Solving a word problem using a quadratic equation with rational roots
- alge160 Roots of a product of polynomials
- alge163 Writing a quadratic equation given the roots and the leading coefficient
- alge407 Introduction to the Pythagorean Theorem
- geom044 Pythagorean Theorem
- alge408 Word problem involving the Pythagorean Theorem
- alge713 Using the Pythagorean Theorem and a quadratic equation to find side lengths of a right triangle

Rational Expressions

- alge049 Restriction on a variable in a denominator: Linear
- alge467 Restriction on a variable in a denominator: Quadratic
- alge408 Evaluating a rational function: Problem type 1
- alge469 Evaluating a rational function: Problem type 2
- alge715 Domain of a rational function: Excluded values
- alge454 Simplifying a ratio of factored polynomials: Linear factors
- alge455 Simplifying a ratio of factored polynomials: Factors with exponents
- alge456 Simplifying a ratio of polynomials using GCF factoring
B.8. INTERMEDIATE ALGEBRA

alge457 Simplifying a ratio of linear polynomials: 1, -1, and no simplification
alge458 Simplifying a ratio of polynomials by factoring a quadratic with leading coefficient 1
alge710 Simplifying a ratio of polynomials: Problem type 1
alge682 Simplifying a ratio of polynomials: Problem type 2
alge459 Simplifying a ratio of polynomials: Problem type 3
alge604 Simplifying a ratio of multivariate polynomials
alge053 Multiplying rational expressions involving multivariate monomials
alge460 Multiplying rational expressions made up of linear expressions
alge620 Multiplying rational expressions involving quadratics with leading coefficients of 1
alge461 Multiplying rational expressions involving quadratics with leading coefficients greater than 1
alge462 Multiplying rational expressions involving multivariate quadratics
alge054 Dividing rational expressions involving multivariate monomials
alge463 Dividing rational expressions involving linear expressions
alge766 Dividing rational expressions involving quadratics with leading coefficients of 1
alge464 Dividing rational expressions involving quadratics with leading coefficients greater than 1
alge465 Dividing rational expressions involving multivariate quadratics
alge466 Multiplication and division of 3 rational expressions
alge737 Introduction to the LCM of two monomials
alge055 Least common multiple of two monomials
alge227 Finding the LCD of rational expressions with linear denominators: Relatively prime
alge228 Finding the LCD of rational expressions with linear denominators: Common factors
alge229 Finding the LCD of rational expressions with quadratic denominators
alge430 Writing equivalent rational expressions with monomial denominators
alge431 Writing equivalent rational expressions with polynomial denominators
alge432 Writing equivalent rational expressions involving opposite factors
alge433 Adding rational expressions with common denominators and monomial denominators
alge434 Adding rational expressions with common denominators and GCF factoring
alge435 Adding rational expressions with common denominators and quadratic factoring
alge436 Adding rational expressions with different denominators and a single occurrence of a variable
alge437 Adding rational expressions with denominators ax and bx: Basic
alge438 Adding rational expressions with denominators ax and bx: Advanced
alge439 Adding rational expressions with denominators ax^2 and bx^2
alge440 Adding rational expressions with multivariate monomial denominators: Basic
alge226 Adding rational expressions with multivariate monomial denominators: Advanced
alge441 Adding rational expressions with linear denominators without common factors: Basic
alge442 Adding rational expressions with linear denominators without common factors: Advanced
alge443 Adding rational expressions with linear denominators with common factors: Basic
alge444 Adding rational expressions with linear denominators with common factors: Advanced
alge445 Adding rational expressions with denominators ax-b and b-ax
alge661 Adding rational expressions involving different quadratic denominators
alge446 Adding 3 rational expressions with different quadratic denominators
arth695 Complex fraction without variables: Problem type 1
arth696 Complex fraction without variables: Problem type 2
alge470 Complex fraction involving univariate monomials
alge058 Complex fraction involving multivariate monomials
alge471 Complex fraction: GCF factoring
alge472 Complex fraction: Quadratic factoring
alge473 Complex fraction made of sums involving rational expressions: Problem type 1
alge474 Complex fraction made of sums involving rational expressions: Problem type 2
alge475 Complex fraction made of sums involving rational expressions: Problem type 3
alge476 Complex fraction made of sums involving rational expressions: Problem type 4
alge477 Complex fraction made of sums involving rational expressions: Problem type 5
alge478 Complex fraction made of sums involving rational expressions: Problem type 6
alge479 Complex fraction made of sums involving rational expressions: Multivariate
alge480 Complex fraction with negative exponents: Problem type 1
alge481 Complex fraction with negative exponents: Problem type 2
alge162 Complex fraction that contains a complex fraction
alge271 Solving a proportion of the form a/(x+b) = c/x
alge060 Solving a rational equation that simplifies to linear: Denominator x
alge205 Solving a rational equation that simplifies to linear: Denominator x+a
APPENDIX B. SYLLABI IN ALEKS

alge769 Solving a rational equation that simplifies to linear: Denominators a, x, or ax
alge421 Solving a rational equation that simplifies to linear: Denominators ax and bx
alge422 Solving a rational equation that simplifies to linear: Like binomial denominators
alge206 Solving a rational equation that simplifies to linear: Unlike binomial denominators
alge423 Solving a rational equation that simplifies to linear: Factorable quadratic denominator
alge424 Solving a rational equation that simplifies to quadratic: Proportional form, basic
alge425 Solving a rational equation that simplifies to quadratic: Denominator x
alge212 Solving a rational equation that simplifies to quadratic: Binomial denominators, constant numerators
alge062 Solving a rational equation that simplifies to quadratic: Binomial denominators and numerators
alge426 Solving a rational equation that simplifies to quadratic: Factorable quadratic denominator
alge047 Solving for a variable in terms of other variables in a rational equation: Problem type 1
alge508 Solving for a variable in terms of other variables in a rational equation: Problem type 2
alge509 Solving for a variable in terms of other variables in a rational equation: Problem type 3
arinh610 Word problem on proportions: Problem type 1
arinh611 Word problem on proportions: Problem type 2
gem037 Similar polygons
gem038 Similar right triangles
gem037 Indirect measurement
gem033 Ratio of volumes
arinh612 Word problem involving multiple rates
alge770 Solving a word problem using a rational equation
alge450 Solving a distance, rate, time problem using a rational equation
alge059 Ordering fractions with variables
alge982 Identifying direct variation equations
alge938 Identifying direct variation from ordered pairs and writing equations
alge904 Writing a direct variation equation
alge175 Word problem on direct variation
alge828 Interpreting direct variation from a graph
alge905 Writing an inverse variation equation
alge903 Identifying direct and inverse variation equations
alge902 Identifying direct and inverse variation from ordered pairs and writing equations
alge176 Word problem on inverse variation
alge220 Word problem on inverse proportions
pcalc681 Writing an equation that models variation
alge772 Word problem on combined variation
pcalc917 Finding the asymptotes of a rational function: Constant over linear
pcalc918 Finding the asymptotes of a rational function: Linear over linear
alge515 Graphing a rational function: Constant over linear
alge516 Graphing a rational function: Linear over linear

Radicals

alge413 Finding all square roots of a number
arith601 Square root of a rational perfect square
arith760 Square roots of perfect squares with signs
arith761 Square roots of integers raised to even exponents
alge415 Introduction to simplifying a radical expression with an even exponent
alge264 Square root of a perfect square monomial
alge547 Using absolute value to simplify square roots of perfect square monomials
arith094 Cube root of an integer
alge549 Finding nth roots of perfect nth powers with signs
arith768 Finding the nth root of a perfect nth power fraction
alge550 Finding the nth root of a perfect nth power monomial
alge538 Using absolute value to simplify higher radical expressions
alge539 Table for a square root function
alge546 Evaluating a cube root function
alge540 Domain of a square root function: Basic
pcalc763 Domain of a square root function: Advanced
alge547 Domains of higher root functions
B.8. INTERMEDIATE ALGEBRA

alge543 Graphing a square root function: Problem type 1
alge544 Graphing a square root function: Problem type 2
alge545 Graphing a square root function: Problem type 3
alge548 Graphing a cube root function
alge812 Converting between radical form and exponent form
alge560 Rational exponents: Unit fraction exponents and whole number bases
alge561 Rational exponents: Unit fraction exponents and bases involving signs
alge250 Rational exponents: Non-unit fraction exponent with a whole number base
alge251 Rational exponents: Negative exponents and fractional bases
alge558 Rational exponents: Product rule
alge559 Rational exponents: Quotient rule
alge773 Rational exponents: Products and quotients with negative exponents
alge562 Rational exponents: Power of a power rule
alge249 Rational exponents: Powers of powers with negative exponents
arith093 Simplifying the square root of a whole number less than 100
arith762 Simplifying the square root of a whole number greater than 100
alge566 Simplifying a radical expression with an even exponent
alge567 Simplifying a radical expression with an odd exponent
alge520 Simplifying a radical expression with an even exponent
alge521 Simplifying a radical expression with an odd exponent
alge275 Simplifying a radical expression with two variables
alge273 Simplifying a higher root of a whole number
alge551 Introduction to simplifying a higher radical expression
alge552 Simplifying a higher radical expression: Univariate
alge811 Simplifying a higher radical expression: Multivariate
arith767 Introduction to square root addition or subtraction
arith832 Square root addition or subtraction with three terms
alge531 Introduction to simplifying a sum or difference of radical expressions: Univariate
alge532 Simplifying a sum or difference of radical expressions: Univariate
alge554 Simplifying a sum or difference of higher roots
alge555 Simplifying a sum or difference of higher radical expressions
arith764 Introduction to square root multiplication
arith765 Square root multiplication: Basic
arith766 Square root multiplication: Advanced
alge522 Introduction to simplifying a product of radical expressions: Univariate
alge523 Simplifying a product of radical expressions: Univariate
alge640 Simplifying a product of radical expressions: Multivariate
alge818 Simplifying a product of radical expressions: Multivariate, fractional expressions
alge556 Introduction to simplifying a product of higher roots
alge557 Simplifying a product of higher radical expressions
alge525 Introduction to simplifying a product involving square roots using the distributive property
alge526 Simplifying a product involving square roots using the distributive property: Basic
alge527 Simplifying a product involving square roots using the distributive property: Advanced
alge774 Special products of radical expressions: Conjugates and squaring
alge984 Classifying sums and products as rational or irrational
arith766 Simplifying a quotient of square roots
alge530 Simplifying a quotient involving a sum or difference with a square root
alge527 Rationalizing a denominator: Quotient involving square roots
alge528 Rationalizing a denominator: Square root of a fraction
alge529 Rationalizing a denominator: Quotient involving a monomial
alge534 Rationalizing a denominator using conjugates: Integer numerator
alge545 Rationalizing a denominator using conjugates: Square root in numerator
alge536 Rationalizing a denominator using conjugates: Variable in denominator
alge564 Rationalizing a denominator: Quotient involving a higher radical
alge775 Rationalizing a denominator: Quotient involving higher radicals and monomials
alge563 Simplifying products or quotients of higher radicals with different indices: Univariate
alge776 Simplifying products or quotients of higher radicals with different indices: Multivariate
alge400 Introduction to solving a radical equation
alge569 Solving a radical equation that simplifies to a linear equation: One radical, basic
alge402 Solving a radical equation that simplifies to a linear equation: One radical, advanced
alge569 Solving a radical equation that simplifies to a linear equation: Two radicals
APPENDIX B. SYLLABI IN ALEKS

alge405 Solving a radical equation with two radicals that simplifies to $\sqrt{x} = a$
alge403 Solving a radical equation that simplifies to a quadratic equation: One radical, basic
alge404 Solving a radical equation that simplifies to a quadratic equation: One radical, advanced
alge411 Solving a radical equation with a quadratic expression under the radical
alge182 Solving a radical equation that simplifies to a quadratic equation: Two radicals
alge412 Algebraic symbol manipulation with radicals
alge542 Word problem involving radical equations: Basic
alge409 Word problem involving radical equations: Advanced
alge410 Solving an equation with a root index greater than 2: Problem type 1
alge417 Solving an equation with a root index greater than 2: Problem type 2
alge418 Solving an equation with an exponent $1/a$: Problem type 1
alge416 Solving an equation with an exponent $1/a$: Problem type 2
alge778 Using $i$ to rewrite square roots of negative numbers
alge779 Simplifying a product and quotient involving square roots of negative numbers
pcalc048 Adding or subtracting complex numbers
pcalc049 Multiplying complex numbers
pcalc050 Dividing complex numbers
pcalc053 Simplifying a power of $i$

Quadratic Equations and Functions

alge962 Solving an equation of the form $x^2 = a$ using the square root property
alge092 Solving a quadratic equation using the square root property: Exact answers, basic
alge227 Solving a quadratic equation using the square root property: Exact answers, advanced
alge094 Completing the square
alge780 Solving a quadratic equation by completing the square: Exact answers
alge095 Applying the quadratic formula: Exact answers
alge963 Applying the quadratic formula: Decimal answers
pcalc051 Solving a quadratic equation with complex roots
alge214 Discriminant of a quadratic equation
alge193 Discriminant of a quadratic equation with parameter
alge524 Solving a word problem using a quadratic equation with irrational roots
alge093 Solving an equation using the odd-root property: Problem type 1
alge228 Solving an equation using the odd-root property: Problem type 2
alge781 Solving an equation that can be written in quadratic form: Problem type 1
alge782 Solving an equation that can be written in quadratic form: Problem type 2
alge230 Solving an equation with positive rational exponent
alge231 Solving an equation with negative rational exponent
alge974 Finding the vertex, x-intercepts, and axis of symmetry from the graph of a parabola
alge253 Graphing a parabola of the form $y = (x-h)^2 + k$
alge569 Graphing a parabola of the form $y = x^2 + bx + c$
pcalc746 Graphing a parabola of the form $y = ax^2 + bx + c$: Integer coefficients
pcalc747 Graphing a parabola of the form $y = ax^2 + bx + c$: Rational coefficients
alge277 Finding the x-intercept(s) and the vertex of a parabola
pcalc793 Using a graphing calculator to find the x-intercept(s) and vertex of a quadratic function
pcalc774 Rewriting a quadratic function to find the vertex of its graph
pcalc775 Finding the maximum or minimum of a quadratic function
alge785 Word problem involving the maximum or minimum of a quadratic function
alge975 Domain and range from the graph of a parabola
pcalc762 Range of a quadratic function
pcalc680 Writing the equation of a quadratic function given its graph
alge957 Solving a quadratic equation by graphing
alge996 Comparing properties of quadratic functions given in different forms
alge702 Classifying the graph of a function
alge723 How the leading coefficient affects the shape of a parabola
alge784 Solving a quadratic inequality written in factored form
alge771 Solving a quadratic inequality
pcalc676 Solving a polynomial inequality
alge783 Solving a rational inequality: Problem type 1
pcalc677 Solving a rational inequality: Problem type 2
B.8. INTERMEDIATE ALGEBRA

Function Operations and Inverses

- alge953 Translating the graph of a parabola: One step
- alge898 Translating the graph of an absolute value function: One step
- alge899 Translating the graph of an absolute value function: Two steps
- alge900 Graphing an absolute value equation in the plane: Basic
- alge168 Graphing an absolute value equation in the plane: Advanced
- alge901 How the leading coefficient affects the graph of an absolute value function
- alge185 Writing an equation for a function after a vertical translation
- fun020 Writing an equation for a function after a vertical and horizontal translation
- fun019 Sum, difference, and product of two functions
- alge786 Quotient of two functions: Basic
- pcalc756 Combining functions: Advanced
- fun022 Composition of two functions: Basic
- pcalc776 Expressing a function as a composition of two functions
- fun021 Composition of two functions: Domain and range
- alge129 Composition of two functions: Advanced
- pcalc924 Determining whether an equation defines a function: Basic
- pcalc757 Determining whether an equation defines a function: Advanced
- fun011 Horizontal line test
- pcalc777 Determining whether two functions are inverses of each other
- fun012 Inverse functions: Linear, discrete
- alge130 Inverse functions: Rational
- pcalc778 Inverse functions: Quadratic, cubic, radical

Exponential and Logarithmic Functions

- alge971 Table for an exponential function
- alge969 Graphing an exponential function: \( f(x) = ax \)
- alge970 Graphing an exponential function: \( f(x) = a(b)x \)
- alge712 Graphing an exponential function and its asymptote: \( f(x) = a(b)x \)
- pcalc922 Translating the graph of an exponential function
- pcalc797 The graph, domain, and range of an exponential function
- pcalc103 Graphing an exponential function and its asymptote: \( f(x) = a(e)x-b + c \)
- alge830 Evaluating an exponential function that models a real-world situation
- pcalc919 Evaluating an exponential function with base \( e \) that models a real-world situation
- arith853 Introduction to compound interest
- alge177 Finding a final amount in a word problem on exponential growth or decay
- alge741 Finding the final amount in a word problem on compound interest
- alge946 Finding the initial amount and rate of change given an exponential function
- alge968 Writing an equation that models exponential growth or decay
- alge967 Writing an exponential function rule given a table of ordered pairs
- alge993 Comparing linear, polynomial, and exponential functions
- alge108 Converting between logarithmic and exponential equations
- pcalc799 Converting between natural logarithmic and exponential equations
- alge232 Evaluating a logarithmic expression
- alge233 Solving an equation of the form \( \log_b a = c \)
- pcalc923 Translating the graph of a logarithmic function
- alge788 Graphing a logarithmic function: Basic
- pcalc800 The graph, domain, and range of a logarithmic function
- pcalc104 Graphing a logarithmic function: Advanced
- pcalc708 Basic properties of logarithms
- pcalc779 Expanding a logarithmic expression: Problem type 1
- pcalc780 Expanding a logarithmic expression: Problem type 2
- alge787 Writing an expression as a single logarithm
- pcalc612 Change of base for logarithms: Problem type 1
- pcalc613 Change of base for logarithms: Problem type 2
- pcalc803 Solving a multi-step equation involving a single logarithm
- pcalc804 Solving a multi-step equation involving natural logarithms
APPENDIX B. SYLLABI IN ALEKS

alge113 Solving an equation involving logarithms on both sides: Problem type 1
pcalc805 Solving an equation involving logarithms on both sides: Problem type 2
alge301 Solving an exponential equation by finding common bases: Linear exponents
alge482 Solving an exponential equation by finding common bases: Linear and quadratic exponents
pcalc920 Solving an exponential equation by using logarithms: Decimal answers, basic
pcalc921 Solving an exponential equation by using natural logarithms: Decimal answers
alge111 Solving an exponential equation by using logarithms: Exact answers in logarithmic form
pcalc806 Using a graphing calculator to solve an exponential or logarithmic equation
alge178 Finding the time to reach a limit in a word problem on exponential growth or decay
pcalc614 Finding the initial or final amount in a word problem on exponential growth or decay
pcalc615 Finding the rate or time in a word problem on continuous exponential growth or decay

Conic Sections and Sequences

alge191 Midpoint of a line segment in the plane
alge414 Finding an endpoint of a line segment given the other endpoint and the midpoint
alge132 Distance between two points in the plane: Exact answers
pcalc067 Graphing a parabola of the form \( ay^2 + by + cx + d = 0 \) or \( ax^2 + bx + cy + d = 0 \)
pcalc068 Writing an equation of a parabola given the vertex and the focus
pcalc069 Finding the focus of a parabola of the form \( ay^2 + by + cx + d = 0 \) or \( ax^2 + bx + cy + d = 0 \)
pcalc065 Graphing a circle given its equation in standard form
pcalc129 Graphing a circle given its equation in general form: Basic
pcalc128 Graphing a circle given its equation in general form: Advanced
pcalc605 Writing an equation of a circle given its center and a point on the circle
pcalc066 Writing an equation of a circle given the endpoints of a diameter
pcalc734 Graphing an ellipse given its equation in standard form
pcalc070 Graphing an ellipse centered at the origin: \( Ax^2 + By^2 = C \)
pcalc071 Graphing an ellipse given its equation in general form
pcalc075 Graphing a hyperbola centered at the origin: \( Ax^2 - By^2 = C \)
pcalc076 Graphing a hyperbola given its equation in general form
pcalc073 Graphing a hyperbola given its equation in standard form
pcalc736 Classifying conics given their equations
alge994 Graphically solving a system of linear and quadratic equations
pcalc796 Using a graphing calculator to solve a system of equations
alge995 Solving a system of linear and quadratic equations
pcalc098 Solving a system of nonlinear equations: Problem type 1
pcalc748 Graphing a quadratic inequality: Problem type 1
pcalc749 Graphing a quadratic inequality: Problem type 2
pcalc996 Graphing a system of nonlinear inequalities: Problem type 1
pcalc997 Graphing a system of nonlinear inequalities: Problem type 2
alge934 Finding a specified term of a geometric sequence given the first two terms of the sequence
alge645 Finding the first terms of a geometric sequence using an explicit rule
pcalc080 Finding the first terms of a sequence using an explicit rule with multiple occurrences of \( n \)
alge606 Finding the next terms of an arithmetic sequence with integers
alge908 Finding the first terms of a sequence using a recursive rule
alge979 Identifying arithmetic sequences and finding the common difference
alge931 Finding a specified term of an arithmetic sequence given the first terms
pcalc085 Finding a specified term of an arithmetic sequence given the common difference and first term
pcalc715 Finding a specified term of an arithmetic sequence given two terms of the sequence
alge609 Writing an explicit rule for an arithmetic sequence
alge910 Writing a recursive rule for an arithmetic sequence
pcalc718 Sum of the first \( n \) terms of an arithmetic sequence
alge907 Finding the next terms of a geometric sequence with signed numbers
alge981 Identifying arithmetic and geometric sequences
alge980 Identifying geometric sequences and finding the common ratio
alge934 Finding a specified term of a geometric sequence given the first terms
pcalc988 Finding a specified term of a geometric sequence given the common ratio and first term
pcalc717 Finding a specified term of a geometric sequence given two terms of the sequence
pcalc713 Arithmetic and geometric sequences: Identifying and writing an explicit rule
alge911 Writing recursive rules for arithmetic and geometric sequences
B.9 Beginning and Intermediate Algebra Combined

Arithmetic Readiness

arith692 Writing expressions using exponents
arith233 Introduction to exponents
arith683 Power of 10: Positive exponent
arith648 Order of operations with whole numbers
arith651 Order of operations with whole numbers and grouping symbols
arith693 Order of operations with whole numbers and exponents: Basic
arith713 Order of operations with whole numbers and exponents: Advanced
alge285 Evaluating an algebraic expression: Whole numbers with two operations
alge832 Evaluating an algebraic expression: Whole number operations and exponents
arith560 Factors
arith634 Prime numbers
arith635 Prime factorization
arith633 Greatest common factor of 2 numbers
arith670 Least common multiple of 2 numbers
arith804 Least common multiple of 3 numbers
arith240 Word problem with common multiples
arith664 Solving a word problem on proportions using a unit rate
arith212 Equivalent fractions
arith667 Simplifying a fraction
arith618 Addition or subtraction of fractions with the same denominator
arith802 Addition or subtraction of fractions with the same denominator and simplification
arith801 Finding the LCD of two fractions
arith666 Introduction to addition or subtraction of fractions with different denominators
arith230 Addition or subtraction of fractions with different denominators
arith803 Addition and subtraction of 3 fractions with different denominators
arith805 Word problem involving addition or subtraction of fractions with different denominators
arith100 Fractional part of a circle
arith679 Product of a unit fraction and a whole number
arith686 Product of a fraction and a whole number: Problem type 1
arith119 Introduction to fraction multiplication
arith653 Fraction multiplication
arith812 Product of a fraction and a whole number: Problem type 2
arith813 Multiplication of 3 fractions
arith821 Exponents and fractions
arith818 Word problem involving fractions and multiplication
arith895 Multi-step word problem involving fractions and multiplication
arith688 The reciprocal of a number
arith694 Division involving a whole number and a fraction
arith622 Fraction division
arith819 Word problem involving fractions and division
arith859 Order of operations with fractions: Problem type 1
arith860 Order of operations with fractions: Problem type 2
arith861 Order of operations with fractions: Problem type 3
arith615 Writing an improper fraction as a mixed number
arith619 Writing a mixed number as an improper fraction
arith848 Addition of mixed numbers with the same denominator and carry
arith216 Subtraction of mixed numbers with the same denominator and borrowing
arith806 Addition or subtraction of mixed numbers with different denominators and no carry or borrow
arith808 Addition of mixed numbers with different denominators and carry
arith809 Subtraction of mixed numbers with different denominators and borrowing
arith807 Addition and subtraction of 3 mixed numbers with different denominators
arith810 Word problem involving addition or subtraction of mixed numbers with different denominators
arith815 Mixed number multiplication
arith816 Multiplication of a mixed number and a whole number
arith817 Division with a mixed number and a whole number
arith810 Mixed number division
arith820 Word problem involving multiplication or division with mixed numbers
arith110 Decimal place value: Tenths and hundredths
arith221 Rounding decimals
arith718 Converting a decimal to a proper fraction in simplest form: Basic
arith808 Converting a decimal to a proper fraction in simplest form: Advanced
arith722 Converting a decimal to a mixed number and an improper fraction in simplest form: Basic
arith724 Converting a decimal to a mixed number and an improper fraction in simplest form: Advanced
arith813 Decimal addition with 3 numbers
arith735 Decimal subtraction: Basic
arith736 Decimal subtraction: Advanced
arith737 Decimal addition and subtraction with 3 or more numbers
arith131 Estimating a decimal sum or difference
arith133 Word problem with addition of 3 or 4 decimals and whole numbers
arith134 Word problem with subtraction of a whole number and a decimal: Regrouping with zeros
arith817 Multiplication of a decimal by a whole number
arith855 Decimal multiplication: Problem type 1
arith882 Multiplication of a decimal by a power of ten
arith752 Estimating a product of decimals
arith753 Squaring decimal bases: Products greater than 0.1
arith741 Exponents and decimals: Products less than 0.1
arith137 Word problem with multiplication of two decimals
arith224 Word problem with decimal addition and multiplication
arith801 Division of a decimal by a whole number
arith743 Division of a decimal by a 1-digit decimal
arith801 Division of a decimal by a 2-digit decimal
arith803 Division of a decimal by a power of ten
arith838 Word problem with division of two decimals
arith227 Word problem with decimal subtraction and division
arith727 Converting a fraction to a terminating decimal: Basic
arith728 Converting a fraction to a terminating decimal: Advanced
arith730 Converting a fraction to a repeating decimal: Basic
arith731 Converting a fraction to a repeating decimal: Advanced
arith111 Converting a mixed number to a terminating decimal: Basic
arith112 Converting a mixed number to a terminating decimal: Advanced
arith720 Order of operations with decimals: Problem type 1
arith736 Order of operations with decimals: Problem type 2
arith747 Order of operations with decimals: Problem type 3
arith836 Converting a fraction with a denominator of 100 to a percentage
arith837 Converting a percentage to a fraction with a denominator of 100
arith723 Introduction to converting a percentage to a decimal
arith833 Introduction to converting a decimal to a percentage
arith834 Converting between percentages and decimals
arith841 Converting a mixed number percentage to a decimal
arith835 Converting between percentages and decimals in a real-world situation
arith839 Converting a percentage to a fraction in simplest form
arith839 Converting a decimal percentage to a fraction
arith838 Converting a fraction to a percentage: Denominator of 4, 5, or 10
arith802 Converting a fraction to a percentage: Denominator of 20, 25, or 50
arith843 Using a calculator to convert a fraction to a rounded percentage
arith842 Converting a fraction to a percentage in a real-world situation
mstat003 Mode of a data set
arith103 Average of two numbers
mstat001 Mean of a data set
mstat028 Mean and median of a data set
Real Numbers and Algebraic Expressions

arith687 Fractional position on a number line
arith829 Reading decimal position on a number line: Tenths
arith830 Reading decimal position on a number line: Hundredths
alge286 Plotting integers on a number line
arith605 Plotting rational numbers on a number line
arith99 Writing a signed number for a real-world situation
arith892 Using a common denominator to order fractions
arith129 Introduction to ordering decimals
arith608 Ordering decimals
arith609 Ordering fractions and decimals
arith691 Ordering integers
arith816 Square root of a perfect square
arith763 Using a calculator to approximate a square root
arith602 Estimating a square root
arith712 Ordering real numbers
arith071 Absolute value of a number
arith200 Integer addition: Problem type 1
arith108 Integer addition: Problem type 2
arith688 Integer subtraction: Problem type 1
APPENDIX B. SYLLABI IN ALEKS

arith689 Integer subtraction: Problem type 2
arith690 Integer subtraction: Problem type 3
arith754 Addition and subtraction with 3 integers
arith755 Addition and subtraction with 4 or 5 integers
arith701 Word problem with addition or subtraction of integers
arith231 Integer multiplication and division
arith800 Multiplication of 3 or 4 integers
arith711 Division involving zero
alge001 Identifying numbers as integers or non-integers
alge002 Identifying numbers as rational or irrational
arith116 Signed fraction addition or subtraction: Basic
arith864 Signed fraction subtraction involving double negation
arith106 Signed fraction addition or subtraction: Advanced
arith811 Addition and subtraction of 3 fractions involving signs
arith822 Signed fraction multiplication: Basic
arith105 Signed fraction multiplication: Advanced
arith117 Signed decimal addition and subtraction
arith234 Signed decimal addition and subtraction with 3 numbers
arith750 Signed decimal multiplication
arith751 Signed decimal division
arith104 Operations with absolute value: Problem type 2
gem525 Computing distances between decimals on the number line
arith702 Exponents and integers: Problem type 1
arith703 Exponents and integers: Problem type 2
arith704 Exponents and signed fractions
arith118 Order of operations with integers
arith600 Order of operations with integers and exponents
alge005 Evaluating a linear expression: Integer multiplication with addition or subtraction
alge004 Evaluating a quadratic expression: Integers
alge808 Evaluating a linear expression: Signed fraction multiplication with addition or subtraction
alge302 Evaluating a linear expression: Signed decimal addition and subtraction
alge303 Evaluating a linear expression: Signed decimal multiplication with addition or subtraction
alge797 Multiplicative property of equality with integers
alge012 Multiplicative property of equality with signed fractions
arith655 Introduction to properties of addition
alge187 Properties of addition
arith657 Understanding the distributive property
alge310 Multiplying a constant and a linear monomial
alge606 Distributive property: Whole number coefficients
alge604 Distributive property: Integer coefficients
arith656 Introduction to properties of multiplication
alge188 Properties of real numbers
alge608 Using distribution and combining like terms to simplify: Univariate
alge609 Using distribution with double negation and combining like terms to simplify: Multivariate
alge293 Combining like terms in a quadratic expression

Linear Equations and Inequalities

alge009 Additive property of equality with whole numbers
alge801 Additive property of equality with fractions and mixed numbers
alge800 Additive property of equality with decimals
alge010 Additive property of equality with integers
alge836 Additive property of equality with signed fractions
alge008 Multiplicative property of equality with whole numbers
alge820 Multiplicative property of equality with fractions
alge825 Multiplicative property of equality with decimals
alge797 Multiplicative property of equality with integers
alge012 Multiplicative property of equality with signed fractions
alge834 Identifying solutions to a linear equation in one variable: Two-step equations
alge803 Using two steps to solve an equation with whole numbers
alge266 Additive property of equality with a negative coefficient
alge006 Solving a two-step equation with integers
alge200 Solving an equation to find the value of an expression
alge920 Introduction to solving an equation with parentheses
alge837 Solving a multi-step equation given in fractional form
alge986 Identifying properties used to solve a linear equation
alge824 Solving a two-step equation with signed decimals
alge838 Introduction to solving an equation with variables on the same side
alge862 Solving a linear equation with several occurrences of the variable: Variables on the same side
alge863 Solving a linear equation with several occurrences of the variable: Variables on both sides
alge011 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
alge013 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
alge209 Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions
alge420 Solving a linear equation with several occurrences of the variable: Fractional forms with monomial numerators
alge208 Solving a two-step equation with signed fractions
alge061 Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
alge179 Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators
alge742 Solving equations with zero, one, or infinitely many solutions
alge272 Solving a proportion of the form \(\frac{x}{a} = \frac{b}{c}\)
alge840 Solving a proportion of the form \((x-a)\div b = c\div d\)
alge511 Solving for a variable in terms of other variables using addition or subtraction: Basic
alge512 Solving for a variable in terms of other variables using addition or subtraction: Advanced
alge513 Solving for a variable in terms of other variables using multiplication or division: Basic
alge514 Solving for a variable in terms of other variables using multiplication or division: Advanced
alge517 Solving for a variable in terms of other variables using addition or subtraction with division
alge518 Solving for a variable inside parentheses in terms of other variables
alge507 Solving for a variable in terms of other variables in a linear equation with fractions
alge743 Writing a one-step expression for a real-world situation
alge831 Translating a phrase into a one-step expression
alge291 Translating a phrase into a two-step expression
alge016 Translating a sentence into a one-step equation
alge841 Translating a sentence into a multi-step equation
alge802 Solving a fraction word problem using a linear equation of the form \(Ax = B\)
alge014 Solving a word problem with two unknowns using a linear equation
alge173 Solving a decimal word problem using a linear equation of the form \(Ax + B = C\)
alge730 Writing a multi-step equation for a real-world situation
alge739 Solving a word problem using a linear equation with the variable on both sides
alge704 Solving a fraction word problem using a linear equation with the variable on both sides
alge792 Solving a word problem with three unknowns using a linear equation
alge842 Solving a word problem involving consecutive integers
alge794 Solving a value mixture problem using a linear equation
alge823 Solving a one-step word problem using the formula \(d = rt\)
alge218 Solving a word problem involving rates and time conversion
alge796 Solving a distance, rate, time problem using a linear equation
mstat065 Converting between temperatures in Fahrenheit and Celsius
geom217 Finding the side length of a rectangle given its perimeter or area
geom817 Finding a side length given the perimeter and side lengths with variables
geom143 Finding the perimeter or area of a rectangle given one of these values
geom218 Finding the radius or the diameter of a circle given its circumference
geom530 Solving equations involving vertical angles
geom001 Finding an angle measure of a triangle given two angles
geom023 Finding angle measures of a triangle given angles with variables
geom502 Finding angle measures of a right or isosceles triangle given angles with variables
geom812 Finding an angle measure given extended triangles
geom813 Finding an angle measure given a triangle and parallel lines
stat803 Finding the value for a new score that will yield a given mean
arith840 Finding a percentage of a whole number
arith830 Finding a percentage of a whole number without a calculator: Basic
arith844 Finding a percentage of a whole number without a calculator: Advanced
arith862 Applying the percent equation: Problem type 1
arith863 Applying the percent equation: Problem type 2
arith845 Finding a percentage of a total amount: Real-world situations
arith846 Finding a percentage of a total amount without a calculator: Sales tax, commission, discount
arith857 Estimating a tip without a calculator
arith869 Writing a ratio as a percentage without a calculator
mstat049 Computing a percentage from a table of values
arith850 Finding the rate of a tax or commission
arith849 Finding the multiplier to give a final amount after a percentage increase or decrease
arith851 Finding the final amount given the original amount and a percentage increase or decrease
arith847 Finding the sale price given the original price and percent discount
arith874 Finding the sale price without a calculator given the original price and percent discount
arith848 Finding the total cost including tax or markup
arith855 Finding the original amount given the result of a percentage increase or decrease
arith831 Finding the original price given the sale price and percent discount
arith858 Finding the percentage increase or decrease: Basic
arith825 Finding the percentage increase or decrease: Advanced
unit052 Finding the absolute error and percent error of a measurement
arith854 Computing a percent mixture
alge795 Solving a percent mixture problem using a linear equation
stat804 Interpreting a circle graph or pie chart
arith856 Finding a percentage of a total amount in a circle graph
stat801 Computations from a circle graph
arith823 Finding simple interest without a calculator
alge015 Translating a sentence by using an inequality symbol
alge845 Translating a sentence into a one-step inequality
alge846 Translating a sentence into a multi-step inequality
alge748 Writing an inequality for a real-world situation
alge817 Graphing a linear inequality on the number line
alge822 Writing an inequality given a graph on the number line
alge186 Translating a sentence into a compound inequality
alge166 Graphing a compound inequality on the number line
alge847 Writing a compound inequality given a graph on the number line
set001 Set builder notation
set004 Set builder and interval notation
set002 Union and intersection of finite sets
set005 Union and intersection of intervals
alge841 Identifying solutions to a two-step linear inequality in one variable
alge848 Additive property of inequality with whole numbers
alge849 Additive property of inequality with integers
alge852 Additive property of inequality with signed fractions
alge853 Additive property of inequality with signed decimals
alge854 Multiplicative property of inequality with integers
alge964 Multiplicative property of inequality with signed fractions
alge855 Solving a two-step linear inequality: Problem type 1
alge856 Solving a two-step linear inequality: Problem type 2
alge857 Solving a two-step linear inequality with a fractional coefficient
alge977 Solving a linear inequality with multiple occurrences of the variable: Problem type 1
alge858 Solving a linear inequality with multiple occurrences of the variable: Problem type 2
alge859 Solving a linear inequality with multiple occurrences of the variable: Problem type 3
alge860 Solving inequalities with no solution or all real numbers as solutions
alge746 Solving a compound linear inequality: Graph solution, basic
alge747 Solving a compound linear inequality: Interval notation
alge749 Solving a decimal word problem using a two-step linear inequality
alge750 Solving a decimal word problem using a linear inequality with the variable on both sides
alge683 Introduction to solving an absolute value equation
alge864 Solving an absolute value equation: Problem type 1
B.9. BEGINNING AND INTERMEDIATE ALGEBRA COMBINED

alge865 Solving an absolute value equation: Problem type 2
alge866 Solving an absolute value equation: Problem type 3
alge867 Solving an absolute value equation: Problem type 4
alge167 Solving an absolute value equation of the form \(-ax+b=-cx+d-\)
alge868 Solving an absolute value inequality: Problem type 1
alge943 Writing an absolute value inequality given a graph on the number line
alge869 Solving an absolute value inequality: Problem type 2
alge870 Solving an absolute value inequality: Problem type 3
alge871 Solving an absolute value inequality: Problem type 4
alge872 Solving an absolute value inequality: Problem type 5

Lines and Functions

alge064 Reading a point in the coordinate plane
alge067 Plotting a point in the coordinate plane
alge850 Table for a linear equation
alge066 Finding a solution to a linear equation in two variables
alge877 Graphing a linear equation of the form \(y = mx\)
alge878 Graphing a line given its equation in slope-intercept form: Integer slope
alge879 Graphing a line given its equation in slope-intercept form: Fractional slope
alge880 Graphing a line given its equation in standard form
alge196 Graphing a vertical or horizontal line
alge884 Finding \(x\)- and \(y\)-intercepts given the graph of a line on a grid
alge924 Finding \(x\)- and \(y\)-intercepts of a line given the equation: Basic
alge210 Finding \(x\)- and \(y\)-intercepts of a line given the equation: Advanced
alge197 Graphing a line given its \(x\)- and \(y\)-intercepts
alge881 Graphing a line by first finding its \(x\)- and \(y\)-intercepts
alge875 Classifying slopes given graphs of lines
alge886 Finding slope given the graph of a line on a grid
alge887 Finding slope given two points on the line
alge885 Finding the slope of horizontal and vertical lines
alge888 Finding the coordinate that yields a given slope
alge259 Graphing a line given its slope and \(y\)-intercept
alge196 Graphing a line through a given point with a given slope
alge876 Identifying linear equations: Advanced
alge874 Identifying linear functions given ordered pairs
alge891 Rewriting a linear equation in the form \(Ax + By = C\)
alge889 Finding the slope and \(y\)-intercept of a line given its equation in the form \(y = mx + b\)
alge890 Finding the slope and \(y\)-intercept of a line given its equation in the form \(Ax+By=C\)
alge893 Graphing a line by first finding its slope and \(y\)-intercept
alge258 Writing an equation of a line given its slope and \(y\)-intercept
alge892 Writing an equation and graphing a line given its slope and \(y\)-intercept
alge893 Writing an equation in slope-intercept form given the slope and a point
alge883 Graphing a line given its equation in point-slope form
alge894 Writing an equation in point-slope form given the slope and a point
alge070 Writing an equation of a line given the \(y\)-intercept and another point
alge072 Writing the equation of the line through two given points
geom806 Finding slopes of lines parallel and perpendicular to a line given in slope-intercept form
geom807 Finding slopes of lines parallel and perpendicular to a line given in the form \(Ax + By = C\)
alge895 Identifying parallel and perpendicular lines from equations
geom808 Writing equations of lines parallel and perpendicular to a given line through a point
alge897 Writing and evaluating a function that models a real-world situation: Advanced
alge701 Writing an equation and drawing its graph to model a real-world situation: Advanced
fun005 Writing a function rule given a table of ordered pairs: One-step rules
fun006 Writing a function rule given a table of ordered pairs: Two-step rules
alge992 Combining functions to write a new function that models a real-world situation
alge987 Comparing properties of linear functions given in different forms
alge989 Interpreting the parameters of a linear function that models a real-world situation
alge805 Application problem with a linear function: Finding a coordinate given the slope and a point
alge806 Application problem with a linear function: Finding a coordinate given two points
mstat052 Identifying independent and dependent variables from equations or real-world situations
alge991 Solving a linear equation by graphing
mstat030 Sketching the line of best fit
mstat023 Scatter plots and correlation
mstat068 Predictions from the line of best fit
mstat067 Approimating the equation of a line of best fit and making predictions
mstat069 Computing residuals
mstat070 Interpreting residual plots
mstat071 Linear relationship and the correlation coefficient
mstat074 Identifying correlation and causation
fun032 Identifying functions from relations
fun010 Vertical line test
fun016 Domain and range from ordered pairs
fun001 Table for a linear function
pcalc760 Evaluating functions: Linear and quadratic or cubic
fun030 Evaluating a piecewise-defined function
fun033 Variable expressions as inputs of functions: Problem type 1
alge294 Finding outputs of a one-step function that models a real-world situation: Function notation
alge295 Finding outputs of a two-step function with decimals that models a real-world situation: Function notation
alge296 Finding inputs and outputs of a two-step function that models a real-world situation: Function notation
alge990 Domain and range of a linear function that models a real-world situation
fun026 Finding an output of a function from its graph
pcalc761 Finding inputs and outputs of a function from its graph
fun007 Domain and range from the graph of a discrete relation
fun024 Domain and range from the graph of a continuous function
fun025 Domain and range from the graph of a piecewise function
pcalc750 Finding intercepts of a nonlinear function given its graph
pcalc751 Finding where a function is increasing, decreasing, or constant given the graph: Interval notation
pcalc752 Finding local maxima and minima of a function given the graph
mstat018 Choosing a graph to fit a narrative: Basic
mstat051 Choosing a graph to fit a narrative: Advanced
alge896 Graphing an integer function and finding its range for a given domain
alge570 Graphing a function of the form \( f(x) = ax + b \): Integer slope
alge571 Graphing a function of the form \( f(x) = ax + b \): Fractional slope
alge913 Graphing an absolute value equation of the form \( y = A - x \)
alge954 Graphing a parabola of the form \( y = ax^2 \)
alge955 Graphing a parabola of the form \( y = ax^2 + c \)
alge572 Graphing a function of the form \( f(x) = ax^2 \)
alge573 Graphing a function of the form \( f(x) = ax^2 + c \)
alge262 Graphing a cubic function of the form \( y = ax^3 \)
fun031 Graphing a piecewise-defined function: Problem type 1

Systems of Linear Equations

alge914 Identifying solutions to a system of linear equations
alge975 Classifying systems of linear equations from graphs
alge725 Graphically solving a system of linear equations
alge751 Solving a system of linear equations using substitution
alge915 Solving a system of linear equations using elimination with addition
alge076 Solving a system of linear equations using elimination with multiplication and addition
alge916 Solving a system of linear equations with fractional coefficients
alge917 Solving a system of linear equations with decimal coefficients
alge752 Solving a 2x2 system of linear equations that is inconsistent or consistent dependent
alge077 Creating an inconsistent system of linear equations
alge988 Identifying the operations used to create equivalent systems of equations
alge753 Solving a 3x3 system of linear equations: Problem type 1
alge263 Interpreting the graphs of two functions
Exponents and Polynomials

alge821 Understanding the product rule of exponents
alge024 Introduction to the product rule of exponents
alge311 Product rule with positive exponents: Univariate
alge030 Product rule with positive exponents: Multivariate
arith029 Ordering numbers with positive exponents
alge826 Understanding the power rules of exponents
alge306 Introduction to the power of a power rule of exponents
alge305 Introduction to the power of a product rule of exponents
alge307 Power rules with positive exponents: Multivariate products
alge308 Power rules with positive exponents: Multivariate quotients
alge756 Power and product rules with positive exponents
alge451 Simplifying a ratio of multivariate monomials: Basic
alge827 Introduction to the quotient rule of exponents
alge452 Simplifying a ratio of univariate monomials
alge026 Quotient of expressions involving exponents
alge453 Simplifying a ratio of multivariate monomials: Advanced
alge927 Power and quotient rules with positive exponents
alge790 Evaluating expressions with exponents of zero
arith684 Power of 10: Negative exponent
arith729 Evaluating an expression with a negative exponent: Whole number base
arith042 Evaluating an expression with a negative exponent: Positive fraction base
arith043 Evaluating an expression with a negative exponent: Negative integer base
arith024 Ordering numbers with negative exponents
alge791 Rewriting an algebraic expression without a negative exponent
alge961 Introduction to the product rule with negative exponents
alge028 Product rule with negative exponents
alge755 Quotient rule with negative exponents: Problem type 1
alge926 Quotient rule with negative exponents: Problem type 2
alge025 Power of a power rule with negative exponents
APPENDIX B. SYLLABI IN ALEKS

alge799 Power rules with negative exponents
alge928 Power and quotient rules with negative exponents: Problem type 1
alge929 Power and quotient rules with negative exponents: Problem type 2
alge757 Power, product, and quotient rules with negative exponents
arith036 Scientific notation with positive exponent
arith037 Scientific notation with negative exponent
scinot012 Converting between scientific notation and standard form in a real-world situation
scinot008 Multiplying numbers written in scientific notation: Basic
scinot009 Multiplying numbers written in scientific notation: Advanced
scinot010 Dividing numbers written in scientific notation: Basic
scinot011 Dividing numbers written in scientific notation: Advanced
alge758 Degree and leading coefficient of a univariate polynomial
alge031 Degree of a multivariate polynomial
alge798 Simplifying a sum or difference of two univariate polynomials
alge029 Simplifying a sum or difference of three univariate polynomials
alge932 Simplifying a sum or difference of multivariate polynomials
alge735 Multiplying a univariate polynomial by a monomial with a positive coefficient
alge972 Multiplying a univariate polynomial by a monomial with a negative coefficient
alge895 Multiplying a multivariate polynomial by a monomial
alge033 Multiplying binomials with leading coefficients of 1
alge983 Multiplying binomials with leading coefficients greater than 1
alge765 Multiplying binomials in two variables
alge764 Multiplying conjugate binomials: Univariate
alge081 Multiplying conjugate binomials: Multivariate
alge032 Squaring a binomial: Univariate
alge068 Squaring a binomial: Multivariate
alge973 Multiplying binomials with negative coefficients
alge935 Multiplication involving binomials and trinomials in one variable
alge180 Multiplication involving binomials and trinomials in two variables
alge759 Dividing a polynomial by a monomial: Univariate
alge760 Dividing a polynomial by a monomial: Multivariate
alge761 Polynomial long division: Problem type 1
alge762 Polynomial long division: Problem type 2
alge763 Polynomial long division: Problem type 3
pcalc117 Synthetic division
pcalc786 Using the remainder theorem to evaluate a polynomial
alge985 Closure properties of integers and polynomials
alge605 Factoring a linear binomial
alge736 Introduction to the GCF of two monomials
alge930 Greatest common factor of three univariate monomials
alge037 Greatest common factor of two multivariate monomials
alge738 Factoring out a monomial from a polynomial: Univariate
alge739 Factoring out a monomial from a polynomial: Multivariate
alge923 Factoring out a binomial from a polynomial: GCF factoring, basic
alge950 Factoring a univariate polynomial by grouping: Problem type 1
alge951 Factoring a univariate polynomial by grouping: Problem type 2
alge952 Factoring a univariate polynomial by grouping: Problem type 3
alge934 Factoring a multivariate polynomial by grouping: Problem type 1
alge936 Factoring a multivariate polynomial by grouping: Problem type 2
alge937 Factoring a multivariate polynomial by grouping: Problem type 3
alge039 Factoring a quadratic with leading coefficient 1
alge942 Factoring a quadratic in two variables with leading coefficient 1
alge936 Factoring out a constant before factoring a quadratic
alge940 Factoring a quadratic with leading coefficient greater than 1: Problem type 1
alge941 Factoring a quadratic with leading coefficient greater than 1: Problem type 2
alge978 Factoring a quadratic by the ac-method
alge265 Factoring a quadratic in two variables with leading coefficient greater than 1
alge937 Factoring a quadratic with a negative leading coefficient
alge944 Factoring a perfect square trinomial with leading coefficient 1
alge945 Factoring a perfect square trinomial with leading coefficient greater than 1
alge946 Factoring a perfect square trinomial in two variables
alge290 Factoring a difference of squares in one variable: Basic
alge947 Factoring a difference of squares in one variable: Advanced
Rational Expressions

alge049 Restriction on a variable in a denominator: Linear
alge467 Restriction on a variable in a denominator: Quadratic
alge468 Evaluating a rational function: Problem type 1
alge469 Evaluating a rational function: Problem type 2
alge715 Domain of a rational function: Excluded values
alge454 Simplifying a ratio of factored polynomials: Linear factors
alge455 Simplifying a ratio of factored polynomials: Factors with exponents
alge456 Simplifying a ratio of polynomials using GCF factoring
alge457 Simplifying a ratio of linear polynomials: 1, -1, and no simplification
alge458 Simplifying a ratio of polynomials by factoring a quadratic with leading coefficient 1
alge710 Simplifying a ratio of polynomials: Problem type 1
alge682 Simplifying a ratio of polynomials: Problem type 2
alge459 Simplifying a ratio of polynomials: Problem type 3
alge034 Simplifying a ratio of multivariate polynomials
alge053 Multiplying rational expressions involving multivariate monomials
alge460 Multiplying rational expressions made up of linear expressions
alge620 Multiplying rational expressions involving quadratics with leading coefficients of 1
alge461 Multiplying rational expressions involving quadratics with leading coefficients greater than 1
alge462 Multiplying rational expressions involving multivariate quadratics
alge054 Dividing rational expressions involving multivariate monomials
alge463 Dividing rational expressions involving linear expressions
alge766 Dividing rational expressions involving quadratics with leading coefficients of 1
alge464 Dividing rational expressions involving quadratics with leading coefficients greater than 1
alge465 Dividing rational expressions involving multivariate quadratics
alge466 Multiplication and division of 3 rational expressions
alge737 Introduction to the LCM of two monomials
alge055 Least common multiple of two monomials
alge427 Finding the LCD of rational expressions with linear denominators: Relatively prime
alge428 Finding the LCD of rational expressions with linear denominators: Common factors
alge429 Finding the LCD of rational expressions with quadratic denominators
alge430 Writing equivalent rational expressions with monomial denominators
alge431 Writing equivalent rational expressions with polynomial denominators
alge304 Writing equivalent rational expressions involving opposite factors
alge432 Introduction to adding fractions with variables and common denominators
alge433 Adding rational expressions with common denominators and monomial numerators
alge056 Adding rational expressions with common denominators and binomial numerators
alge434 Adding rational expressions with common denominators and GCF factoring
alge435 Adding rational expressions with common denominators and quadratic factoring
alge436 Adding rational expressions with different denominators and a single occurrence of a variable
APPENDIX B. SYLLABI IN ALEKS

alge437 Adding rational expressions with denominators ax and bx: Basic
alge438 Adding rational expressions with denominators ax and bx: Advanced
alge439 Adding rational expressions with denominators axn and bxm
alge440 Adding rational expressions with multivariate monomial denominators: Basic
alge441 Adding rational expressions with linear denominators without common factors: Basic
alge442 Adding rational expressions with linear denominators without common factors: Advanced
alge443 Adding rational expressions with linear denominators with common factors: Basic
alge444 Adding rational expressions with linear denominators with common factors: Advanced
alge445 Adding rational expressions with denominators ax-b and b-ax
alge661 Adding rational expressions involving different quadratic denominators
alge446 Adding 3 rational expressions with different quadratic denominators
arith695 Complex fraction without variables: Problem type 1
arith696 Complex fraction without variables: Problem type 2
alge470 Complex fraction involving univariate monomials
alge658 Complex fraction involving multivariate monomials
alge471 Complex fraction: GCF factoring
alge472 Complex fraction: Quadratic factoring
alge473 Complex fraction made of sums involving rational expressions: Problem type 1
alge474 Complex fraction made of sums involving rational expressions: Problem type 2
alge475 Complex fraction made of sums involving rational expressions: Problem type 3
alge476 Complex fraction made of sums involving rational expressions: Problem type 4
alge477 Complex fraction made of sums involving rational expressions: Problem type 5
alge478 Complex fraction made of sums involving rational expressions: Problem type 6
alge479 Complex fraction made of sums involving rational expressions: Multivariate
alge480 Complex fraction with negative exponents: Problem type 1
alge481 Complex fraction with negative exponents: Problem type 2
alge162 Complex fraction that contains a complex fraction
alge271 Solving a proportion of the form a/(x+b) = c/x
alge060 Solving a rational equation that simplifies to linear: Denominator x
alge205 Solving a rational equation that simplifies to linear: Denominator x+a
alge206 Solving a rational equation that simplifies to linear: Like binomial denominators
alge207 Solving a rational equation that simplifies to linear: Unlike binomial denominators
alge423 Solving a rational equation that simplifies to linear: Factorable quadratic denominator
alge424 Solving a rational equation that simplifies to quadratic: Proportional form, basic
alge425 Solving a rational equation that simplifies to quadratic: Denominator x
alge212 Solving a rational equation that simplifies to quadratic: Binomial denominators, constant numerators
alge062 Solving a rational equation that simplifies to quadratic: Binomial denominators and numerators
alge426 Solving a rational equation that simplifies to quadratic: Factorable quadratic denominator
alge047 Solving a rational equation that simplifies to quadratic: Proportional form, advanced
arith823 Writing ratios using different notations
arith663 Writing ratios for real-world situations
arith824 Simplifying a ratio of whole numbers: Problem type 1
arith826 Simplifying a ratio of whole numbers: Problem type 2
arith825 Simplifying a ratio of decimals
arith827 Finding a unit price
arith828 Computing unit prices to find the better buy
arith228 Word problem on unit rates associated with ratios of whole numbers: Decimal answers
unit005 U.S. Customary unit conversion with whole number values
unit001 Metric distance conversion with whole number values
unit034 Converting between metric and U.S. Customary unit systems
unit035 Converting between compound units: Basic
unit036 Converting between compound units: Advanced
alge508 Solving for a variable in terms of other variables in a rational equation: Problem type 1
alge509 Solving for a variable in terms of other variables in a rational equation: Problem type 2
alge510 Solving for a variable in terms of other variables in a rational equation: Problem type 3
arith610 Word problem on proportions: Problem type 1
arith611 Word problem on proportions: Problem type 2
g geom837 Similar polygons
geom038 Similar right triangles
B.9. BEGINNING AND INTERMEDIATE ALGEBRA COMBINED

geom337 Indirect measurement
geom838 Circumference ratios
geom133 Ratio of volumes
arith612 Word problem involving multiple rates
alge770 Solving a work problem using a rational equation
alge450 Solving a distance, rate, time problem using a rational equation
alge059 Ordering fractions with variables
alge982 Identifying direct variation equations
alge908 Identifying direct variation from ordered pairs and writing equations
alge904 Writing a direct variation equation
alge175 Word problem on direct variation
alge828 Interpreting direct variation from a graph
alge905 Writing an inverse variation equation
alge903 Identifying direct and inverse variation equations
alge902 Identifying direct and inverse variation from ordered pairs and writing equations
alge176 Word problem on inverse variation
alge220 Word problem on inverse proportions
pcalc681 Writing an equation that models variation
alge772 Word problem on combined variation
pcalc917 Finding the asymptotes of a rational function: Constant over linear
pcalc918 Finding the asymptotes of a rational function: Linear over linear
alge515 Graphing a rational function: Constant over linear
alge516 Graphing a rational function: Linear over linear

Radicals

alge413 Finding all square roots of a number
arith601 Square root of a rational perfect square
arith760 Square roots of perfect squares with signs
arith761 Square roots of integers raised to even exponents
alge415 Introduction to simplifying a radical expression with an even exponent
alge264 Square root of a perfect square monomial
alge537 Using absolute value to simplify square roots of perfect square monomials
arith094 Cube root of an integer
alge549 Finding nth roots of perfect nth powers with signs
arith768 Finding the nth root of a perfect nth power fraction
alge550 Finding the nth root of a perfect nth power monomial
alge538 Using absolute value to simplify higher radical expressions
alge539 Table for a square root function
alge546 Evaluating a cube root function
alge540 Domain of a square root function: Basic
pcalc763 Domain of a square root function: Advanced
alge547 Domains of higher root functions
alge543 Graphing a square root function: Problem type 1
alge544 Graphing a square root function: Problem type 2
alge545 Graphing a square root function: Problem type 3
alge548 Graphing a cube root function
alge812 Converting between radical form and exponent form
alge560 Rational exponents: Unit fraction exponents and whole number bases
alge561 Rational exponents: Unit fraction exponents and bases involving signs
alge250 Rational exponents: Non-unit fraction exponent with a whole number base
alge251 Rational exponents: Negative exponents and fractional bases
alge558 Rational exponents: Product rule
alge559 Rational exponents: Quotient rule
alge773 Rational exponents: Products and quotients with negative exponents
alge562 Rational exponents: Power of a power rule
alge249 Rational exponents: Powers of powers with negative exponents
arith893 Simplifying the square root of a whole number less than 100
arith762 Simplifying the square root of a whole number greater than 100
alge080 Simplifying a radical expression with an even exponent
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>alge520</td>
<td>Introduction to simplifying a radical expression with an odd exponent</td>
</tr>
<tr>
<td>alge521</td>
<td>Simplifying a radical expression with an odd exponent</td>
</tr>
<tr>
<td>alge275</td>
<td>Simplifying a radical expression with two variables</td>
</tr>
<tr>
<td>alge273</td>
<td>Simplifying a higher root of a whole number</td>
</tr>
<tr>
<td>alge551</td>
<td>Introduction to simplifying a higher radical expression</td>
</tr>
<tr>
<td>alge552</td>
<td>Simplifying a higher radical expression: Univariate</td>
</tr>
<tr>
<td>alge811</td>
<td>Simplifying a higher radical expression: Multivariate</td>
</tr>
<tr>
<td>arith767</td>
<td>Introduction to square root addition or subtraction</td>
</tr>
<tr>
<td>arith632</td>
<td>Square root addition or subtraction</td>
</tr>
<tr>
<td>alge533</td>
<td>Simplifying a sum or difference of radical expressions: Univariate</td>
</tr>
<tr>
<td>alge531</td>
<td>Simplifying a sum or difference of radical expressions: Multivariate</td>
</tr>
<tr>
<td>alge554</td>
<td>Simplifying a sum or difference of higher roots</td>
</tr>
<tr>
<td>alge555</td>
<td>Simplifying a sum or difference of higher radical expressions</td>
</tr>
<tr>
<td>arith764</td>
<td>Introduction to square root multiplication</td>
</tr>
<tr>
<td>arith639</td>
<td>Square root multiplication: Basic</td>
</tr>
<tr>
<td>alge522</td>
<td>Introduction to simplifying a product of radical expressions: Univariate</td>
</tr>
<tr>
<td>alge523</td>
<td>Simplifying a product of radical expressions: Univariate</td>
</tr>
<tr>
<td>alge640</td>
<td>Simplifying a product of radical expressions: Multivariate</td>
</tr>
<tr>
<td>alge530</td>
<td>Simplifying a quotient involving a sum or difference with a square root</td>
</tr>
<tr>
<td>alge527</td>
<td>Rationalizing a denominator: Quotient involving square roots</td>
</tr>
<tr>
<td>alge528</td>
<td>Rationalizing a denominator: Square root of a fraction</td>
</tr>
<tr>
<td>alge529</td>
<td>Rationalizing a denominator: Quotient involving a monomial</td>
</tr>
<tr>
<td>alge544</td>
<td>Rationalizing a denominator using conjugates: Integer numerator</td>
</tr>
<tr>
<td>alge555</td>
<td>Rationalizing a denominator using conjugates: Square root in numerator</td>
</tr>
<tr>
<td>alge536</td>
<td>Rationalizing a denominator using conjugates: Variable in denominator</td>
</tr>
<tr>
<td>alge564</td>
<td>Rationalizing a denominator: Quotient involving a higher radical</td>
</tr>
<tr>
<td>alge775</td>
<td>Rationalizing a denominator: Quotient involving higher radicals and monomials</td>
</tr>
<tr>
<td>alge563</td>
<td>Simplifying products or quotients of higher radicals with different indices: Univariate</td>
</tr>
<tr>
<td>alge776</td>
<td>Simplifying products or quotients of higher radicals with different indices: Multivariate</td>
</tr>
<tr>
<td>alge400</td>
<td>Introduction to solving a radical equation</td>
</tr>
<tr>
<td>alge089</td>
<td>Solving a radical equation that simplifies to a linear equation: One radical, basic</td>
</tr>
<tr>
<td>alge099</td>
<td>Solving a radical equation that simplifies to a linear equation: One radical, advanced</td>
</tr>
<tr>
<td>alge405</td>
<td>Solving a radical equation that simplifies to two radicals that simplifies to sqrt(x) = a</td>
</tr>
<tr>
<td>alge403</td>
<td>Solving a radical equation that simplifies to a quadratic equation: One radical, basic</td>
</tr>
<tr>
<td>alge404</td>
<td>Solving a radical equation that simplifies to a quadratic equation: One radical, advanced</td>
</tr>
<tr>
<td>alge411</td>
<td>Solving a radical equation with a quadratic expression under the radical</td>
</tr>
<tr>
<td>alge412</td>
<td>Algebraic symbol manipulation with radicals</td>
</tr>
<tr>
<td>alge542</td>
<td>Word problem involving radical equations: Basic</td>
</tr>
<tr>
<td>alge549</td>
<td>Word problem involving radical equations: Advanced</td>
</tr>
<tr>
<td>alge410</td>
<td>Solving an equation with a root index greater than 2: Problem type 1</td>
</tr>
<tr>
<td>alge417</td>
<td>Solving an equation with a root index greater than 2: Problem type 2</td>
</tr>
<tr>
<td>alge416</td>
<td>Solving an equation with exponent 1/a: Problem type 1</td>
</tr>
<tr>
<td>alge418</td>
<td>Solving an equation with exponent 1/a: Problem type 2</td>
</tr>
<tr>
<td>arith778</td>
<td>Using i to rewrite square roots of negative numbers</td>
</tr>
<tr>
<td>alge779</td>
<td>Simplifying a product and quotient involving square roots of negative numbers</td>
</tr>
<tr>
<td>pcalc048</td>
<td>Adding or subtracting complex numbers</td>
</tr>
<tr>
<td>pcalc049</td>
<td>Multiplying complex numbers</td>
</tr>
<tr>
<td>pcalc050</td>
<td>Dividing complex numbers</td>
</tr>
</tbody>
</table>
B.9. BEGINNING AND INTERMEDIATE ALGEBRA COMBINED

pcalc053 Simplifying a power of i

Quadratic Equations and Functions

alge962 Solving an equation of the form \( x^2 = a \) using the square root property
alge092 Solving a quadratic equation using the square root property: Exact answers, basic
alge227 Solving a quadratic equation using the square root property: Exact answers, advanced
alge094 Completing the square
alge780 Solving a quadratic equation by completing the square: Exact answers
alge095 Applying the quadratic formula: Exact answers
alge963 Applying the quadratic formula: Decimal answers
pcalc051 Solving a quadratic equation with complex roots
alge214 Discriminant of a quadratic equation
alge193 Discriminant of a quadratic equation with parameter
alge524 Solving a word problem using a quadratic equation with irrational roots
alge093 Solving an equation using the odd-root property: Problem type 1
alge228 Solving an equation using the odd-root property: Problem type 2
alge781 Solving an equation that can be written in quadratic form: Problem type 1
alge782 Solving an equation that can be written in quadratic form: Problem type 2
alge090 Solving an equation with positive rational exponent
alge231 Solving an equation with negative rational exponent
alge974 Finding the vertex, x-intercepts, and axis of symmetry from the graph of a parabola
alge253 Graphing a parabola of the form \( y = (x-h)^2 + k \)
alge569 Graphing a parabola of the form \( y = x^2 + bx + c \)
pcalc746 Graphing a parabola of the form \( y = ax^2 + bx + c \): Integer coefficients
pcalc747 Graphing a parabola of the form \( y = ax^2 + bx + c \): Rational coefficients
alge277 Finding the x-intercept(s) and the vertex of a parabola
pcalc793 Using a graphing calculator to find the x-intercept(s) and vertex of a quadratic function
pcalc774 Rewriting a quadratic function to find the vertex of its graph
pcalc775 Finding the maximum or minimum of a quadratic function
alge785 Word problem involving the maximum or minimum of a quadratic function
alge975 Domain and range from the graph of a parabola
pcalc762 Range of a quadratic function
pcalc780 Writing the equation of a quadratic function given its graph
alge957 Solving a quadratic equation by graphing
alge996 Comparing properties of quadratic functions given in different forms
alge702 Classifying the graph of a function
alge723 How the leading coefficient affects the shape of a parabola
alge784 Solving a quadratic inequality written in factored form
alge771 Solving a quadratic inequality
pcalc676 Solving a polynomial inequality
alge783 Solving a rational inequality: Problem type 1
pcalc757 Solving a rational inequality: Problem type 2

Function Operations and Inverses

alge953 Translating the graph of a parabola: One step
alge898 Translating the graph of an absolute value function: One step
alge899 Translating the graph of an absolute value function: Two steps
alge900 Graphing an absolute value equation in the plane: Basic
alge168 Graphing an absolute value equation in the plane: Advanced
alge901 How the leading coefficient affects the graph of an absolute value function
alge185 Writing an equation for a function after a vertical translation
fun020 Writing an equation for a function after a vertical and horizontal translation
fun019 Sum, difference, and product of two functions
alge786 Quotient of two functions: Basic
pcalc756 Combining functions: Advanced
fun022 Composition of two functions: Basic
Exponential and Logarithmic Functions

- **algex971** Table for an exponential function
- **algex969** Graphing an exponential function: \( f(x) = ax \)
- **algex970** Graphing an exponential function: \( f(x) = a(b)^x \)
- **algex712** Graphing an exponential function and its asymptote: \( f(x) = a(b)^x \)
- **pcalc922** Translating the graph of an exponential function
- **pcalc797** The graph, domain, and range of an exponential function
- **pcalc103** Graphing an exponential function and its asymptote: \( f(x) = a(e)^{x-b} + c \)
- **algex830** Evaluating an exponential function that models a real-world situation
- **pcalc919** Evaluating an exponential function with base \( e \) that models a real-world situation
- **arithx53** Introduction to compound interest
- **algex741** Evaluating an exponential function that models exponential growth or decay
- **algex741** Finding the final amount in a word problem on exponential growth or decay
- **algex741** Finding the initial amount and rate of change given an exponential function
- **algex967** Writing an equation that models exponential growth or decay
- **algex967** Writing an exponential function rule given a table of ordered pairs
- **algex993** Comparing linear, polynomial, and exponential functions
- **algex108** Converting between logarithmic and exponential equations
- **pcalc799** Converting between natural logarithmic and exponential equations
- **algex232** Evaluating a logarithmic expression
- **algex233** Solving an equation of the form \( \log_b a = c \)
- **pcalc923** Translating the graph of a logarithmic function
- **algex788** Graphing a logarithmic function: Basic
- **pcalc800** The graph, domain, and range of a logarithmic function
- **pcalc104** Graphing a logarithmic function: Advanced
- **pcalc708** Basic properties of logarithms
- **pcalc779** Expanding a logarithmic expression: Problem type 1
- **pcalc780** Expanding a logarithmic expression: Problem type 2
- **algex787** Writing an expression as a single logarithm
- **pcalc612** Change of base for logarithms: Problem type 1
- **pcalc613** Change of base for logarithms: Problem type 2
- **pcalc803** Solving a multi-step equation involving a single logarithm
- **pcalc804** Solving a multi-step equation involving natural logarithms
- **algex113** Solving an equation involving logarithms on both sides: Problem type 1
- **pcalc805** Solving an equation involving logarithms on both sides: Problem type 2
- **algex301** Solving an exponential equation by finding common bases: Linear exponents
- **algex482** Solving an exponential equation by finding common bases: Linear and quadratic exponents
- **pcalc920** Solving an exponential equation by using logarithms: Decimal answers, basic
- **pcalc921** Solving an exponential equation by using natural logarithms: Decimal answers
- **algex111** Solving an exponential equation by using logarithms: Exact answers in logarithmic form
- **pcalc806** Using a graphing calculator to solve an exponential or logarithmic equation
- **algex178** Finding the time to reach a limit in a word problem on exponential growth or decay
- **pcalc614** Finding the initial or final amount in a word problem on exponential growth or decay
- **pcalc615** Finding the rate or time in a word problem on continuous exponential growth or decay

Conic Sections and Sequences
B.10. DEVELOPMENTAL MATH

Whole Numbers

arith124 Whole number place value: Problem type 1
arith125 Whole number place value: Problem type 2
APPENDIX B. SYLLABI IN ALEKS

arith066 Expanded form
arith643 Expanded form with zeros
arith028 Numerical translation: Problem type 1
arith060 Numerical translation: Problem type 2
arith633 One-digit addition with carry
arith634 Addition of 3 or 4 one-digit numbers
arith001 Addition without carry
arith635 Adding a 2-digit number and a 1-digit number with carry
arith650 Addition with carry
arith630 Addition with carry to the hundreds place
arith012 Addition of large numbers
arith636 Subtracting a 1-digit number from a 2-digit number
arith007 Subtraction without borrowing
arith128 Adding or subtracting 10, 100, or 1000
arith682 Subtraction with multiple regrouping steps
arith637 Subtraction and regrouping with zeros
arith613 Word problem with addition or subtraction of whole numbers
arith655 Introduction to properties of addition
arith126 Multiplication as repeated addition
arith008 One-digit multiplication
arith679 Multiplication by 10, 100, and 1000
arith003 Multiplication without carry
arith004 Multiplication with carry
arith632 Multiplication with trailing zeros: Problem type 1
arith615 Introduction to multiplication of large numbers
arith638 Multiplication with trailing zeros: Problem type 2
arith014 Multiplication of large numbers
arith641 Multiples: Problem type 1
arith642 Multiples: Problem type 2
arith656 Introduction to properties of multiplication
arith675 Division facts
arith614 Word problem with multiplication or division of whole numbers
arith130 Word problem with multiplication and addition or subtraction of whole numbers
arith243 Division of whole numbers given in fractional form
arith711 Division involving zero
arith052 Division without carry
arith005 Division with carry
arith680 Division with trailing zeros: Problem type 1
arith649 Division with trailing zeros: Problem type 2
arith616 Quotient and remainder: Problem type 1
arith644 Word problem on quotient and remainder
arith617 Quotient and remainder: Problem type 2
arith631 Quotient and remainder: Problem type 3
arith650 Division involving quotients with intermediate zeros
arith023 Word problem with division of whole numbers and rounding
arith651 Introduction to inequalities
arith077 Ordering large numbers
arith078 Rounding to tens or hundreds
arith123 Rounding to hundreds or thousands
arith061 Rounding to thousands, ten thousands, or hundred thousands
arith101 Estimating a sum of whole numbers
arith102 Estimating a difference of whole numbers
arith604 Estimating a product or quotient of whole numbers
arith692 Writing expressions using exponents
arith233 Introduction to exponents
arith683 Power of 10: Positive exponent
arith645 Introduction to parentheses
arith681 Introduction to order of operations
arith048 Order of operations with whole numbers
arith651 Order of operations with whole numbers and grouping symbols
arith693 Order of operations with whole numbers and exponents: Basic
B.10. DEVELOPMENTAL MATH

Order of operations with whole numbers and exponents: Advanced
Understanding the distributive property
Evaluating an algebraic expression: Whole number addition or subtraction
Evaluating an algebraic expression: Whole number multiplication or division
Evaluating an algebraic expression: Whole numbers with two operations
Evaluating an algebraic expression: Whole number operations and exponents
Additive property of equality with whole numbers
Multiplicative property of equality with whole numbers
Using two steps to solve an equation with whole numbers
Even and odd numbers
Divisibility rules for 2, 5, and 10
Divisibility rules for 3 and 9
Factors
Prime numbers
Prime factorization
Greatest common factor of 2 numbers
Least common multiple of 2 numbers
Least common multiple of 3 numbers
Word problem with common multiples
Finding the next terms of an arithmetic sequence with whole numbers
Finding the next terms of a geometric sequence with whole numbers
Finding patterns in shapes

Fractios

Introduction to fractions
Understanding equivalent fractions
Equivalent fractions
Introduction to simplifying a fraction
Simplifying a fraction
Fractional position on a number line
Plotting fractions on a number line
Ordering fractions with the same denominator
Ordering fractions with the same numerator
Using a common denominator to order fractions
Product of a unit fraction and a whole number
Product of a fraction and a whole number: Problem type 1
Introduction to fraction multiplication
Fraction multiplication
Product of a fraction and a whole number: Problem type 2
Multiplication of 3 fractions
Word problem involving fractions and multiplication
Multi-step word problem involving fractions and multiplication
The reciprocal of a number
Division involving a whole number and a fraction
Fraction division
Word problem involving fractions and division
Addition or subtraction of fractions with the same denominator
Addition or subtraction of fractions with the same denominator and simplification
Finding the LCD of two fractions
Addition or subtraction of unit fractions
Introduction to addition or subtraction of fractions with different denominators
Addition or subtraction of fractions with different denominators
Addition and subtraction of 3 fractions with different denominators
Word problem involving addition or subtraction of fractions with different denominators
Fractional part of a circle
Writing a mixed number and an improper fraction for a shaded region
Writing an improper fraction as a mixed number
Writing a mixed number as an improper fraction
Addition or subtraction of mixed numbers with the same denominator
APPENDIX B. SYLLABI IN ALEKS

arith084 Addition of mixed numbers with the same denominator and carry
arith216 Subtraction of mixed numbers with the same denominator and borrowing
arith806 Addition or subtraction of mixed numbers with different denominators and no carry or borrow
arith808 Addition of mixed numbers with different denominators and carry
arith809 Subtraction of mixed numbers with different denominators and borrowing
arith807 Addition and subtraction of 3 mixed numbers with different denominators
arith810 Word problem involving addition or subtraction of mixed numbers with different denominators
arith815 Mixed number multiplication
arith816 Multiplication of a mixed number and a whole number
arith817 Division with a mixed number and a whole number
arith068 Mixed number division
arith820 Word problem involving multiplication or division with mixed numbers
arith821 Exponents and fractions
arith859 Order of operations with fractions: Problem type 1
arith860 Order of operations with fractions: Problem type 2
arith861 Order of operations with fractions: Problem type 3

Decimals, Proportions, Percents

arith127 Writing a decimal and a fraction for a shaded region
arith110 Decimal place value: Tenths and hundredths
arith220 Decimal place value: Hundreds to ten thousandths
arith714 Writing a decimal number less than 1 given its name
arith715 Writing a decimal number greater than 1 given its name
arith716 Writing a decimal number given its name: Advanced
arith829 Reading decimal position on a number line: Tenths
arith830 Reading decimal position on a number line: Hundredths
arith831 Understanding decimal position on a number line using zoom: Hundredths
arith832 Understanding decimal position on a number line using zoom: Thousandths
arith129 Introduction to ordering decimals
arith608 Ordering decimals
arith221 Rounding decimals
arith717 Converting a decimal to a proper fraction without simplifying: Basic
arith719 Converting a decimal to a proper fraction without simplifying: Advanced
arith718 Converting a decimal to a proper fraction in simplest form: Basic
arith807 Converting a decimal to a proper fraction in simplest form: Advanced
arith721 Converting a decimal to a mixed number and an improper fraction without simplifying
arith722 Converting a decimal to a mixed number and an improper fraction in simplest form: Basic
arith724 Converting a decimal to a mixed number and an improper fraction in simplest form: Advanced
arith624 Addition of aligned decimals
arith613 Decimal addition with 3 numbers
arith734 Subtraction of aligned decimals
arith735 Decimal subtraction: Basic
arith736 Decimal subtraction: Advanced
arith737 Decimal addition and subtraction with 3 or more numbers
arith131 Estimating a decimal sum or difference
arith132 Word problem with addition or subtraction of 2 decimals
arith133 Word problem with addition of 3 or 4 decimals and whole numbers
arith134 Word problem with subtraction of a whole number and a decimal: Regrouping with zeros
arith739 Introduction to decimal multiplication
arith017 Multiplication of a decimal by a whole number
arith055 Decimal multiplication: Problem type 1
arith046 Decimal multiplication: Problem type 2
arith082 Multiplication of a decimal by a power of ten
arith738 Multiplication of a decimal by a power of 0.1
arith740 Multiplication of decimals that have a product less than 0.1
arith752 Estimating a product of decimals
arith135 Word problem with multiplication of a decimal and a whole number
arith137 Word problem with multiplication of two decimals
arith224 Word problem with decimal addition and multiplication
B.10. DEVELOPMENTAL MATH

arith744 Whole number division with decimal answers
arith081 Division of a decimal by a whole number
arith743 Division of a decimal by a 1-digit decimal
arith091 Division of a decimal by a 2-digit decimal
arith083 Division of a decimal by a power of ten
arith742 Division of a decimal by a power of 0.1
arith745 Decimal division with rounding
arith136 Word problem with division of a decimal and a whole number
arith138 Word problem with division of two decimals
arith227 Word problem with decimal subtraction and division
alge823 Solving a one-step word problem using the formula d = rt
arith725 Converting a fraction with a denominator of 10 or 100 to a decimal
arith726 Converting a fraction with a denominator of 100 or 1000 to a decimal
arith727 Converting a fraction to a terminating decimal: Basic
arith728 Converting a fraction to a terminating decimal: Advanced
arith730 Converting a fraction to a repeating decimal: Basic
arith731 Converting a fraction to a repeating decimal: Advanced
arith733 Using a calculator to convert a fraction to a rounded decimal
arith111 Converting a mixed number to a terminating decimal: Basic
arith112 Converting a mixed number to a terminating decimal: Advanced
arith732 Converting a fraction or mixed number to a rounded decimal
arith609 Ordering fractions and decimals
arith753 Squaring decimal bases: Products greater than 0.1
arith741 Exponents and decimals: Products less than 0.1
arith720 Order of operations with decimals: Problem type 1
arith746 Order of operations with decimals: Problem type 2
arith747 Order of operations with decimals: Problem type 3
arith748 Addition or subtraction with a decimal and a mixed number
arith749 Multiplication with a decimal and a fraction
arith823 Writing ratios using different notations
arith824 Simplifying a ratio of whole numbers: Problem type 1
arith825 Simplifying a ratio of decimals
arith827 Finding a unit price
arith228 Word problem on unit rates associated with ratios of whole numbers: Decimal answers
arith828 Computing unit prices to find the better buy
alge272 Solving a proportion of the form x/a = b/c
arith064 Solving a word problem on proportions using a unit rate
arith610 Word problem on proportions: Problem type 1
arith611 Word problem on proportions: Problem type 2
alge063 Word problem on mixed number proportions
arith645 Word problem with powers of ten
arith836 Converting a fraction with a denominator of 100 to a percentage
arith837 Converting a percentage to a fraction with a denominator of 100
arith674 Finding the percentage of a grid that is shaded
arith723 Introduction to converting a percentage to a decimal
arith833 Introduction to converting a decimal to a percentage
arith834 Converting between percentages and decimals
arith841 Converting a mixed number percentage to a decimal
arith835 Converting between percentages and decimals in a real-world situation
arith090 Converting a percentage to a fraction in simplest form
arith839 Converting a decimal percentage to a fraction
arith838 Converting a fraction to a percentage: Denominator of 4, 5, or 10
arith002 Converting a fraction to a percentage: Denominator of 20, 25, or 50
arith843 Using a calculator to convert a fraction to a rounded percentage
arith842 Converting a fraction to a percentage in a real-world situation
arith840 Finding a percentage of a whole number
arith830 Finding a percentage of a whole number without a calculator: Basic
arith844 Finding a percentage of a whole number without a calculator: Advanced
arith862 Applying the percent equation: Problem type 1
arith863 Applying the percent equation: Problem type 2
arith846 Finding a percentage of a total amount without a calculator: Sales tax, commission, discount
arith857 Estimating a tip without a calculator
arith069 Writing a ratio as a percentage without a calculator
mstat049 Computing a percentage from a table of values
arith850 Finding the rate of a tax or commission
arith849 Finding the total amount given the percentage of a partial amount
arith852 Finding the multiplier to give a final amount after a percentage increase or decrease
arith851 Finding the final amount given the original amount and a percentage increase or decrease
arith847 Finding the sale price given the original price and percent discount
arith804 Finding the sale price without a calculator given the original price and percent discount
arith848 Finding the total cost including tax or markup
arith855 Finding the original amount given the result of a percentage increase or decrease
arith831 Finding the original price given the sale price and percent discount
arith858 Finding the percentage increase or decrease: Basic
arith825 Finding the percentage increase or decrease: Advanced
arith232 Finding simple interest without a calculator
arith853 Introduction to compound interest

Geometry, Measurement, Data Analysis

geom339 Perimeter of a polygon
geom300 Perimeter of a square or a rectangle
geom818 Perimeter of a polygon involving mixed numbers and fractions
geom078 Sides of polygons having the same perimeter
geom221 Finding the missing length in a figure
geom353 Perimeter of a piecewise rectangular figure
geom357 Identifying parallel and perpendicular lines
geom349 Naming segments, rays, and lines
geom151 Measuring an angle with the protractor
geom152 Drawing an angle with the protractor
geom303 Acute, obtuse, and right angles
geom839 Finding supplementary and complementary angles
geom305 Identifying supplementary and vertical angles
geom304 Identifying corresponding and alternate angles
geom306 Acute, obtuse, and right triangles
geom307 Classifying scalene, isosceles, and equilateral triangles by side lengths or angles
geom01 Finding an angle measure of a triangle given two angles
geom008 Finding an angle measure for a triangle with an extended side
geom812 Finding an angle measure given extended triangles
geom813 Finding an angle measure given a triangle and parallel lines
geom361 Naming polygons
mstat042 Interpreting a Venn diagram of 2 sets
geom867 Identifying parallelograms, rectangles, and squares
geom310 Properties of quadrilaterals
geom352 Classifying parallelograms
geom019 Area of a square or a rectangle
geom866 Perimeter and area on a grid
geom020 Area of a rectangle involving fractions
geom019 Area of a rectangle involving mixed numbers and fractions
geom350 Distinguishing between the area and perimeter of a rectangle
geom351 Areas of rectangles with the same perimeter
geom217 Finding the side length of a rectangle given its perimeter or area
geom340 Area of a piecewise rectangular figure
geom124 Word problem involving the area between two rectangles
geom801 Area of a triangle
geom344 Area involving rectangles and triangles
geom22 Area of a parallelogram
geom323 Area of a trapezoid
geom347 Introduction to a circle: Diameter, radius, and chord
geom016 Circumference of a circle
B.10. DEVELOPMENTAL MATH

geom301 Perimeter involving rectangles and circles
geom302 Area involving rectangles and circles
geom036 Word problem involving the area between two concentric circles
geom214 Area involving inscribed figures
geom368 Classifying solids
geom348 Vertices, edges, and faces of a solid
geom830 Counting the cubes in a solid made of cubes
geom354 Volume of a rectangular prism made of unit cubes
geom311 Volume of a rectangular prism
geom505 Volume of a piecewise rectangular prism
geom990 Volume of a triangular prism
geom033 Volume of a pyramid
geom035 Volume of a cylinder
geom892 Volume involving the rate of filling or emptying a cylinder
geom841 Volume of a sphere
geom219 Nets of solids
geom816 Side views of a solid made of cubes
geom303 Surface area of a cube or a rectangular prism
geom345 Surface area of a piecewise rectangular prism made of unit cubes
geom901 Surface area of a triangular prism
geom621 Surface area of a cylinder
geom842 Surface area of a sphere
arith016 Square root of a perfect square
arith763 Using a calculator to approximate a square root
arith802 Estimating a square root
alge407 Introduction to the Pythagorean Theorem
geom044 Pythagorean Theorem
alge408 Word problem involving the Pythagorean Theorem
geom359 Identifying congruent shapes on a grid
geom520 Identifying and naming congruent triangles
geom360 Identifying similar or congruent shapes on a grid
geom037 Similar polygons
geom038 Similar right triangles
geom039 Indirect measurement
mstat059 Choosing U.S. Customary measurement units
unit005 U.S. Customary unit conversion with whole number values
mstat035 Conversions involving measurements in feet and inches
mstat036 Adding measurements in feet and inches
unit006 U.S. Customary unit conversion with whole number values: Two-step conversion
unit007 U.S. Customary unit conversion with mixed numbers: One-step conversion
unit008 U.S. Customary unit conversion with mixed number values: Two-step conversion
unit009 U.S. Customary area unit conversion with whole number values
mstat060 Choosing metric measurement units
unit001 Metric distance conversion with whole number values
unit002 Metric mass or capacity conversion with whole number values
unit003 Metric distance conversion with decimal values
unit004 Metric conversion with decimal values: Two-step problem
unit010 Metric area unit conversion with decimal values
unit012 Time unit conversion with whole number values
time006 Adding time
time007 Elapsed time
arith063 Word problem with clocks
mstat065 Converting between temperatures in Fahrenheit and Celsius
arith826 Simplifying a ratio of whole numbers: Problem type 2
unit034 Converting between metric and U.S. Customary unit systems
unit035 Converting between compound units: Basic
unit036 Converting between compound units: Advanced
mstat056 Interpreting a tally table
mstat037 Constructing a line plot
mstat005 Constructing a bar graph for non-numerical data
APPENDIX B. SYLLABI IN ALEKS

mstat004 Constructing a histogram for numerical data
mstat024 Interpreting a bar graph
mstat044 Interpreting a double bar graph
mstat057 Interpreting a pictograph table
mstat007 Interpreting a line graph
mstat031 Interpreting a stem-and-leaf plot
stat084 Interpreting a circle graph or pie chart
arithmetic856 Finding a percentage of a total amount in a circle graph
stat801 Computations from a circle graph
geometry814 Angle measure in a circle graph
stat020 Calculating relative frequencies in a contingency table
stat805 Making a reasonable inference based on proportion statistics
mstat025 Finding if a question can be answered by the data
mstat003 Mode of a data set
mstat055 Finding the mode and range of a data set
arithmetic103 Average of two numbers
mstat001 Mean of a data set
mstat028 Mean and median of a data set
mstat029 How changing a value affects the mean and median
mstat053 Choosing the best measure to describe data
stat802 Rejecting unreasonable claims based on average statistics
mstat066 Weighted mean
mstat027 Using back-to-back stem-and-leaf plots to compare data sets
mstat072 Five-number summary and interquartile range
mstat006 Constructing a box-and-whisker plot
mstat073 Using box-and-whisker plots to compare data sets
stat009 Percentiles
mstat043 Interpreting a Venn diagram of 3 sets
mstat041 Interpreting a tree diagram
mstat015 Counting principle
pascal082 Factorial expressions
mstat017 Computing permutations and combinations
mstat008 Word problem involving permutations
mstat009 Word problem involving combinations
stat079 Permutations, combinations, and the multiplication principle for counting
mstat026 Introduction to the probability of an event
mstat010 Probability of an event
mstat039 Understanding likelihood
mstat048 Odds of an event
stat010 Outcomes and event probability
stat012 Probabilities involving two dice
mstat011 Area as probability
mstat046 Experimental and theoretical probability
mstat047 Introduction to expectation
mstat012 Probability of independent events
mstat013 Probability of dependent events
mstat032 Probability of the union of two events

Real Numbers

algebra286 Plotting integers on a number line
arithmetic605 Plotting rational numbers on a number line
mstat038 Reading the temperature from a thermometer
arithmetic699 Writing a signed number for a real-world situation
arithmetic691 Ordering integers
arithmetic712 Ordering real numbers
arithmetic711 Absolute value of a number
arithmetic200 Integer addition: Problem type 1
arithmetic108 Integer addition: Problem type 2
B.10. DEVELOPMENTAL MATH

arith688 Integer subtraction: Problem type 1
arith689 Integer subtraction: Problem type 2
arith690 Integer subtraction: Problem type 3
arith754 Addition and subtraction with 3 integers
arith755 Addition and subtraction with 4 or 5 integers
arith701 Word problem with addition or subtraction of integers
arith231 Integer multiplication and division
arith800 Multiplication of 3 or 4 integers
alge001 Identifying numbers as integers or non-integers
arith002 Identifying numbers as rational or irrational
arith116 Signed fraction addition or subtraction: Basic
arith864 Signed fraction subtraction involving double negation
arith106 Signed fraction addition or subtraction: Advanced
arith811 Addition and subtraction of 3 fractions involving signs
arith822 Signed fraction multiplication: Basic
arith105 Signed fraction multiplication: Advanced
arith814 Signed fraction division
arith117 Signed decimal addition and subtraction
arith234 Signed decimal addition and subtraction with 3 numbers
arith750 Signed decimal multiplication
arith751 Signed decimal division
arith104 Operations with absolute value: Problem type 2
geom525 Computing distances between decimals on the number line
unit052 Finding the absolute error and percent error of a measurement
arith702 Exponents and integers: Problem type 1
arith703 Exponents and integers: Problem type 2
arith704 Exponents and signed fractions
arith750 Signed decimal multiplication
arith751 Signed decimal division
arith104 Operations with absolute value: Problem type 2
geom525 Computing distances between decimals on the number line
unit052 Finding the absolute error and percent error of a measurement
arith702 Exponents and integers: Problem type 1
arith703 Exponents and integers: Problem type 2
arith704 Exponents and signed fractions
arith118 Order of operations with integers
arith600 Order of operations with integers and exponents
alge005 Evaluating a linear expression: Integer multiplication with addition or subtraction
alge004 Evaluating a quadratic expression: Integers
alge808 Evaluating a linear expression: Signed fraction multiplication with addition or subtraction
alge302 Evaluating a linear expression: Signed decimal addition and subtraction
alge303 Evaluating a linear expression: Signed decimal multiplication with addition or subtraction
alge607 Combining like terms: Whole number coefficients
alge607 Combining like terms: Integer coefficients
alge187 Properties of addition
alge310 Multiplying a constant and a linear monomial
alge606 Distributive property: Whole number coefficients
alge604 Distributive property: Integer coefficients
alge188 Properties of real numbers
alge608 Using distribution and combining like terms to simplify: Univariate
alge609 Using distribution with double negation and combining like terms to simplify: Multivariate
alge293 Combining like terms in a quadratic expression

Linear Equations and Inequalities

alge801 Additive property of equality with fractions and mixed numbers
alge800 Additive property of equality with decimals
alge010 Additive property of equality with integers
alge836 Additive property of equality with signed fractions
alge820 Multiplicative property of equality with fractions
alge825 Multiplicative property of equality with decimals
alge797 Multiplicative property of equality with integers
alge012 Multiplicative property of equality with signed fractions
alge834 Identifying solutions to a linear equation in one variable: Two-step equations
alge266 Additive property of equality with a negative coefficient
alge606 Solving a two-step equation with integers
alge200 Solving an equation to find the value of an expression
alge920 Introduction to solving an equation with parentheses
APPENDIX B. SYLLABI IN ALEKS

alge837 Solving a multi-step equation given in fractional form
alge986 Identifying properties used to solve a linear equation
alge824 Solving a two-step equation with signed decimals
alge838 Introduction to solving an equation with variables on the same side
alge862 Solving a linear equation with several occurrences of the variable: Variables on the same side
alge863 Solving a linear equation with several occurrences of the variable: Variables on both sides
alge011 Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
alge013 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
alge209 Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions
alge420 Solving a linear equation with several occurrences of the variable: Fractional forms with monomial numerators
alge208 Solving a two-step equation with signed fractions
alge061 Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
alge179 Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators
alge742 Solving equations with zero, one, or infinitely many solutions
alge840 Solving a proportion of the form \((x+a)/b = c/d\)
alge511 Solving for a variable in terms of other variables using addition or subtraction: Basic
alge512 Solving for a variable in terms of other variables using addition or subtraction: Advanced
alge513 Solving for a variable in terms of other variables using multiplication or division: Basic
alge514 Solving for a variable in terms of other variables using multiplication or division: Advanced
alge517 Solving for a variable in terms of other variables using addition or subtraction with division
alge518 Solving for a variable inside parentheses in terms of other variables
alge507 Solving for a variable in terms of other variables in a linear equation with fractions
alge733 Writing a one-step expression for a real-world situation
alge831 Translating a phrase into a one-step expression
alge016 Translating a sentence into a one-step expression
alge841 Translating a sentence into a multi-step equation
alge802 Solving a fraction word problem using a linear equation of the form \(Ax = B\)
alge014 Solving a word problem with two unknowns using a linear equation
alge173 Solving a decimal word problem using a linear equation of the form \(Ax + B = C\)
alge730 Writing a multi-step equation for a real-world situation
alge219 Solving a decimal word problem using a linear equation with the variable on both sides
alge704 Solving a fraction word problem using a linear equation with the variable on both sides
alge792 Solving a word problem with three unknowns using a linear equation
alge842 Solving a word problem involving consecutive integers
alge794 Solving a value mixture problem using a linear equation
alge218 Solving a word problem involving rates and time conversion
alge796 Solving a distance, rate, time problem using a linear equation
arith854 Computing a percent mixture
alge795 Solving a percent mixture problem using a linear equation
geom817 Finding a side length given the perimeter and side lengths with variables
geom143 Finding the perimeter or area of a rectangle given one of these values
geom218 Finding the radius or the diameter of a circle given its circumference
geom838 Circumference ratios
geom530 Solving equations involving vertical angles
geom531 Solving equations involving angles and a pair of parallel lines
geom623 Finding angle measures of a triangle given angles with variables
geom502 Finding angle measures of a right or isosceles triangle given angles with variables
stat803 Finding the value for a new score that will yield a given mean
alge015 Translating a sentence by using an inequality symbol
alge845 Translating a sentence into a one-step inequality
alge846 Translating a sentence into a multi-step inequality
alge748 Writing an inequality for a real-world situation
alge017 Graphing a linear inequality on the number line
alge822 Writing an inequality given a graph on the number line
alge186 Translating a sentence into a compound inequality
B.10. DEVELOPMENTAL MATH

alge166 Graphing a compound inequality on the number line
alge847 Writing a compound inequality given a graph on the number line
set001 Set builder notation
set004 Set builder and interval notation
set002 Union and intersection of finite sets
set005 Union and intersection of intervals
alge844 Identifying solutions to a two-step linear inequality in one variable
alge848 Additive property of inequality with whole numbers
alge849 Additive property of inequality with integers
alge852 Additive property of inequality with signed fractions
alge853 Additive property of inequality with signed decimals
alge854 Multiplicative property of inequality with integers
alge964 Multiplicative property of inequality with signed fractions
alge855 Solving a two-step linear inequality: Problem type 1
alge856 Solving a two-step linear inequality: Problem type 2
alge857 Solving a two-step linear inequality with a fractional coefficient
alge977 Solving a linear inequality with multiple occurrences of the variable: Graph solution, basic
alge978 Solving a linear inequality with multiple occurrences of the variable: Problem type 2
alge859 Solving a linear inequality with multiple occurrences of the variable: Problem type 3
alge860 Solving inequalities with no solution or all real numbers as solutions
alge746 Solving a compound linear inequality: Graph solution, basic
alge747 Solving a compound linear inequality: Interval notation
alge749 Solving a decimal word problem using a two-step linear inequality
alge750 Solving a decimal word problem using a linear inequality with the variable on both sides
alge864 Solving an absolute value equation: Problem type 1
alge865 Solving an absolute value equation: Problem type 2
alge866 Solving an absolute value equation: Problem type 3
alge867 Solving an absolute value equation: Problem type 4
alge167 Solving an absolute value equation of the form —ax+b— = —cx+d—
alge868 Solving an absolute value inequality: Problem type 1
alge943 Writing an absolute value inequality given a graph on the number line
alge869 Solving an absolute value inequality: Problem type 2
alge870 Solving an absolute value inequality: Problem type 3
alge871 Solving an absolute value inequality: Problem type 4
alge872 Solving an absolute value inequality: Problem type 5

Lines, Functions, Systems

alge064 Reading a point in the coordinate plane
alge067 Plotting a point in the coordinate plane
alge850 Table for a linear equation
alge873 Identifying solutions to a linear equation in two variables
alge066 Finding a solution to a linear equation in two variables
alge877 Graphing a linear equation of the form y = mx
alge878 Graphing a line given its equation in slope-intercept form: Integer slope
alge879 Graphing a line given its equation in slope-intercept form: Fractional slope
alge880 Graphing a line given its equation in standard form
alge198 Graphing a vertical or horizontal line
alge884 Finding x- and y-intercepts given the graph of a line on a grid
alge924 Finding x- and y-intercepts of a line given the equation: Basic
alge210 Finding x- and y-intercepts of a line given the equation: Advanced
alge197 Graphing a line given its x- and y-intercepts
alge881 Graphing a line by first finding its x- and y-intercepts
alge875 Classifying slopes given graphs of lines
alge886 Finding slope given the graph of a line on a grid
alge887 Finding slope given two points on the line
alge885 Finding the slope of horizontal and vertical lines
alge888 Finding the coordinate that yields a given slope
alge259 Graphing a line given its slope and y-intercept
APPENDIX B. SYLLABI IN ALEKS

alge196 Graphing a line through a given point with a given slope
alge876 Identifying linear equations: Advanced
alge874 Identifying linear functions given ordered pairs
alge891 Rewriting a linear equation in the form Ax + By = C
alge889 Finding the slope and y-intercept of a line given its equation in the form y = mx + b
alge890 Finding the slope and y-intercept of a line given its equation in the form Ax + By = C
alge882 Graphing a line by first finding its slope and y-intercept
alge258 Writing an equation of a line given its slope and y-intercept
alge892 Writing an equation and graphing a line given its slope and y-intercept
alge893 Writing an equation in slope-intercept form given the slope and a point
alge883 Graphing a line given its equation in point-slope form
alge894 Writing an equation in point-slope form given the slope and a point
alge070 Writing an equation of a line given the y-intercept and another point
alge072 Writing the equation of the line through two given points
alge073 Writing the equations of vertical and horizontal lines through a given point
geom806 Finding slopes of lines parallel and perpendicular to a line given in slope-intercept form
geom807 Finding slopes of lines parallel and perpendicular to a line given in the form Ax + By = C
geom808 Writing equations of lines parallel and perpendicular to a given line through a point
alge897 Writing and evaluating a function that models a real-world situation: Advanced
alge701 Writing a function and drawing its graph to model a real-world situation: Advanced
fun005 Writing a function rule given a table of ordered pairs: One-step rules
fun006 Writing a function rule given a table of ordered pairs: Two-step rules
alge992 Combining functions to write a new function that models a real-world situation
alge987 Comparing properties of linear functions given in different forms
alge989 Interpreting the parameters of a linear function that models a real-world situation
alge805 Application problem with a linear function: Finding a coordinate given the slope and a point
alge806 Application problem with a linear function: Finding a coordinate given two points
mstat052 Identifying independent and dependent variables from equations or real-world situations
alge991 Solving a linear equation by graphing
mstat030 Sketching the line of best fit
mstat023 Scatter plots and correlation
mstat068 Predictions from the line of best fit
mstat067 Approximating the equation of a line of best fit and making predictions
mstat069 Computing residuals
mstat070 Interpreting residual plots
mstat071 Linear relationship and the correlation coefficient
mstat074 Identifying correlation and causation
stat021 Population standard deviation
fun032 Identifying functions from relations
fun010 Vertical line test
fun016 Domain and range from ordered pairs
fun001 Table for a linear function
pcalc760 Evaluating functions: Linear and quadratic or cubic
fun030 Evaluating a piecewise-defined function
fun033 Variable expressions as inputs of functions: Problem type 1
pcalc924 Determining whether an equation defines a function: Basic
alge294 Finding outputs of a one-step function that models a real-world situation: Function notation
alge295 Finding outputs of a two-step function with decimals that models a real-world situation: Function notation
alge296 Finding inputs and outputs of a two-step function that models a real-world situation: Function notation
alge990 Domain and range of a linear function that models a real-world situation
fun007 Domain and range from the graph of a discrete relation
fun024 Domain and range from the graph of a continuous function
fun025 Domain and range from the graph of a piecewise function
fun026 Finding an output of a function from its graph
pcalc761 Finding inputs and outputs of a function from its graph
pcalc750 Finding intercepts of a nonlinear function given its graph
alge999 Finding where a function is increasing, decreasing, or constant given the graph
pcalc751 Finding where a function is increasing, decreasing, or constant given the graph: Interval notation
pcalc752 Finding local maxima and minima of a function given the graph
mstat018 Choosing a graph to fit a narrative: Basic
B.10. DEVELOPMENTAL MATH

mstat051 Choosing a graph to fit a narrative: Advanced
alge896 Graphing an integer function and finding its range for a given domain
alge570 Graphing a function of the form $f(x) = ax + b$: Integer slope
alge571 Graphing a function of the form $f(x) = ax + b$: Fractional slope
alge913 Graphing an absolute value equation of the form $y = A - x -$
alge954 Graphing a parabola of the form $y = ax^2$
alge955 Graphing a parabola of the form $y = ax^2 + c$
alge572 Graphing a function of the form $f(x) = ax^2$
alge573 Graphing a function of the form $f(x) = ax^2 + c$
alge262 Graphing a cubic function of the form $y = ax^3$
fun031 Graphing a piecewise-defined function: Problem type 1
alge997 Finding the average rate of change of a function given its equation
alge998 Finding the average rate of change of a function given its graph
alge914 Identifying solutions to a system of linear equations
alge075 Classifying systems of linear equations from graphs
alge725 Graphically solving a system of linear equations
alge751 Solving a system of linear equations using substitution
alge915 Solving a system of linear equations using elimination with addition
alge9076 Solving a system of linear equations using elimination with multiplication and addition
alge916 Solving a system of linear equations with fractional coefficients
alge917 Solving a system of linear equations with decimal coefficients
alge752 Solving a 2x2 system of linear equations that is inconsistent or consistent dependent
alge077 Creating an inconsistent system of linear equations
alge988 Identifying the operations used to create equivalent systems of equations
alge753 Solving a 3x3 system of linear equations: Problem type 1
alge263 Interpreting the graphs of two functions
alge078 Solving a word problem involving a sum and another basic relationship using a system of linear equations
alge919 Solving a word problem using a system of linear equations of the form $Ax + By = C$
alge918 Solving a word problem using a system of linear equations of the form $y = mx + b$
alge184 Solving a value mixture problem using a system of linear equations
alge192 Solving a percent mixture problem using a system of linear equations
alge224 Solving a distance, rate, time problem using a system of linear equations
alge172 Solving a tax rate or interest rate problem using a system of linear equations
alge793 Solving a word problem using a 3x3 system of linear equations: Problem type 1
alge912 Identifying solutions to a linear inequality in two variables
alge225 Graphing a linear inequality in the plane: Vertical or horizontal line
alge720 Graphing a linear inequality in the plane: Slope-intercept form
alge018 Graphing a linear inequality in the plane: Standard form
alge079 Graphing a system of two linear inequalities: Basic
alge921 Graphing a system of two linear inequalities: Advanced
alge922 Graphing a system of three linear inequalities
alge729 Writing a multi-step inequality for a real-world situation
pcalc093 Solving a word problem using a system of linear inequalities: Problem type 1
pcalc095 Linear programming
pcalc094 Solving a word problem using linear programming
pcalc037 Scalar multiplication of a matrix
pcalc038 Addition or subtraction of matrices
pcalc740 Linear combination of matrices
pcalc042 Finding the determinant of a 2x2 matrix
pcalc043 Finding the determinant of a 3x3 matrix
pcalc045 Using Cramer’s rule to solve a 2x2 system of linear equations
pcalc047 Using Cramer’s rule to solve a 3x3 system of linear equations
pcalc712 Gauss-Jordan elimination with a 2x2 matrix
pcalc046 Solving a system of linear equations given its augmented matrix

Exponents and Polynomials

alge821 Understanding the product rule of exponents
alge024 Introduction to the product rule of exponents
alge311 Product rule with positive exponents: Univariate
alge030 Product rule with positive exponents: Multivariate
arith029 Ordering numbers with positive exponents
alge826 Understanding the power rules of exponents
alge306 Introduction to the power of a power rule of exponents
alge305 Introduction to the power of a product rule of exponents
alge307 Power rules with positive exponents: Multivariate products
alge308 Power rules with positive exponents: Multivariate quotients
alge756 Power and product rules with positive exponents
alge451 Simplifying a ratio of multivariate monomials: Basic
alge452 Simplifying a ratio of multivariate monomials: Advanced
alge453 Simplifying a ratio of multivariate monomials: Advanced
alge927 Power and quotient rules with positive exponents
alge790 Evaluating expressions with exponents of zero
arith756 Quotient of expressions involving exponents
arith042 Evaluating an expression with a negative exponent: Positive fraction base
arith043 Evaluating an expression with a negative exponent: Negative integer base
arith026 Quotient of expressions involving exponents
alge791 Rewriting an algebraic expression without a negative exponent
alge961 Introduction to the product rule with negative exponents
alge028 Product rule with negative exponents
alge755 Quotient rule with negative exponents: Problem type 1
alge926 Quotient rule with negative exponents: Problem type 2
alge025 Power of a power rule with negative exponents
alge799 Power rules with negative exponents
alge928 Power and quotient rules with negative exponents: Problem type 1
alge929 Power and quotient rules with negative exponents: Problem type 2
alge757 Power, product, and quotient rules with negative exponents
arith736 Scientific notation with positive exponent
arith837 Scientific notation with negative exponent
scinot012 Converting between scientific notation and standard form in a real-world situation
scinot008 Multiplying numbers written in scientific notation: Basic
scinot009 Multiplying numbers written in scientific notation: Advanced
scinot010 Dividing numbers written in scientific notation: Basic
scinot011 Dividing numbers written in scientific notation: Advanced
alge758 Degree and leading coefficient of a univariate polynomial
alge031 Degree of a multivariate polynomial
alge029 Simplifying a sum or difference of two univariate polynomials
alge029 Simplifying a sum or difference of three univariate polynomials
alge932 Simplifying a sum or difference of multivariate polynomials
alge735 Multiplying a univariate polynomial by a monomial with a positive coefficient
alge972 Multiplying a univariate polynomial by a monomial with a negative coefficient
alge835 Multiplying a multivariate polynomial by a monomial
alge033 Multiplying binomials with leading coefficients of 1
alge983 Multiplying binomials with leading coefficients greater than 1
alge765 Multiplying binomials in two variables
alge764 Multiplying conjugate binomials: Univariate
alge081 Multiplying conjugate binomials: Multivariate
alge032 Squaring a binomial: Univariate
alge068 Squaring a binomial: Multivariate
alge973 Multiplying binomials with negative coefficients
alge935 Multiplication involving binomials and trinomials in one variable
alge180 Multiplication involving binomials and trinomials in two variables
alge759 Dividing a polynomial by a monomial: Univariate
alge760 Dividing a polynomial by a monomial: Multivariate
alge761 Polynomial long division: Problem type 1
alge762 Polynomial long division: Problem type 2
alge763 Polynomial long division: Problem type 3
pcalc117 Synthetic division
pcalc786 Using the remainder theorem to evaluate a polynomial
B.10. DEVELOPMENTAL MATH

alge985 Closure properties of integers and polynomials
alge605 Factoring a linear binomial
alge736 Introduction to the GCF of two monomials
alge930 Greatest common factor of three univariate monomials
alge607 Greatest common factor of two multivariate monomials
alge738 Factoring out a monomial from a polynomial: Univariate
alge739 Factoring out a monomial from a polynomial: Multivariate
alge949 Factoring out a binomial from a polynomial: GCF factoring, basic
alge923 Factoring a univariate polynomial by grouping: Problem type 1
alge950 Factoring a univariate polynomial by grouping: Problem type 2
alge951 Factoring a multivariate polynomial by grouping: Problem type 1
alge952 Factoring a multivariate polynomial by grouping: Problem type 2
alge039 Factoring a quadratic with leading coefficient 1
alge942 Factoring a quadratic in two variables with leading coefficient 1
alge936 Factoring out a constant before factoring a quadratic
alge940 Factoring a quadratic with leading coefficient greater than 1: Problem type 1
alge941 Factoring a quadratic with leading coefficient greater than 1: Problem type 2
alge978 Factoring a quadratic by the ac-method
alge265 Factoring a quadratic in two variables with leading coefficient greater than 1
alge937 Factoring a quadratic with a negative leading coefficient
alge944 Factoring a perfect square trinomial with leading coefficient 1
alge945 Factoring a perfect square trinomial with leading coefficient greater than 1
alge946 Factoring a perfect square trinomial in two variables
alge290 Factoring a difference of squares in one variable: Basic
alge947 Factoring a difference of squares in one variable: Advanced
alge839 Factoring a difference of squares in two variables
alge948 Factoring a polynomial involving a GCF and a difference of squares: Univariate
alge833 Factoring a polynomial involving a GCF and a difference of squares: Multivariate
alge041 Factoring a product of a quadratic trinomial and a monomial
alge042 Factoring with repeated use of the difference of squares formula
alge044 Factoring a sum or difference of two cubes
alge681 Solving an equation written in factored form
alge956 Finding the roots of a quadratic equation of the form ax^2 + bx = 0
alge045 Finding the roots of a quadratic equation with leading coefficient 1
alge046 Finding the roots of a quadratic equation with leading coefficient greater than 1
alge211 Solving a quadratic equation needing simplification
alge703 Solving a word problem using a quadratic equation with rational roots
alge713 Using the Pythagorean Theorem and a quadratic equation to find side lengths of a right triangle
alge046 Roots of a product of polynomials
alge163 Writing a quadratic equation given the roots and the leading coefficient

Rational Expressions

alge049 Restriction on a variable in a denominator: Linear
alge467 Restriction on a variable in a denominator: Quadratic
alge468 Evaluating a rational function: Problem type 1
alge469 Evaluating a rational function: Problem type 2
alge715 Domain of a rational function: Excluded values
alge454 Simplifying a ratio of factored polynomials: Linear factors
alge455 Simplifying a ratio of factored polynomials: Factors with exponents
alge456 Simplifying a ratio of polynomials using GCF factoring
alge457 Simplifying a ratio of linear polynomials: 1, -1, and no simplification
alge458 Simplifying a ratio of polynomials by factoring a quadratic with leading coefficient 1
alge710 Simplifying a ratio of polynomials: Problem type 1
alge682 Simplifying a ratio of polynomials: Problem type 2
alge459 Simplifying a ratio of polynomials: Problem type 3
alge034 Simplifying a ratio of multivariate polynomials
alge053 Multiplying rational expressions involving multivariate monomials
alge460 Multiplying rational expressions made up of linear expressions
### APPENDIX B. SYLLABI IN ALEKS

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>alge620</td>
<td>Multiplying rational expressions involving quadratics with leading coefficients of 1</td>
</tr>
<tr>
<td>alge461</td>
<td>Multiplying rational expressions involving quadratics with leading coefficients greater than 1</td>
</tr>
<tr>
<td>alge462</td>
<td>Multiplying rational expressions involving multivariate quadratics</td>
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<tr>
<td>alge054</td>
<td>Dividing rational expressions involving multivariate monomials</td>
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<tr>
<td>alge463</td>
<td>Dividing rational expressions involving linear expressions</td>
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<tr>
<td>alge706</td>
<td>Dividing rational expressions involving quadratics with leading coefficients of 1</td>
</tr>
<tr>
<td>alge464</td>
<td>Dividing rational expressions involving quadratics with leading coefficients greater than 1</td>
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<td>alge465</td>
<td>Dividing rational expressions involving multivariate quadratics</td>
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<tr>
<td>alge466</td>
<td>Multiplication and division of 3 rational expressions</td>
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<tr>
<td>alge737</td>
<td>Introduction to the LCM of two monomials</td>
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<tr>
<td>alge055</td>
<td>Least common multiple of two monomials</td>
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<tr>
<td>alge427</td>
<td>Finding the LCD of rational expressions with linear denominators: Relatively prime</td>
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<tr>
<td>alge428</td>
<td>Finding the LCD of rational expressions with linear denominators: Common factors</td>
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<tr>
<td>alge429</td>
<td>Finding the LCD of rational expressions with quadratic denominators</td>
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<tr>
<td>alge430</td>
<td>Writing equivalent rational expressions with monomial denominators</td>
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<tr>
<td>alge431</td>
<td>Writing equivalent rational expressions with polynomial denominators</td>
</tr>
<tr>
<td>alge434</td>
<td>Writing equivalent rational expressions involving opposite factors</td>
</tr>
<tr>
<td>alge432</td>
<td>Introduction to adding fractions with variables and common denominators</td>
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<tr>
<td>alge433</td>
<td>Adding rational expressions with common denominators and monomial numerators</td>
</tr>
<tr>
<td>alge056</td>
<td>Adding rational expressions with common denominators and binomial numerators</td>
</tr>
<tr>
<td>alge434</td>
<td>Adding rational expressions with common denominators and GCF factoring</td>
</tr>
<tr>
<td>alge435</td>
<td>Adding rational expressions with common denominators and quadratic factoring</td>
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<tr>
<td>alge436</td>
<td>Adding rational expressions with different denominators and a single occurrence of a variable</td>
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<tr>
<td>alge437</td>
<td>Adding rational expressions with denominators ax and bx: Basic</td>
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<tr>
<td>alge438</td>
<td>Adding rational expressions with denominators ax and bx: Advanced</td>
</tr>
<tr>
<td>alge439</td>
<td>Adding rational expressions with denominators axn and bxm</td>
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<tr>
<td>alge440</td>
<td>Adding rational expressions with multivariate monomial denominators: Basic</td>
</tr>
<tr>
<td>alge226</td>
<td>Adding rational expressions with multivariate monomial denominators: Advanced</td>
</tr>
<tr>
<td>alge441</td>
<td>Adding rational expressions with linear denominators without common factors: Basic</td>
</tr>
<tr>
<td>alge442</td>
<td>Adding rational expressions with linear denominators without common factors: Advanced</td>
</tr>
<tr>
<td>alge443</td>
<td>Adding rational expressions with linear denominators with common factors: Basic</td>
</tr>
<tr>
<td>alge444</td>
<td>Adding rational expressions with linear denominators with common factors: Advanced</td>
</tr>
<tr>
<td>alge445</td>
<td>Adding rational expressions with denominators ax-b and b-ax</td>
</tr>
<tr>
<td>alge661</td>
<td>Adding rational expressions involving different quadratic denominators</td>
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<tr>
<td>alge446</td>
<td>Adding 3 rational expressions with different quadratic denominators</td>
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<tr>
<td>arith695</td>
<td>Complex fraction without variables: Problem type 1</td>
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<td>arith696</td>
<td>Complex fraction without variables: Problem type 2</td>
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<td>alge470</td>
<td>Complex fraction involving univariate monomials</td>
</tr>
<tr>
<td>alge058</td>
<td>Complex fraction involving multivariate monomials</td>
</tr>
<tr>
<td>alge471</td>
<td>Complex fraction: GCF factoring</td>
</tr>
<tr>
<td>alge472</td>
<td>Complex fraction: Quadratic factoring</td>
</tr>
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<td>alge473</td>
<td>Complex fraction made of sums involving rational expressions: Problem type 1</td>
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<tr>
<td>alge474</td>
<td>Complex fraction made of sums involving rational expressions: Problem type 2</td>
</tr>
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<td>Complex fraction made of sums involving rational expressions: Problem type 3</td>
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<td>Complex fraction made of sums involving rational expressions: Problem type 4</td>
</tr>
<tr>
<td>alge477</td>
<td>Complex fraction made of sums involving rational expressions: Problem type 5</td>
</tr>
<tr>
<td>alge478</td>
<td>Complex fraction made of sums involving rational expressions: Problem type 6</td>
</tr>
<tr>
<td>alge479</td>
<td>Complex fraction made of sums involving rational expressions: Multivariate</td>
</tr>
<tr>
<td>alge480</td>
<td>Complex fraction with negative exponents: Problem type 1</td>
</tr>
<tr>
<td>alge481</td>
<td>Complex fraction with negative exponents: Problem type 2</td>
</tr>
<tr>
<td>alge162</td>
<td>Complex fraction that contains a complex fraction</td>
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<tr>
<td>alge271</td>
<td>Solving a proportion of the form a/(x+b) = c/x</td>
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<tr>
<td>alge060</td>
<td>Solving a rational equation that simplifies to linear: Denominator x</td>
</tr>
<tr>
<td>alge205</td>
<td>Solving a rational equation that simplifies to linear: Denominator x+a</td>
</tr>
<tr>
<td>alge769</td>
<td>Solving a rational equation that simplifies to linear: Denominators a, x, or ax</td>
</tr>
<tr>
<td>alge421</td>
<td>Solving a rational equation that simplifies to linear: Denominators ax and bx</td>
</tr>
<tr>
<td>alge422</td>
<td>Solving a rational equation that simplifies to linear: Like binomial denominators</td>
</tr>
<tr>
<td>alge206</td>
<td>Solving a rational equation that simplifies to linear: Unlike binomial denominators</td>
</tr>
<tr>
<td>alge423</td>
<td>Solving a rational equation that simplifies to linear: Factorable quadratic denominator</td>
</tr>
<tr>
<td>alge424</td>
<td>Solving a rational equation that simplifies to quadratic: Proportional form, basic</td>
</tr>
<tr>
<td>alge425</td>
<td>Solving a rational equation that simplifies to quadratic: Denominator x</td>
</tr>
<tr>
<td>alge212</td>
<td>Solving a rational equation that simplifies to quadratic: Binomial denominators, constant numerators</td>
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</table>
B.10. DEVELOPMENTAL MATH

alge062 Solving a rational equation that simplifies to quadratic: Binomial denominators and numerators
alge426 Solving a rational equation that simplifies to quadratic: Factorable quadratic denominator
alge047 Solving a rational equation that simplifies to quadratic: Proportional form, advanced
alge508 Solving for a variable in terms of other variables in a rational equation: Problem type 1
alge509 Solving for a variable in terms of other variables in a rational equation: Problem type 2
alge510 Solving for a variable in terms of other variables in a rational equation: Problem type 3
arith612 Word problem involving multiple rates
alge770 Solving a work problem using a rational equation
alge450 Solving a distance, rate, time problem using a rational equation
geom133 Ratio of volumes
alge059 Ordering fractions with variables
alge982 Identifying direct variation equations
alge938 Identifying direct variation from ordered pairs and writing equations
alge904 Writing a direct variation equation
alge175 Word problem on direct variation
alge828 Interpreting direct variation from a graph
alge905 Writing an inverse variation equation
alge903 Identifying direct and inverse variation equations
alge902 Identifying direct and inverse variation from ordered pairs and writing equations
alge176 Word problem on inverse variation
alge220 Word problem on inverse proportions
pcalc681 Writing an equation that models variation
alge772 Word problem on combined variation
pcalc917 Finding the asymptotes of a rational function: Constant over linear
pcalc918 Finding the asymptotes of a rational function: Linear over linear
alge515 Graphing a rational function: Constant over linear
alge516 Graphing a rational function: Linear over linear

Radicals

alge413 Finding all square roots of a number
arith601 Square root of a rational perfect square
arith760 Square roots of perfect squares with signs
arith761 Square roots of integers raised to even exponents
alge264 Square root of a perfect square monomial
alge537 Using absolute value to simplify square roots of perfect square monomials
arith994 Cube root of an integer
alge549 Finding nth roots of perfect nth powers with signs
arith768 Finding the nth root of a perfect nth power fraction
alge550 Finding the nth root of a perfect nth power monomial
alge558 Using absolute value to simplify higher radical expressions
alge539 Table for a square root function
alge546 Evaluating a cube root function
alge540 Domain of a square root function: Basic
pcalc763 Domain of a square root function: Advanced
alge547 Domains of higher root functions
alge543 Graphing a square root function: Problem type 1
alge544 Graphing a square root function: Problem type 2
alge545 Graphing a square root function: Problem type 3
alge548 Graphing a cube root function
alge812 Converting between radical form and exponent form
alge560 Rational exponents: Unit fraction exponents and whole number bases
alge561 Rational exponents: Unit fraction exponents and bases involving signs
alge250 Rational exponents: Non-unit fraction exponent with a whole number base
alge251 Rational exponents: Negative exponents and fractional bases
alge558 Rational exponents: Product rule
alge559 Rational exponents: Quotient rule
alge773 Rational exponents: Products and quotients with negative exponents
alge562 Rational exponents: Power of a power rule
APPENDIX B. SYLLABI IN ALEKS

alg249 Rational exponents: Powers of powers with negative exponents
arith093 Simplifying the square root of a whole number less than 100
arith762 Simplifying the square root of a whole number greater than 100
alg080 Simplifying a radical expression with an even exponent
alg520 Introduction to simplifying a radical expression with an odd exponent
alg521 Simplifying a radical expression with an odd exponent
alg275 Simplifying a radical expression with two variables
alg273 Simplifying a higher root of a whole number
alg551 Introduction to simplifying a higher radical expression
alg552 Simplifying a higher radical expression: Univariate
alg811 Simplifying a higher radical expression: Multivariate
arith767 Introduction to square root addition or subtraction
arith032 Square root addition or subtraction
alg533 Square root addition or subtraction with three terms
alg631 Introduction to simplifying a sum or difference of radical expressions: Univariate
alg532 Simplifying a sum or difference of radical expressions: Univariate
alg084 Simplifying a sum or difference of radical expressions: Multivariate
alg554 Simplifying a sum or difference of higher roots
alg555 Simplifying a sum or difference of higher radical expressions
arith764 Introduction to square root multiplication
arith765 Square root multiplication: Basic
arith039 Square root multiplication: Advanced
alg522 Introduction to simplifying a product of radical expressions: Univariate
alg523 Simplifying a product of radical expressions: Univariate
alg640 Simplifying a product of radical expressions: Multivariate
alg082 Simplifying a product of radical expressions: Multivariate, fractional expressions
alg556 Introduction to simplifying a product of higher roots
alg557 Simplifying a product of higher radical expressions
alg525 Introduction to simplifying a product involving square roots using the distributive property
alg526 Simplifying a product involving square roots using the distributive property: Basic
alg276 Simplifying a product involving square roots using the distributive property: Advanced
alg774 Special products of radical expressions: Conjugates and squaring
alg984 Classifying sums and products as rational or irrational
arith766 Simplifying a quotient of square roots
alg530 Simplifying a quotient involving a sum or difference with a square root
alg527 Rationalizing a denominator: Quotient involving square roots
alg528 Rationalizing a denominator: Square root of a fraction
alg529 Rationalizing a denominator: Quotient involving a monomial
alg534 Rationalizing a denominator using conjugates: Integer numerator
alg535 Rationalizing a denominator using conjugates: Square root in numerator
alg536 Rationalizing a denominator using conjugates: Variable in denominator
alg564 Rationalizing a denominator: Quotient involving a higher radical
alg775 Rationalizing a denominator: Quotient involving higher radicals and monomials
alg563 Simplifying products or quotients of higher radicals with different indices: Univariate
alg776 Simplifying products or quotients of higher radicals with different indices: Multivariate
alg400 Introduction to solving a radical equation
alg089 Solving a radical equation that simplifies to a linear equation: One radical, basic
alg042 Solving a radical equation that simplifies to a linear equation: One radical, advanced
alg090 Solving a radical equation that simplifies to a linear equation: Two radicals
alg405 Solving a radical equation with two radicals that simplifies to \( \sqrt{x} = a \)
alg403 Solving a radical equation that simplifies to a quadratic equation: One radical, basic
alg404 Solving a radical equation that simplifies to a quadratic equation: One radical, advanced
alg411 Solving a radical equation with a quadratic expression under the radical
alg182 Solving a radical equation that simplifies to a quadratic equation: Two radicals
alg412 Algebraic symbol manipulation with radicals
alg542 Word problem involving radical equations: Basic
alg409 Word problem involving radical equations: Advanced
alg410 Solving an equation with a root index greater than 2: Problem type 1
alg417 Solving an equation with a root index greater than 2: Problem type 2
alg093 Solving an equation using the odd-root property: Problem type 1
alg228 Solving an equation using the odd-root property: Problem type 2
alg416 Solving an equation with exponent \( 1/a \): Problem type 1
B.10. DEVELOPMENTAL MATH

alge418 Solving an equation with exponent 1/a: Problem type 2
alge778 Using i to rewrite square roots of negative numbers
alge779 Simplifying a product and quotient involving square roots of negative numbers
pcalc048 Adding or subtracting complex numbers
pcalc049 Multiplying complex numbers
pcalc050 Dividing complex numbers
pcalc053 Simplifying a power of i

Quadratic Equations and Functions

alge962 Solving an equation of the form $x^2 = a$ using the square root property
alge964 Solving a quadratic equation using the square root property: Exact answers, basic
alge965 Solving a quadratic equation using the square root property: Exact answers, advanced
alge966 Completing the square
alge780 Solving a quadratic equation by completing the square: Exact answers
alge967 Applying the quadratic formula: Exact answers
alge968 Applying the quadratic formula: Decimal answers
pcalc051 Solving a quadratic equation with complex roots
alge214 Discriminant of a quadratic equation
alge193 Discriminant of a quadratic equation with parameter
alge781 Solving an equation that can be written in quadratic form: Problem type 1
alge782 Solving an equation that can be written in quadratic form: Problem type 2
alge230 Solving an equation with positive rational exponent
alge231 Solving an equation with negative rational exponent
alge524 Solving a word problem using a quadratic equation with irrational roots
alge974 Finding the vertex, x-intercepts, and axis of symmetry from the graph of a parabola
alge253 Graphing a parabola of the form $y = (x-h)^2 + k$
alge569 Graphing a parabola of the form $y = x^2 + bx + c$
pcalc746 Graphing a parabola of the form $y = ax^2 + bx + c$: Integer coefficients
pcalc747 Graphing a parabola of the form $y = ax^2 + bx + c$: Rational coefficients
alge277 Finding the x-intercept(s) and the vertex of a parabola
alge793 Using a graphing calculator to find the x-intercept(s) and vertex of a quadratic function
pcalc774 Rewriting a quadratic function to find the vertex of its graph
pcalc775 Finding the maximum or minimum of a quadratic function
alge785 Word problem involving the maximum or minimum of a quadratic function
alge973 Domain and range from the graph of a parabola
pcalc672 Range of a quadratic function
pcalc680 Writing the equation of a quadratic function given its graph
alge957 Solving a quadratic equation by graphing
alge986 Comparing properties of quadratic functions given in different forms
alge792 Classifying the graph of a function
alge723 How the leading coefficient affects the shape of a parabola
alge784 Solving a quadratic inequality written in factored form
alge771 Solving a quadratic inequality
pcalc676 Solving a polynomial inequality
alge783 Solving a rational inequality: Problem type 1
pcalc677 Solving a rational inequality: Problem type 2
alge953 Translating the graph of a parabola: One step
alge898 Translating the graph of an absolute value function: One step
alge899 Translating the graph of an absolute value function: Two steps
alge900 Graphing an absolute value equation in the plane: Basic
alge168 Graphing an absolute value equation in the plane: Advanced
alge901 How the leading coefficient affects the graph of an absolute value function
alge185 Writing an equation for a function after a vertical translation
fun020 Writing an equation for a function after a vertical and horizontal translation
fun019 Sum, difference, and product of two functions
alge786 Quotient of two functions: Basic
pcalc756 Combining functions: Advanced
fun022 Composition of two functions: Basic
pcalc776 Expressing a function as a composition of two functions
fun021 Composition of two functions: Domain and range
alge129 Composition of two functions: Advanced
pcalc757 Determining whether an equation defines a function: Advanced
fun011 Horizontal line test
pcalc777 Determining whether two functions are inverses of each other
fun012 Inverse functions: Linear, discrete
alge130 Inverse functions: Rational
pcalc778 Inverse functions: Quadratic, cubic, radical

Logarithms, Conic Sections, Sequences

alge971 Table for an exponential function
alge969 Graphing an exponential function: \( f(x) = ax \)
alge970 Graphing an exponential function: \( f(x) = a(b)x \)
pcalc922 Translating the graph of an exponential function
pcalc797 The graph, domain, and range of an exponential function
pcalc103 Graphing an exponential function and its asymptote: \( f(x) = a(e)x-b + c \)
alge830 Evaluating an exponential function that models a real-world situation
pcalc919 Evaluating an exponential function with base \( e \) that models a real-world situation
alge177 Finding a final amount in a word problem on exponential growth or decay
alge741 Finding the final amount in a word problem on compound interest
alge966 Finding the initial amount and rate of change given an exponential function
alge968 Writing an equation that models exponential growth or decay
alge967 Writing an exponential function rule given a table of ordered pairs
alge993 Comparing linear, polynomial, and exponential functions
alge108 Converting between logarithmic and exponential equations
pcalc799 Converting between natural logarithmic and exponential equations
alge232 Evaluating a logarithmic expression
alge233 Solving an equation of the form \( \log_b a = c \)
pcalc923 Translating the graph of a logarithmic function
alge788 Graphing a logarithmic function: Basic
pcalc800 The graph, domain, and range of a logarithmic function
pcalc104 Graphing a logarithmic function: Advanced
pcalc708 Basic properties of logarithms
pcalc779 Expanding a logarithmic expression: Problem type 1
pcalc780 Expanding a logarithmic expression: Problem type 2
alge787 Writing an expression as a single logarithm
pcalc612 Change of base for logarithms: Problem type 1
pcalc613 Change of base for logarithms: Problem type 2
pcalc803 Solving a multi-step equation involving a single logarithm
pcalc804 Solving a multi-step equation involving natural logarithms
alge113 Solving an equation involving logarithms on both sides: Problem type 1
pcalc805 Solving an equation involving logarithms on both sides: Problem type 2
alge301 Solving an exponential equation by finding common bases: Linear exponents
alge482 Solving an exponential equation by finding common bases: Linear and quadratic exponents
pcalc920 Solving an exponential equation by using logarithms: Decimal answers, basic
pcalc921 Solving an exponential equation by using natural logarithms: Decimal answers
alge111 Solving an exponential equation by using logarithms: Exact answers in logarithmic form
pcalc806 Using a graphing calculator to solve an exponential or logarithmic equation
alge178 Finding the time to reach a limit in a word problem on exponential growth or decay
pcalc614 Finding the initial or final amount in a word problem on exponential growth or decay
pcalc615 Finding the rate or time in a word problem on continuous exponential growth or decay
pcalc606 Graphing a parabola of the form \( ay^2 + by + cx + d = 0 \) or \( ax^2 + bx + cy + d = 0 \)
pcalc608 Writing an equation of a parabola given the vertex and the focus
pcalc609 Finding the focus of a parabola of the form \( ay^2 + by + cx + d = 0 \) or \( ax^2 + bx + cy + d = 0 \)
alge191 Midpoint of a line segment in the plane
alge414 Finding an endpoint of a line segment given the other endpoint and the midpoint
alge132 Distance between two points in the plane: Exact answers
pcalc605 Graphing a circle given its equation in standard form
B.11. COLLEGE ALGEBRA

B.11 College Algebra

Algebra and Geometry Review

arith687 Fractional position on a number line
arith605 Plotting rational numbers on a number line
arith691 Ordering integers
arith602 Estimating a square root
arith712 Ordering real numbers
alge001 Identifying numbers as integers or non-integers
alge002 Identifying numbers as rational or irrational
arith116 Signed fraction addition or subtraction: Basic
arith864 Signed fraction subtraction involving double negation
arith106 Signed fraction addition or subtraction: Advanced
APPENDIX B. SYLLABI IN ALEKS

arith811 Addition and subtraction of 3 fractions involving signs
arith822 Signed fraction multiplication: Basic
arith105 Signed fraction multiplication: Advanced
arith814 Signed fraction division
arith104 Operations with absolute value: Problem type 2
arith694 Computing the distance between two integers on a number line
arith702 Exponents and integers: Problem type 1
arith703 Exponents and integers: Problem type 2
arith704 Exponents and signed fractions
arith118 Order of operations with integers
arith600 Order of operations with integers and exponents
alge005 Evaluating a linear expression: Integer multiplication with addition or subtraction
alge004 Evaluating a quadratic expression: Integers
alge808 Evaluating a linear expression: Signed fraction multiplication with addition or subtraction
mstat065 Converting between temperatures in Fahrenheit and Celsius
alge187 Properties of addition
alge188 Properties of real numbers
alge604 Distributive property: Integer coefficients
alge608 Using distribution and combining like terms to simplify: Univariate
alge667 Identifying properties used to simplify an algebraic expression
alge609 Using distribution with double negation and combining like terms to simplify: Multivariate
alge821 Understanding the product rule of exponents
alge024 Introduction to the product rule of exponents
alge311 Product rule with positive exponents: Univariate
alge030 Product rule with positive exponents: Multivariate
arith829 Ordering numbers with positive exponents
alge826 Understanding the power rules of exponents
alge306 Introduction to the power of a power rule of exponents
alge305 Introduction to the power of a product rule of exponents
alge307 Power rules with positive exponents: Multivariate products
alge308 Power rules with positive exponents: Multivariate quotients
alge756 Power and product rules with positive exponents
alge451 Simplifying a ratio of multivariate monomials: Basic
alge827 Introduction to the quotient rule of exponents
alge452 Simplifying a ratio of univariate monomials
alge026 Quotient of expressions involving exponents
alge453 Simplifying a ratio of multivariate monomials: Advanced
alge927 Power and quotient rules with positive exponents
alge790 Evaluating expressions with exponents of zero
arith729 Evaluating an expression with a negative exponent: Whole number base
arith642 Evaluating an expression with a negative exponent: Positive fraction base
arith643 Evaluating an expression with a negative exponent: Negative integer base
arith624 Ordering numbers with negative exponents
alge791 Rewriting an algebraic expression without a negative exponent
alge961 Introduction to the product rule with negative exponents
alge028 Product rule with negative exponents
alge755 Quotient rule with negative exponents: Problem type 1
alge926 Quotient rule with negative exponents: Problem type 2
alge025 Power of a power rule with negative exponents
alge799 Power rules with negative exponents
alge928 Power and quotient rules with negative exponents: Problem type 1
alge929 Power and quotient rules with negative exponents: Problem type 2
alge757 Power, product, and quotient rules with negative exponents
arith036 Scientific notation with positive exponent
arith037 Scientific notation with negative exponent
sci008 Scientific notation with positive exponent
sci009 Scientific notation with negative exponent
sci12 Converting between scientific notation and standard form in a real-world situation
sci008 Multiplying numbers written in scientific notation: Basic
sci009 Multiplying numbers written in scientific notation: Advanced
sci19 Multiplying numbers written in decimal form or scientific notation in a real-world situation
sci10 Dividing numbers written in scientific notation: Basic
sci101 Dividing numbers written in scientific notation: Advanced
sci013 Finding the scale factor between numbers given in scientific notation in a real-world situation
alge758 Degree and leading coefficient of a univariate polynomial
alge031 Degree of a multivariate polynomial
alge798 Simplifying a sum or difference of two univariate polynomials
alge029 Simplifying a sum or difference of three univariate polynomials
alge932 Simplifying a sum or difference of multivariate polynomials
alge735 Multiplying a univariate polynomial by a monomial with a positive coefficient
alge972 Multiplying a univariate polynomial by a monomial with a negative coefficient
alge835 Multiplying a multivariate polynomial by a monomial
alge033 Multiplying binomials with leading coefficients of 1
alge983 Multiplying binomials with leading coefficients greater than 1
alge765 Multiplying binomials in two variables
alge764 Multiplying conjugate binomials: Univariate
alge081 Multiplying conjugate binomials: Multivariate
alge032 Squaring a binomial: Univariate
alge068 Squaring a binomial: Multivariate
alge973 Multiplying binomials with negative coefficients
alge935 Multiplication involving binomials and trinomials in one variable
alge180 Multiplication involving binomials and trinomials in two variables
arith034 Prime numbers
arith035 Prime factorization
arith033 Greatest common factor of 2 numbers
alge605 Factoring a linear binomial
alge736 Introduction to the GCF of two monomials
alge930 Greatest common factor of three univariate monomials
alge637 Greatest common factor of two multivariate monomials
alge748 Factoring out a monomial from a polynomial: Univariate
alge739 Factoring out a monomial from a polynomial: Multivariate
alge949 Factoring out a binomial from a polynomial: GCF factoring, basic
alge923 Factoring a univariate polynomial by grouping: Problem type 1
alge950 Factoring a univariate polynomial by grouping: Problem type 2
alge951 Factoring a multivariate polynomial by grouping: Problem type 1
alge952 Factoring a multivariate polynomial by grouping: Problem type 2
alge039 Factoring a quadratic with leading coefficient 1
alge942 Factoring a quadratic in two variables with leading coefficient 1
alge936 Factoring out a constant before factoring a quadratic
alge939 Factoring a quadratic with leading coefficient greater than 1: Problem type 1
alge940 Factoring a quadratic with leading coefficient greater than 1: Problem type 2
alge941 Factoring a quadratic with leading coefficient greater than 1: Problem type 3
alge978 Factoring a quadratic by the ac-method
alge265 Factoring a quadratic in two variables with leading coefficient greater than 1
alge937 Factoring a quadratic with a negative leading coefficient
alge944 Factoring a perfect square trinomial with leading coefficient 1
alge945 Factoring a perfect square trinomial with leading coefficient greater than 1
alge946 Factoring a perfect square trinomial in two variables
alge290 Factoring a difference of squares in one variable: Basic
alge947 Factoring a difference of squares in one variable: Advanced
alge839 Factoring a difference of squares in two variables
alge948 Factoring a polynomial involving a GCF and a difference of squares: Univariate
alge833 Factoring a polynomial involving a GCF and a difference of squares: Multivariate
alge041 Factoring a product of a quadratic trinomial and a monomial
alge042 Factoring with repeated use of the difference of squares formula
alge044 Factoring a sum or difference of two cubes
pcalc577 Factoring out binomials from a polynomial: GCF factoring, advanced
pcalc578 Using substitution to factor polynomials
alge049 Restriction on a variable in a denominator: Linear
alge454 Simplifying a ratio of factored polynomials: Linear factors
alge455 Simplifying a ratio of factored polynomials: Factors with exponents
alge456 Simplifying a ratio of polynomials using GCF factoring
alge457 Simplifying a ratio of linear polynomials: 1, -1, and no simplification
alge458 Simplifying a ratio of polynomials by factoring a quadratic with leading coefficient 1
alge710 Simplifying a ratio of polynomials: Problem type 1
alge682 Simplifying a ratio of polynomials: Problem type 2
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>alge459</td>
<td>Simplifying a ratio of polynomials: Problem type 3</td>
</tr>
<tr>
<td>alge004</td>
<td>Simplifying a ratio of multivariate polynomials</td>
</tr>
<tr>
<td>alge053</td>
<td>Multiplying rational expressions involving multivariate monomials</td>
</tr>
<tr>
<td>alge460</td>
<td>Multiplying rational expressions made up of linear expressions</td>
</tr>
<tr>
<td>alge620</td>
<td>Multiplying rational expressions involving quadratics with leading coefficients of 1</td>
</tr>
<tr>
<td>alge461</td>
<td>Multiplying rational expressions involving quadratics with leading coefficients greater than 1</td>
</tr>
<tr>
<td>alge462</td>
<td>Multiplying rational expressions involving multivariate quadratics</td>
</tr>
<tr>
<td>alge054</td>
<td>Dividing rational expressions involving multivariate monomials</td>
</tr>
<tr>
<td>alge463</td>
<td>Dividing rational expressions involving linear expressions</td>
</tr>
<tr>
<td>alge766</td>
<td>Dividing rational expressions involving quadratics with leading coefficients of 1</td>
</tr>
<tr>
<td>alge464</td>
<td>Dividing rational expressions involving quadratics with leading coefficients greater than 1</td>
</tr>
<tr>
<td>alge465</td>
<td>Dividing rational expressions involving multivariate quadratics</td>
</tr>
<tr>
<td>alge466</td>
<td>Multiplication and division of 3 rational expressions</td>
</tr>
<tr>
<td>arith070</td>
<td>Least common multiple of 2 numbers</td>
</tr>
<tr>
<td>arith804</td>
<td>Least common multiple of 3 numbers</td>
</tr>
<tr>
<td>alge737</td>
<td>Introduction to the LCM of two monomials</td>
</tr>
<tr>
<td>alge055</td>
<td>Least common multiple of two monomials</td>
</tr>
<tr>
<td>alge427</td>
<td>Finding the LCD of rational expressions with linear denominators: Relatively prime</td>
</tr>
<tr>
<td>alge428</td>
<td>Finding the LCD of rational expressions with linear denominators: Common factors</td>
</tr>
<tr>
<td>alge429</td>
<td>Finding the LCD of rational expressions with quadratic denominators</td>
</tr>
<tr>
<td>alge430</td>
<td>Writing equivalent rational expressions with monomial denominators</td>
</tr>
<tr>
<td>alge431</td>
<td>Writing equivalent rational expressions with polynomial denominators</td>
</tr>
<tr>
<td>alge304</td>
<td>Writing equivalent rational expressions with monomial denominators</td>
</tr>
<tr>
<td>alge432</td>
<td>Finding the LCD of rational expressions with linear denominators: Relatively prime</td>
</tr>
<tr>
<td>alge433</td>
<td>Finding the LCD of rational expressions with linear denominators: Common factors</td>
</tr>
<tr>
<td>alge434</td>
<td>Finding the LCD of rational expressions with quadratic denominators</td>
</tr>
<tr>
<td>alge435</td>
<td>Writing equivalent rational expressions with monomial denominators</td>
</tr>
<tr>
<td>alge436</td>
<td>Writing equivalent rational expressions involving opposite factors</td>
</tr>
<tr>
<td>alge437</td>
<td>Writing equivalent rational expressions with denominators ax and bx: Basic</td>
</tr>
<tr>
<td>alge438</td>
<td>Writing equivalent rational expressions with denominators ax and bx: Advanced</td>
</tr>
<tr>
<td>alge439</td>
<td>Writing equivalent rational expressions with denominators axn and bxn</td>
</tr>
<tr>
<td>alge440</td>
<td>Writing equivalent rational expressions with multivariate monomial denominators: Basic</td>
</tr>
<tr>
<td>alge441</td>
<td>Writing equivalent rational expressions with multivariate monomial denominators: Advanced</td>
</tr>
<tr>
<td>alge442</td>
<td>Writing equivalent rational expressions with linear denominators without common factors: Basic</td>
</tr>
<tr>
<td>alge443</td>
<td>Writing equivalent rational expressions with linear denominators without common factors: Advanced</td>
</tr>
<tr>
<td>alge444</td>
<td>Writing equivalent rational expressions with linear denominators with common factors: Basic</td>
</tr>
<tr>
<td>alge445</td>
<td>Writing equivalent rational expressions with linear denominators with common factors: Advanced</td>
</tr>
<tr>
<td>alge446</td>
<td>Writing equivalent rational expressions involving different denominators and a single occurrence of a variable</td>
</tr>
<tr>
<td>alge447</td>
<td>Writing equivalent rational expressions involving different denominators and a single occurrence of a variable</td>
</tr>
<tr>
<td>arith070</td>
<td>Complex fraction without variables: Problem type 1</td>
</tr>
<tr>
<td>arith071</td>
<td>Complex fraction without variables: Problem type 2</td>
</tr>
<tr>
<td>alge058</td>
<td>Complex fraction involving univariate monomials</td>
</tr>
<tr>
<td>alge471</td>
<td>Complex fraction: GCF factoring</td>
</tr>
<tr>
<td>alge472</td>
<td>Complex fraction: Quadratic factoring</td>
</tr>
<tr>
<td>alge473</td>
<td>Complex fraction made of sums involving rational expressions: Problem type 1</td>
</tr>
<tr>
<td>alge474</td>
<td>Complex fraction made of sums involving rational expressions: Problem type 2</td>
</tr>
<tr>
<td>alge475</td>
<td>Complex fraction made of sums involving rational expressions: Problem type 3</td>
</tr>
<tr>
<td>alge476</td>
<td>Complex fraction made of sums involving rational expressions: Problem type 4</td>
</tr>
<tr>
<td>alge477</td>
<td>Complex fraction made of sums involving rational expressions: Problem type 5</td>
</tr>
<tr>
<td>alge478</td>
<td>Complex fraction made of sums involving rational expressions: Problem type 6</td>
</tr>
<tr>
<td>alge479</td>
<td>Complex fraction made of sums involving rational expressions: Multivariate</td>
</tr>
<tr>
<td>alge480</td>
<td>Complex fraction with negative exponents: Problem type 1</td>
</tr>
<tr>
<td>alge481</td>
<td>Complex fraction with negative exponents: Problem type 2</td>
</tr>
<tr>
<td>alge162</td>
<td>Complex fraction that contains a complex fraction</td>
</tr>
<tr>
<td>alge413</td>
<td>Finding all square roots of a number</td>
</tr>
<tr>
<td>arith061</td>
<td>Square root of a rational perfect square</td>
</tr>
<tr>
<td>arith760</td>
<td>Square roots of perfect squares with signs</td>
</tr>
<tr>
<td>arith761</td>
<td>Square roots of integers raised to even exponents</td>
</tr>
<tr>
<td>alge415</td>
<td>Introduction to simplifying a radical expression with an even exponent</td>
</tr>
</tbody>
</table>
APPENDIX B. SYLLABI IN ALEKS

geom340 Area of a piecewise rectangular figure
geom142 Word problem involving the area between two rectangles
geom801 Area of a triangle
geom022 Area of a parallelogram
geom023 Area of a trapezoid
geom016 Circumference of a circle
geom301 Perimeter involving rectangles and circles
geom802 Circumference and area of a circle
geom477 Circumference and area of a circle: Exact answers in terms of pi
geom202 Area involving rectangles and circles
geom036 Word problem involving the area between two concentric circles
geom214 Area involving inscribed figures
geom311 Volume of a rectangular prism
geom090 Volume of a triangular prism
geom033 Volume of a pyramid
geom035 Volume of a cylinder
geom092 Word problem involving the rate of filling or emptying a cylinder
geom022 Volume of a cone
geom086 Volume of a cone: Exact answers in terms of pi
geom841 Volume of a sphere
geom031 Surface area of a cube or a rectangular prism
geom091 Surface area of a triangular prism
geom621 Surface area of a cylinder
geom842 Surface area of a cylinder: Exact answers in terms of pi
geom842 Surface area of a sphere
alge407 Introduction to the Pythagorean Theorem
geom044 Pythagorean Theorem
alge408 Word problem involving the Pythagorean Theorem

Equations and Inequalities

alge836 Additive property of equality with signed fractions
alge012 Multiplicative property of equality with signed fractions
alge837 Solving a multi-step equation given in fractional form
alge986 Identifying properties used to solve a linear equation
alge011 Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
alge013 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
alge209 Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions
alge420 Solving a linear equation with several occurrences of the variable: Fractional forms with monomial numerators
alge208 Solving a two-step equation with signed fractions
alge061 Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
alge179 Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators
alge742 Solving equations with zero, one, or infinitely many solutions
alge840 Solving a proportion of the form \((x-a)/c = b/c\)
alge511 Solving for a variable in terms of other variables using addition or subtraction: Basic
alge512 Solving for a variable in terms of other variables using addition or subtraction: Advanced
alge513 Solving for a variable in terms of other variables using multiplication or division: Basic
alge514 Solving for a variable in terms of other variables using multiplication or division: Advanced
alge517 Solving for a variable in terms of other variables using addition or subtraction with division
alge518 Solving for a variable inside parentheses in terms of other variables
alge507 Solving for a variable in terms of other variables in a linear equation with fractions
alge016 Translating a sentence into a one-step equation
alge841 Translating a sentence into a multi-step equation
alge014 Solving a word problem with two unknowns using a linear equation
B.11. COLLEGE ALGEBRA

alge173 Solving a decimal word problem using a linear equation of the form \(Ax + B = C\)
alge219 Solving a decimal word problem using a linear equation with the variable on both sides
alge704 Solving a fraction word problem using a linear equation with the variable on both sides
alge792 Solving a word problem with three unknowns using a linear equation
alge842 Solving a word problem involving consecutive integers
alge730 Writing a multi-step equation for a real-world situation
alge794 Solving a value mixture problem using a linear equation
alge823 Solving a one-step word problem using the formula \(d = rt\)
alge796 Solving a distance, rate, time problem using a linear equation
ggeom817 Finding a side length given the perimeter and side lengths with variables
ggeom143 Finding the perimeter or area of a rectangle given one of these values
ggeom838 Circumference ratios
ggeom530 Solving equations involving vertical angles
ggeom28 Finding angle measures of a triangle given angles with variables
stat803 Finding the value for a new score that will yield a given mean
arith852 Finding the multiplier to give a final amount after a percentage increase or decrease
arith847 Finding the sale price given the original price and percent discount
arith848 Finding the total cost including tax or markup
arith031 Finding the original price given the sale price and percent discount
arith854 Computing a percent mixture
alge795 Solving a percent mixture problem using a linear equation
arith232 Finding simple interest without a calculator
arith514 Converting a repeating decimal to a fraction
alge864 Solving an absolute value equation: Problem type 1
alge865 Solving an absolute value equation: Problem type 2
alge866 Solving an absolute value equation: Problem type 3
alge867 Solving an absolute value equation: Problem type 4
alge167 Solving an absolute value equation of the form \(-ax+b= -cx+d\)
alge845 Translating a sentence into a one-step inequality
alge846 Translating a sentence into a multi-step inequality
alge748 Writing an inequality for a real-world situation
alge017 Graphing a linear inequality on the number line
alge822 Writing an inequality given a graph on the number line
alge186 Translating a sentence into a compound inequality
alge166 Graphing a compound inequality on the number line
alge847 Writing a compound inequality given a graph on the number line
set001 Set builder notation
set004 Set builder and interval notation
set002 Union and intersection of finite sets
set005 Union and intersection of intervals
alge844 Identifying solutions to a two-step linear inequality in one variable
alge852 Additive property of inequality with signed fractions
alge964 Multiplicative property of inequality with signed fractions
alge855 Solving a two-step linear inequality: Problem type 1
alge856 Solving a two-step linear inequality: Problem type 2
alge857 Solving a two-step linear inequality with a fractional coefficient
alge977 Solving a linear inequality with multiple occurrences of the variable: Problem type 1
alge858 Solving a linear inequality with multiple occurrences of the variable: Problem type 2
alge859 Solving a linear inequality with multiple occurrences of the variable: Problem type 3
alge860 Solving inequalities with no solution or all real numbers as solutions
alge746 Solving a compound linear inequality: Graph solution, basic
alge747 Solving a compound linear inequality: Interval notation
alge749 Solving a decimal word problem using a two-step linear inequality
alge750 Solving a decimal word problem using a linear inequality with the variable on both sides
alge868 Solving an absolute value inequality: Problem type 1
alge943 Writing an absolute value inequality given a graph on the number line
alge869 Solving an absolute value inequality: Problem type 2
alge870 Solving an absolute value inequality: Problem type 3
alge871 Solving an absolute value inequality: Problem type 4
alge872 Solving an absolute value inequality: Problem type 5
alge271 Solving a proportion of the form \(a/(x+b) = c/x\)
alge060 Solving a rational equation that simplifies to linear: Denominator x
APPENDIX B. SYLLABI IN ALEKS

alge205 Solving a rational equation that simplifies to linear: Denominator x+a
alge769 Solving a rational equation that simplifies to linear: Denominators a, x, or ax
alge421 Solving a rational equation that simplifies to linear: Denominators ax and bx
alge422 Solving a rational equation that simplifies to linear: Like binomial denominators
alge206 Solving a rational equation that simplifies to linear: Unlike binomial denominators
alge508 Solving for a variable in terms of other variables in a rational equation: Problem type 1
alge509 Solving for a variable in terms of other variables in a rational equation: Problem type 2
alge510 Solving for a variable in terms of other variables in a rational equation: Problem type 3
arith611 Word problem on proportions: Problem type 1
arith612 Word problem on proportions: Problem type 2
gem#03 Similar polygons
gem038 Similar right triangles
gem337 Indirect measurement
arith613 Ratio of volumes
arith612 Word problem involving multiple rates
alge770 Solving a work problem using a rational equation
alge450 Solving a distance, rate, time problem using a rational equation
alge509 Ordering fractions with variables
alge778 Using i to rewrite square roots of negative numbers
alge779 Simplifying a product and quotient involving square roots of negative numbers
pcalc048 Adding or subtracting complex numbers
pcalc049 Multiplying complex numbers
pcalc050 Dividing complex numbers
pcalc053 Simplifying a power of i
alge681 Solving an equation written in factored form
alge906 Finding the roots of a quadratic equation of the form ax2 + bx = 0
alge945 Finding the roots of a quadratic equation with leading coefficient 1
alge048 Finding the roots of a quadratic equation with leading coefficient greater than 1
alge211 Solving a quadratic equation needing simplification
alge046 Roots of a product of polynomials
alge163 Writing a quadratic equation given the roots and the leading coefficient
alge703 Solving a word problem using a quadratic equation with rational roots
alge713 Using the Pythagorean Theorem and a quadratic equation to find side lengths of a right triangle
alge902 Solving an equation of the form x2 = a using the square root property
alge227 Solving a quadratic equation using the square root property: Exact answers, basic
alge904 Completing the square
alge780 Solving a quadratic equation by completing the square: Exact answers
alge095 Applying the quadratic formula: Exact answers
alge963 Applying the quadratic formula: Decimal answers
pcalc051 Solving a quadratic equation with complex roots
alge214 Discriminant of a quadratic equation
alge190 Discriminant of a quadratic equation with parameter
alge524 Solving a word problem using a quadratic equation with irrational roots
alge903 Solving an equation using the odd-root property: Problem type 1
alge228 Solving an equation using the odd-root property: Problem type 2
alge467 Restriction on a variable in a denominator: Quadratic
alge423 Solving a rational equation that simplifies to linear: Factorable quadratic denominator
alge424 Solving a rational equation that simplifies to quadratic: Proportional form, basic
alge425 Solving a rational equation that simplifies to quadratic: Denominator x
alge212 Solving a rational equation that simplifies to quadratic: Binomial denominators, constant numerators
alge962 Solving a rational equation that simplifies to quadratic: Binomial denominators and numerators
alge426 Solving a rational equation that simplifies to quadratic: Factorable quadratic denominator
alge947 Solving a rational equation that simplifies to quadratic: Proportional form, advanced
alge400 Introduction to solving a radical equation
alge689 Solving a radical equation that simplifies to a linear equation: One radical, basic
alge402 Solving a radical equation that simplifies to a linear equation: One radical, advanced
alge900 Solving a radical equation that simplifies to a linear equation: Two radicals
alge403 Solving a radical equation that simplifies to a quadratic equation: One radical, basic
alge404 Solving a radical equation that simplifies to a quadratic equation: One radical, advanced
alge411 Solving a radical equation with a quadratic expression under the radical
alge405 Solving a radical equation with two radicals that simplifies to sqrt(x) = a
alge182 Solving a radical equation that simplifies to a quadratic equation: Two radicals
alge412 Algebraic symbol manipulation with radicals
alge542 Word problem involving radical equations: Basic
alge409 Word problem involving radical equations: Advanced
alge410 Solving an equation with a root index greater than 2: Problem type 1
alge417 Solving an equation with a root index greater than 2: Problem type 2
alge416 Solving an equation with exponent 1/a: Problem type 1
alge418 Solving an equation with exponent 1/a: Problem type 2
alge230 Solving an equation with positive rational exponent
alge231 Solving an equation with negative rational exponent
alge781 Solving an equation that can be written in quadratic form: Problem type 1
alge782 Solving an equation that can be written in quadratic form: Problem type 2

Graphs and Functions

alge064 Reading a point in the coordinate plane
alge067 Plotting a point in the coordinate plane
arith405 Naming the quadrant or axis of a point given its coordinates
arith406 Naming the quadrant or axis of a point given the signs of its coordinates
geom437 Finding the area of a triangle or parallelogram in the coordinate plane
alge850 Table for a linear equation
alge132 Distance between two points in the plane: Exact answers
alge324 Distance between two points in the plane: Decimal answers
geom323 Identifying scalene, isosceles, and equilateral triangles given coordinates of their vertices
alge191 Midpoint of a line segment in the plane
alge414 Finding an endpoint of a line segment given the other endpoint and the midpoint
alge873 Identifying solutions to a linear equation in two variables
alge066 Finding a solution to a linear equation in two variables
alge877 Graphing a linear equation of the form y = mx
alge878 Graphing a line given its equation in slope-intercept form: Integer slope
alge879 Graphing a line given its equation in slope-intercept form: Fractional slope
alge880 Graphing a line given its equation in standard form
alge198 Graphing a vertical or horizontal line
alge884 Finding x- and y-intercepts given the graph of a line on a grid
alge924 Finding x- and y-intercepts of a line given the equation: Basic
alge210 Finding x- and y-intercepts of a line given the equation: Advanced
alge197 Graphing a line given its x- and y-intercepts
alge881 Graphing a line by first finding its x- and y-intercepts
pcalc750 Finding intercepts of a nonlinear function given its graph
pcalc678 Finding x- and y-intercepts of the graph of a nonlinear equation
alge913 Graphing an absolute value equation of the form y = A—x—
alge954 Graphing a parabola of the form y = ax2
alge955 Graphing a parabola of the form y = ax2 + c
alge262 Graphing a cubic function of the form y = ax3
pcalc416 Determining if graphs have symmetry with respect to the x-axis, y-axis, or origin
pcalc679 Testing an equation for symmetry about the axes and origin
alge875 Classifying slopes given graphs of lines
alge886 Finding slope given the graph of a line on a grid
alge887 Finding slope given two points on the line
alge885 Finding the slope of horizontal and vertical lines
alge888 Finding the coordinate that yields a given slope
alge259 Graphing a line given its slope and y-intercept
alge196 Graphing a line through a given point with a given slope
alge876 Identifying linear equations: Advanced
alge874 Identifying linear functions given ordered pairs
alge891 Rewriting a linear equation in the form Ax + By = C
alge889 Finding the slope and y-intercept of a line given its equation in the form y = mx + b
alge890 Finding the slope and y-intercept of a line given its equation in the form Ax+By=C
alge882 Graphing a line by first finding its slope and y-intercept
alge258 Writing an equation of a line given its slope and y-intercept
APPENDIX B. SYLLABI IN ALEKS

alge892 Writing an equation and graphing a line given its slope and y-intercept
alge314 Finding the slope, y-intercept, and equation for a linear function given a table of values
alge893 Writing an equation in slope-intercept form given the slope and a point
alge318 Finding the slope and a point on a line given its equation in point-slope form
alge883 Graphing a line given its equation in point-slope form
alge894 Writing an equation in point-slope form given the slope and a point
alge313 Writing an equation in standard form given the slope and a point
alge670 Writing an equation of a line given the y-intercept and another point
alge072 Writing the equation of the line through two given points
alge073 Writing the equations of vertical and horizontal lines through a given point
alge322 Comparing linear functions to the parent function y=x
geom806 Finding slopes of lines parallel and perpendicular to a line given in slope-intercept form
geom807 Finding slopes of lines parallel and perpendicular to a line given in the form Ax + By = C
alge895 Identifying parallel and perpendicular lines from equations
geom808 Writing equations of lines parallel and perpendicular to a given line through a point
geom462 Identifying parallel and perpendicular lines from coordinates
geom322 Identifying coordinates that give right triangles
alge897 Writing and evaluating a function that models a real-world situation: Advanced
geom654 Graphing ordered pairs and writing an equation from a table of values in context
geom701 Writing an equation and drawing its graph to model a real-world situation: Advanced
alge817 Finding the initial amount and rate of change given a table for a linear function
alge818 Finding the initial amount and rate of change given a graph of a linear function
alge992 Combining functions to write a new function that models a real-world situation
alge987 Comparing properties of linear functions given in different forms
alge989 Interpreting the parameters of a linear function that models a real-world situation
alge805 Application problem with a linear function: Finding a coordinate given the slope and a point
alge806 Application problem with a linear function: Finding a coordinate given two points
alge991 Solving a linear equation by graphing
mstat094 Constructing a scatter plot
mstat030 Sketching the line of best fit
mstat023 Scatter plots and correlation
mstat068 Predictions from the line of best fit
mstat067 Approximating the equation of a line of best fit and making predictions
mstat069 Computing residuals
mstat070 Interpreting residual plots
mstat093 Classifying linear and nonlinear relationships from scatter plots
mstat071 Linear relationship and the correlation coefficient
mstat096 Identifying outliers and clustering in scatter plots
mstat095 Finding outliers in a data set
geom496 Identifying the center and radius to graph a circle given its equation in standard form
geom497 Identifying the center and radius to graph a circle given its equation in general form: Basic
geom608 Identifying the center and radius to graph a circle given its equation in general form: Advanced
geom499 Writing the equation of a circle centered at the origin given its radius or a point on the circle
geom495 Writing an equation of a circle and identifying points that lie on the circle
geom498 Writing an equation of a circle given its center and radius or diameter
geom493 Deriving the equation of a circle using the Pythagorean Theorem
pcalc065 Writing an equation of a circle given its center and a point on the circle
pcalc066 Writing an equation of a circle given the endpoints of a diameter
fun032 Identifying functions from relations
fun010 Vertical line test
fun001 Table for a linear function
pcalc760 Evaluating functions: Linear and quadratic or cubic
alge468 Evaluating a rational function: Problem type 1
alge469 Evaluating a rational function: Problem type 2
alge539 Table for a square root function
alge546 Evaluating a cube root function
pcalc682 Evaluating functions: Absolute value, rational, radical
fun030 Evaluating a piecewise-defined function
fun033 Variable expressions as inputs of functions: Problem type 1
pcalc571 Variable expressions as inputs of functions: Problem type 2
pcalc541 Variable expressions as inputs of functions: Problem type 3
fun016 Domain and range from ordered pairs
B.11. COLLEGE ALGEBRA

alge715 Domain of a rational function: Excluded values
pcalc412 Domain of a rational function: Interval notation
alge540 Domain of a square root function: Basic
alge547 Domains of higher root functions
pcalc754 Finding the domain of a fractional function involving radicals
alge594 Determining whether an equation defines a function: Basic
pcalc757 Determining whether an equation defines a function: Advanced
alge294 Finding outputs of a one-step function that models a real-world situation: Function notation
alge295 Finding outputs of a two-step function with decimals that models a real-world situation: Function notation
alge296 Finding inputs and outputs of a two-step function that models a real-world situation: Function notation
alge990 Domain and range of a linear function that models a real-world situation
pcalc471 Rewriting a multivariate function as a univariate function given a relationship between its variables
pcalc753 Finding a difference quotient for a linear or quadratic function
pcalc414 Finding a difference quotient for a rational function
fun026 Finding an output of a function from its graph
pcalc761 Finding inputs and outputs of a function from its graph
fun007 Domain and range from the graph of a discrete relation
alge312 Finding domain and range from a linear graph in context
fun024 Domain and range from the graph of a continuous function
fun025 Domain and range from the graph of a piecewise function
alge999 Finding where a function is increasing, decreasing, or constant given the graph
pcalc751 Finding where a function is increasing, decreasing, or constant given the graph: Interval notation
pcalc752 Finding local maxima and minima of a function given the graph
pcalc439 Finding the absolute maximum and minimum of a function given the graph
pcalc417 Finding values and intervals where the graph of a function is zero, positive, or negative
pcalc750 Choosing a graph to fit a narrative: Advanced
pcalc443 Matching parent graphs with their equations
fun031 Graphing a piecewise-defined function: Problem type 1
pcalc444 Graphing a piecewise-defined function: Problem type 2
pcalc568 Graphing a piecewise-defined function: Problem type 3
pcalc114 Even and odd functions: Problem type 1
pcalc440 Even and odd functions: Problem type 2
pcalc768 Finding the average rate of change of a function
alge998 Finding the average rate of change of a function given its graph
pcalc442 Word problem involving average rate of change
pcalc441 Writing the equation of a secant line
pcalc467 Translating the graph of a parabola: One step
pcalc465 Translating the graph of a parabola: Two steps
alge723 How the leading coefficient affects the shape of a parabola
pcalc468 Translating the graph of an absolute value function: One step
alge899 Translating the graph of an absolute value function: Two steps
alge901 How the leading coefficient affects the graph of an absolute value function
alge185 Writing an equation for a function after a vertical translation
pcalc469 Translating the graph of a function: One step
pcalc770 Translating the graph of a function: Two steps
pcalc569 Transforming the graph of a function by reflecting over an axis
pcalc470 Transforming the graph of a function by shrinking or stretching
APPENDIX B. SYLLABI IN ALEKS

pcalc570 Transforming the graph of a function using more than one transformation
pcalc466 Transforming the graph of a quadratic, cubic, square root, or absolute value function
fun020 Writing an equation for a function after a vertical and horizontal translation
fun019 Sum, difference, and product of two functions
alge786 Quotient of two functions: Basic
pcalc413 Quotient of two functions: Advanced
pcalc756 Combining functions: Advanced
alge716 Introduction to the composition of two functions
fun022 Composition of two functions: Basic
pcalc484 Composition of a function with itself
pcalc776 Expressing a function as a composition of two functions
fun021 Composition of two functions: Domain and range
alge129 Composition of two functions: Advanced
pcalc483 Composition of two rational functions
pcalc485 Word problem involving composition of two functions
fun011 Horizontal line test
pcalc777 Determining whether two functions are inverses of each other
fun012 Inverse functions: Linear, discrete
  pcalc573 Inverse functions: Quadratic, square root
pcalc572 Inverse functions: Cubic, cube root
alge130 Inverse functions: Rational
pcalc486 Graphing the inverse of a function given its graph
pcalc487 Finding, evaluating, and interpreting an inverse function for a given linear relationship

Polynomial and Rational Functions

alge974 Finding the vertex, x-intercepts, and axis of symmetry from the graph of a parabola
alge569 Graphing a parabola of the form \( y = x^2 + bx + c \)
pcalc574 Graphing a parabola of the form \( y = a(x-h)^2 + k \)
pcalc746 Graphing a parabola of the form \( y = ax^2 + bx + c \): Integer coefficients
pcalc747 Graphing a parabola of the form \( y = ax^2 + bx + c \): Rational coefficients
pcalc714 Using a graphing calculator to find the zeros of a quadratic function
alge320 Writing a quadratic function given its zeros
alge277 Finding the x-intercept(s) and the vertex of a parabola
pcalc793 Using a graphing calculator to find the x-intercept(s) and vertex of a quadratic function
alge319 Rewriting a quadratic function in standard form
pcalc550 Rewriting a quadratic function to find its vertex and sketch its graph
pcalc775 Finding the maximum or minimum of a quadratic function
alge785 Word problem involving the maximum or minimum of a quadratic function
pcalc571 Word problem involving optimizing area by using a quadratic function
pcalc415 Domain and range from the graph of a quadratic function
pcalc762 Range of a quadratic function
pcalc680 Writing the equation of a quadratic function given its graph
alge957 Solving a quadratic equation by graphing
alge996 Comparing properties of quadratic functions given in different forms
alge702 Classifying the graph of a function
mstat102 Choosing a quadratic model and using it to make a prediction
pcalc546 Identifying polynomial functions
pcalc764 Finding zeros of a polynomial function written in factored form
pcalc547 Finding zeros and their multiplicities given a polynomial function written in factored form
pcalc766 Finding a polynomial of a given degree with given zeros: Real zeros
pcalc765 Finding x- and y-intercepts given a polynomial function
pcalc782 Determining the end behavior of the graph of a polynomial function
pcalc348 Determining end behavior and intercepts to graph a polynomial function
pcalc783 Matching graphs with polynomial functions
pcalc738 Inferring properties of a polynomial function from its graph
pcalc794 Using a graphing calculator to find local extrema of a polynomial function
pcalc115 Using a graphing calculator to solve a word problem involving a local extremum of a polynomial function
B.11. COLLEGE ALGEBRA

alge759 Dividing a polynomial by a monomial: Univariate
alge760 Dividing a polynomial by a monomial: Multivariate
alge761 Polynomial long division: Problem type 1
alge762 Polynomial long division: Problem type 2
alge763 Polynomial long division: Problem type 3
pcalc117 Synthetic division
pcalc786 Using the remainder theorem to evaluate a polynomial
pcalc787 The Factor Theorem
pcalc118 Remainder theorem: Advanced
alge985 Closure properties of integers and polynomials
pcalc741 Using a given zero to write a polynomial as a product of linear factors: Real zeros
pcalc758 Finding all possible rational zeros using the rational zeros theorem: Problem type 1
pcalc759 Finding all possible rational zeros using the rational zeros theorem: Problem type 2
pcalc788 Descartes’ Rule of Signs
pcalc743 Using the rational zeros theorem to find all zeros of a polynomial: Rational zeros
pcalc744 Using the rational zeros theorem to find all zeros of a polynomial: Irrational zeros
pcalc785 Using a graphing calculator to find zeros of a polynomial function
pcalc798 Using a graphing calculator to solve a word problem involving a polynomial of degree 3
pcalc785 Multiplying expressions involving complex conjugates
pcalc767 Finding a polynomial of a given degree with given zeros: Complex zeros
pcalc742 Using a given zero to write a polynomial as a product of linear factors: Complex zeros
pcalc745 Using the rational zeros theorem to find all zeros of a polynomial: Complex zeros
pcalc703 Using the conjugate zeros theorem to find all zeros of a polynomial
pcalc705 Linear factors theorem and conjugate zeros theorem
pcalc552 Finding the intercepts, asymptotes, domain, and range from the graph of a rational function
pcalc597 Finding the asymptotes of a rational function: Constant over linear
pcalc918 Finding the asymptotes of a rational function: Linear over linear
pcalc790 Finding horizontal and vertical asymptotes of a rational function: Quadratic numerator or denominator
pcalc562 Finding the asymptotes of a rational function: Quadratic over linear
alge515 Graphing a rational function: Constant over linear
alge516 Graphing a rational function: Linear over linear
pcalc553 Transforming the graph of a rational function
pcalc109 Graphing a rational function: Quadratic over linear
pcalc792 Graphing rational functions with holes
pcalc791 Matching graphs with rational functions: Two vertical asymptotes
pcalc557 Graphing a rational function with more than one vertical asymptote
pcalc706 Writing the equation of a rational function given its graph
pcalc556 Using a graphing calculator to solve a word problem involving a local extremum of a rational function
alge784 Solving a quadratic inequality written in factored form
alge771 Solving a quadratic inequality
pcalc558 Solving a polynomial inequality: Problem type 1
pcalc560 Solving a polynomial inequality: Problem type 2
pcalc561 Solving a polynomial inequality: Problem type 3
pcalc559 Solving a polynomial inequality: Problem type 4
alge783 Solving a rational inequality: Problem type 1
pcalc677 Solving a rational inequality: Problem type 2
alge982 Identifying direct variation equations
alge938 Identifying direct variation from ordered pairs and writing equations
alge904 Writing a direct variation equation
alge175 Word problem on direct variation
alge828 Interpreting direct variation from a graph
alge905 Writing an inverse variation equation
alge903 Identifying direct and inverse variation equations
alge902 Identifying direct and inverse variation from ordered pairs and writing equations
alge176 Word problem on inverse variation
alge220 Word problem on inverse proportions
pcalc681 Writing an equation that models variation
alge772 Word problem on combined variation

Exponential and Logarithmic Functions
APPENDIX B. SYLLABI IN ALEKS

alge971  Table for an exponential function
pcalc488  Graphing an exponential function: \( f(x) = bx \)
pcalc489  Graphing an exponential function: \( f(x) = a(b)x \)
pcalc567  Graphing an exponential function: \( f(x) = b^{-x} \) or \( f(x) = -b^{a-x} \)
pcalc922  Translating the graph of an exponential function
alge321  Finding domain and range from the graph of an exponential function
pcalc797  The graph, domain, and range of an exponential function
pcalc490  Transforming the graph of a natural exponential function
pcalc103  Graphing an exponential function and its asymptote: \( f(x) = a(e)^{x-b} + c \)
pcalc491  Using a calculator to evaluate exponential expressions
alge830  Evaluating an exponential function that models a real-world situation
pcalc555  Using a calculator to evaluate exponential expressions involving base \( e \)
pcalc919  Evaluating an exponential function with base \( e \) that models a real-world situation
arith853  Introduction to compound interest
arith910  Calculating and comparing simple interest and compound interest
alge177  Finding a final amount in a word problem on exponential growth or decay
alge741  Finding the final amount in a word problem on compound interest
alge966  Finding the initial amount and rate of change given an exponential function
alge968  Writing an equation that models exponential growth or decay
alge967  Writing an exponential function rule given a table of ordered pairs
mstat103  Choosing an exponential model and using it to make a prediction
alge993  Comparing linear, polynomial, and exponential functions
pcalc492  Using a calculator to evaluate natural and common logarithmic expressions
pcalc493  Converting between logarithmic and exponential equations
pcalc494  Converting between natural logarithmic and exponential equations
pcalc495  Evaluating logarithmic expressions
alge233  Solving an equation of the form \( \log_b a = c \)
pcalc923  Translating the graph of a logarithmic function
alge788  Graphing a logarithmic function: Basic
pcalc800  The graph, domain, and range of a logarithmic function
pcalc801  Domain of a logarithmic function: Advanced
pcalc104  Graphing a logarithmic function: Advanced
pcalc708  Basic properties of logarithms
pcalc511  Using properties of logarithms to evaluate expressions
pcalc521  Expanding a logarithmic expression: Problem type 1
pcalc522  Expanding a logarithmic expression: Problem type 2
pcalc523  Expanding a logarithmic expression: Problem type 3
alge787  Writing an expression as a single logarithm
pcalc612  Change of base for logarithms: Problem type 1
pcalc613  Change of base for logarithms: Problem type 2
pcalc513  Solving a multi-step equation involving a single logarithm: Problem type 1
pcalc510  Solving a multi-step equation involving a single logarithm: Problem type 2
pcalc804  Solving a multi-step equation involving natural logarithms
alge178  Solving an equation involving logarithms on both sides: Problem type 1
pcalc805  Solving an equation involving logarithms on both sides: Problem type 2
alge301  Solving an exponential equation by finding common bases: Linear exponents
alge482  Solving an exponential equation by finding common bases: Linear and quadratic exponents
pcalc920  Solving an exponential equation by using logarithms: Decimal answers, basic
pcalc921  Solving an exponential equation by using natural logarithms: Decimal answers
pcalc523  Solving an exponential equation by using logarithms: Decimal answers, advanced
alge111  Solving an exponential equation by using logarithms: Exact answers in logarithmic form
pcalc802  Solving an exponential equation by using substitution and quadratic factoring
alge178  Finding the time to reach a limit in a word problem on exponential growth or decay
pcalc524  Finding the time in a word problem on exponential growth or decay
pcalc508  Finding the time given an exponential function with base \( e \) that models a real-world situation
pcalc525  Finding the final amount in a word problem on continuous compound interest
pcalc527  Finding the initial amount in a word problem on continuous compound interest
pcalc526  Finding the final amount in a word problem on continuous exponential growth or decay
pcalc515  Finding the rate or time in a word problem on continuous exponential growth or decay
pcalc528  Finding half-life or doubling time
pcalc529  Writing and evaluating a function modeling continuous exponential growth or decay given doubling time or half-life
B.11. COLLEGE ALGEBRA

pcalc530 Writing and evaluating a function modeling continuous exponential growth or decay given two outputs

Systems of Equations and Matrices

alge914 Identifying solutions to a system of linear equations
alge075 Classifying systems of linear equations from graphs
alge725 Graphically solving a system of linear equations
pcalc820 Using a graphing calculator to solve a system of linear equations: Basic
pcalc821 Using a graphing calculator to solve a system of linear equations: Advanced
alge317 Writing a system of linear equations given its graph
alge751 Solving a system of linear equations using substitution
alge915 Solving a system of linear equations using elimination with addition
alge076 Solving a system of linear equations using elimination with multiplication and addition
alge916 Solving a system of linear equations with fractional coefficients
alge817 Solving a system of linear equations with decimal coefficients
alge752 Solving a 2x2 system of linear equations that is inconsistent or consistent dependent
alge077 Creating an inconsistent system of linear equations
alge988 Identifying the operations used to create equivalent systems of equations
pcalc099 Consistency and independence of a system of linear equations
alge263 Interpreting the graphs of two functions
alge078 Solving a word problem involving a sum and another basic relationship using a system of linear equations
alge918 Solving a word problem using a system of linear equations of the form $Ax + By = C$
alge919 Solving a word problem using a system of linear equations of the form $y = mx + b$
alge814 Solving a value mixture problem using a system of linear equations
alge172 Solving a tax rate or interest rate problem using a system of linear equations
pcalc496 Introduction to solving a 3x3 system of linear equations
alge753 Solving a 3x3 system of linear equations: Problem type 1
pcalc497 Solving a 3x3 system of linear equations: Problem type 2
pcalc498 Solving a 3x3 system of linear equations that is inconsistent or consistent dependent
alge793 Solving a word problem using a 3x3 system of linear equations: Problem type 1
pcalc549 Solving a word problem using a 3x3 system of linear equations: Problem type 2
pcalc037 Scalar multiplication of a matrix
pcalc740 Linear combination of matrices
pcalc507 Squaring and multiplying $2 \times 2$ matrices
pcalc039 Multiplication of matrices: Basic
pcalc710 Multiplication of matrices: Advanced
pcalc503 Word problem involving multiplication of matrices
pcalc504 Finding the inverse of a $2 \times 2$ matrix
pcalc505 Finding the inverse of a $3 \times 3$ matrix
pcalc042 Finding the determinant of a $2 \times 2$ matrix
pcalc043 Finding the determinant of a $3 \times 3$ matrix
pcalc564 Completing Gauss-Jordan elimination with a $2 \times 2$ matrix
pcalc712 Gauss-Jordan elimination with a $2 \times 2$ matrix
pcalc500 Writing solutions to $3 \times 3$ systems of linear equations from augmented matrices
pcalc499 Completing Gauss-Jordan elimination with a $3 \times 3$ matrix
pcalc506 Solving a system of linear equations given its augmented matrix
pcalc502 Finding the inverse of a matrix to solve a $2 \times 2$ system of linear equations
pcalc711 Using the inverse of a matrix to solve a $3 \times 3$ system of linear equations
pcalc045 Using Cramer’s rule to solve a $2 \times 2$ system of linear equations
pcalc047 Using Cramer’s rule to solve a $3 \times 3$ system of linear equations
pcalc531 Introduction to partial fraction decomposition with distinct linear factors
pcalc812 Partial fraction decomposition with distinct linear factors
pcalc813 Partial fraction decomposition with repeated linear factors
pcalc814 Partial fraction decomposition with an irreducible quadratic factor
pcalc815 Partial fraction decomposition with repeated irreducible quadratic factors
alge994 Graphically solving a system of linear and quadratic equations
pcalc716 Using a graphing calculator to solve a system of linear and quadratic equations: Basic
APPENDIX B. SYLLABI IN ALEKS

pcalc796 Using a graphing calculator to solve a system of equations
pcalc806 Using a graphing calculator to solve an exponential or logarithmic equation
alge995 Solving a system of linear and quadratic equations
pcalc998 Solving a system of nonlinear equations: Problem type 1
pcalc534 Solving a system of nonlinear equations: Problem type 2
pcalc535 Solving a word problem involving geometry using a system of nonlinear equations
alge912 Identifying solutions to a linear inequality in two variables
alge225 Graphing a linear inequality in the plane: Vertical or horizontal line
alge720 Graphing a linear inequality in the plane: Slope-intercept form
alge918 Graphing a linear inequality in the plane: Standard form
alge315 Writing an inequality given its graph in the plane: Horizontal or vertical boundary line
alge316 Writing an inequality given its graph in the plane: Slanted boundary line
pcalc748 Graphing a quadratic inequality: Problem type 1
pcalc749 Graphing a quadratic inequality: Problem type 2
pcalc536 Graphing an inequality involving a circle
alge079 Graphing a system of two linear inequalities: Basic
alge921 Graphing a system of two linear inequalities: Advanced
alge922 Graphing a system of three linear inequalities
pcalc996 Graphing a system of nonlinear inequalities: Problem type 1
alge729 Writing a multi-step inequality for a real-world situation
pcalc993 Solving a word problem using a system of linear inequalities: Problem type 1
pcalc537 Solving a word problem using a system of linear inequalities: Problem type 2
pcalc995 Linear programming
pcalc094 Solving a word problem using linear programming

Conic Sections

pcalc566 Graphing a parabola of the form y^2 = ax or x^2 = ay
pcalc575 Graphing a parabola of the form x=a(y-k)^2+h or y=a(x-h)^2+k
pcalc567 Graphing a parabola of the form ay^2 + by + cx + d = 0 or ax^2 + bx + cy + d = 0
pcalc068 Writing an equation of a parabola given the vertex and the focus
pcalc475 Writing an equation of a parabola given the focus and the directrix
gem494 Deriving the equation of a parabola given its focus and directrix
pcalc476 Finding the vertex, focus, directrix, and axis of symmetry of a parabola
pcalc069 Finding the focus of a parabola of the form ay^2 + by + cx + d = 0 or ax^2 + bx + cy + d = 0
pcalc477 Writing an equation of a parabola given its graph
pcalc478 Word problem involving a parabola
pcalc734 Graphing an ellipse given its equation in standard form
pcalc070 Graphing an ellipse centered at the origin: Ax^2 + By^2 = C
pcalc071 Graphing an ellipse given its equation in general form
pcalc379 Finding the center, vertices, and foci of an ellipse
pcalc072 Finding the foci of an ellipse given its equation in general form
pcalc074 Writing an equation of an ellipse given the center, an endpoint of an axis, and the length of the other axis
pcalc073 Writing an equation of an ellipse given the foci and the major axis length
pcalc097 Graphing a system of nonlinear inequalities: Problem type 2
pcalc480 Word problem involving an ellipse
pcalc735 Graphing a hyperbola given its equation in standard form
pcalc075 Graphing a hyperbola centered at the origin: Ax^2 - By^2 = C = 0
pcalc076 Graphing a hyperbola given its equation in general form
pcalc481 Finding the center, vertices, foci, and asymptotes of a hyperbola
pcalc077 Finding the foci of a hyperbola given its equation in general form
pcalc078 Writing an equation of a hyperbola given the foci and the vertices
pcalc482 Writing an equation of a hyperbola given the foci and the asymptotes: Basic
pcalc079 Writing an equation of a hyperbola given the foci and the asymptotes: Advanced
pcalc736 Classifying conics given their equations

Sequences, Series, and Probability
APPENDIX B. SYLLABI IN ALEKS

B.12 Georgia MATH 0999-MATH 1111

Real Numbers

arith687 Fractional position on a number line
arith605 Plotting rational numbers on a number line
arith691 Ordering integers
arith602 Estimating a square root
arith712 Ordering real numbers
alge001 Identifying numbers as integers or non-integers
alge002 Identifying numbers as rational or irrational
arith070 Least common multiple of 2 numbers
arith804 Least common multiple of 3 numbers
arith116 Signed fraction addition or subtraction: Basic
arith664 Signed fraction subtraction involving double negation
arith106 Signed fraction addition or subtraction: Advanced
arith811 Addition and subtraction of 3 fractions involving signs
arith822 Signed fraction multiplication: Basic
arith105 Signed fraction multiplication: Advanced
arith814 Signed fraction division
arith104 Operations with absolute value: Problem type 2
geom525 Computing distances between decimals on the number line
arith702 Exponents and integers: Problem type 1
arith703 Exponents and integers: Problem type 2
arith704 Exponents and signed fractions
arith118 Order of operations with integers
arith600 Order of operations with integers and exponents
alge005 Evaluating a linear expression: Integer multiplication with addition or subtraction
alge004 Evaluating a quadratic expression: Integers
alge808 Evaluating a linear expression: Signed fraction multiplication with addition or subtraction
mstat065 Converting between temperatures in Fahrenheit and Celsius
alge187 Properties of addition
alge188 Properties of real numbers
alge604 Distributive property: Integer coefficients
alge608 Using distribution and combining like terms to simplify: Univariate
alge609 Using distribution with double negation and combining like terms to simplify: Multivariate
geom340 Area of a piecewise rectangular figure
geom142 Word problem involving the area between two rectangles
geom801 Area of a triangle
geom022 Area of a parallelogram
geom023 Area of a trapezoid
geom016 Circumference of a circle
geom0301 Perimeter involving rectangles and circles
geom0892 Circumference and area of a circle
geom0302 Area involving rectangles and circles
geom036 Word problem involving the area between two concentric circles
geom214 Area involving inscribed figures
geom311 Volume of a rectangular prism
geom090 Volume of a triangular prism
geom033 Volume of a pyramid
geom035 Volume of a cylinder
geom092 Word problem involving the rate of filling or emptying a cylinder
geom022 Volume of a cone
geom841 Volume of a sphere
B.12. GEORGIA MATH 0999-MATH 1111

geom031 Surface area of a cube or a rectangular prism
geom091 Surface area of a triangular prism
geom621 Surface area of a cylinder
geom842 Surface area of a sphere

Linear Equations and Inequalities

alge836 Additive property of equality with signed fractions
alge012 Multiplicative property of equality with signed fractions
alge837 Solving a multi-step equation given in fractional form
alge986 Identifying properties used to solve a linear equation
alge011 Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
alge013 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
alge209 Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions
alge420 Solving a linear equation with several occurrences of the variable: Fractional forms with monomial numerators
alge208 Solving a two-step equation with signed fractions
alge061 Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
alge179 Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators
alge742 Solving equations with zero, one, or infinitely many solutions
alge840 Solving a proportion of the form \((x+a)\div b = c\div d\)
alge511 Solving for a variable in terms of other variables using addition or subtraction: Basic
alge512 Solving for a variable in terms of other variables using addition or subtraction: Advanced
alge513 Solving for a variable in terms of other variables using multiplication or division: Basic
alge514 Solving for a variable in terms of other variables using multiplication or division: Advanced
alge517 Solving for a variable in terms of other variables using addition or subtraction with division
alge518 Solving for a variable inside parentheses in terms of other variables
alge507 Solving for a variable in terms of other variables in a linear equation with fractions
alge016 Translating a sentence into a one-step equation
alge841 Translating a sentence into a multi-step equation
alge014 Solving a word problem with two unknowns using a linear equation
alge173 Solving a decimal word problem using a linear equation of the form \(Ax + B = C\)
alge219 Solving a decimal word problem using a linear equation with the variable on both sides
alge704 Solving a fraction word problem using a linear equation with the variable on both sides
alge792 Solving a word problem with three unknowns using a linear equation
alge730 Writing a multi-step equation for a real-world situation
alge794 Solving a value mixture problem using a linear equation
alge823 Solving a one-step word problem using the formula \(d = rt\)
alge796 Solving a distance, rate, time problem using a linear equation
geom817 Finding a side length given the perimeter and side lengths with variables
geom143 Finding the perimeter or area of a rectangle given one of these values
geom838 Circumference ratios
geom530 Solving equations involving vertical angles
geom623 Finding angle measures of a triangle given angles with variables
stat803 Finding the value for a new score that will yield a given mean
arithmetic852 Finding the multiplier to give a final amount after a percentage increase or decrease
arithmetic847 Finding the sale price given the original price and percent discount
arithmetic848 Finding the total cost including tax or markup
arithmetic831 Finding the original price given the sale price and percent discount
arithmetic854 Computing a percent mixture
algebra795 Solving a percent mixture problem using a linear equation
arithmetic232 Finding simple interest without a calculator
algebra845 Translating a sentence into a one-step inequality
algebra846 Translating a sentence into a multi-step inequality
APPENDIX B. SYLLABI IN ALEKS

alge748 Writing an inequality for a real-world situation
alge017 Graphing a linear inequality on the number line
alge822 Writing an inequality given a graph on the number line
alge186 Translating a sentence into a compound inequality
alge166 Graphing a compound inequality on the number line
alge847 Writing a compound inequality given a graph on the number line
set001 Set builder notation
set004 Set builder and interval notation
set002 Union and intersection of finite sets
set005 Union and intersection of intervals
alge844 Identifying solutions to a two-step linear inequality in one variable
alge852 Additive property of inequality with signed fractions
alge964 Multiplicative property of inequality with signed fractions
alge855 Solving a two-step linear inequality: Problem type 1
alge856 Solving a two-step linear inequality: Problem type 2
alge857 Solving a two-step linear inequality with a fractional coefficient
alge977 Solving a linear inequality with multiple occurrences of the variable: Problem type 1
alge858 Solving a linear inequality with multiple occurrences of the variable: Problem type 2
alge859 Solving a linear inequality with multiple occurrences of the variable: Problem type 3
alge860 Solving inequalities with no solution or all real numbers as solutions
alge746 Solving a compound linear inequality: Graph solution, basic
alge747 Solving a compound linear inequality: Interval notation
alge749 Solving a decimal word problem using a two-step linear inequality
alge750 Solving a decimal word problem using a linear inequality with the variable on both sides
alge603 Introduction to solving an absolute value equation
alge864 Solving an absolute value equation: Problem type 1
alge865 Solving an absolute value equation: Problem type 2
alge866 Solving an absolute value equation: Problem type 3
alge867 Solving an absolute value equation: Problem type 4
alge167 Solving an absolute value equation of the form \(-ax+b=-cx+d\)
alge868 Solving an absolute value inequality: Problem type 1
alge943 Writing an absolute value inequality given a graph on the number line
alge869 Solving an absolute value inequality: Problem type 2
alge870 Solving an absolute value inequality: Problem type 3
alge871 Solving an absolute value inequality: Problem type 4
alge872 Solving an absolute value inequality: Problem type 5

Lines and Functions

alge064 Reading a point in the coordinate plane
alge067 Plotting a point in the coordinate plane
alge850 Table for a linear equation
alge873 Identifying solutions to a linear equation in two variables
alge866 Finding a solution to a linear equation in two variables
alge877 Graphing a linear equation of the form \(y = mx\)
alge878 Graphing a line given its equation in slope-intercept form: Integer slope
alge879 Graphing a line given its equation in slope-intercept form: Fractional slope
alge880 Graphing a line given its equation in standard form
alge198 Graphing a vertical or horizontal line
alge884 Finding \(x\)- and \(y\)-intercepts given the graph of a line on a grid
alge924 Finding \(x\)- and \(y\)-intercepts of a line given the equation: Basic
alge210 Finding \(x\)- and \(y\)-intercepts of a line given the equation: Advanced
alge197 Graphing a line given its \(x\)- and \(y\)-intercepts
alge881 Graphing a line by first finding its \(x\)- and \(y\)-intercepts
alge875 Classifying slopes given graphs of lines
alge886 Finding slope given the graph of a line on a grid
alge887 Finding slope given two points on the line
alge885 Finding the slope of horizontal and vertical lines
alge888 Finding the coordinate that yields a given slope
alge259 Graphing a line given its slope and \(y\)-intercept
alge196 Graphing a line through a given point with a given slope
alge876 Identifying linear equations: Advanced
alge874 Identifying linear functions given ordered pairs
alge891 Rewriting a linear equation in the form $Ax + By = C$
alge889 Finding the slope and y-intercept of a line given its equation in the form $y = mx + b$
alge890 Finding the slope and y-intercept of a line given its equation in the form $Ax + By = C$
alge882 Graphing a line by first finding its slope and y-intercept
alge258 Writing an equation of a line given its slope and y-intercept
alge892 Writing an equation and graphing a line given its slope and y-intercept
alge893 Writing an equation in slope-intercept form given the slope and a point
alge883 Graphing a line given its equation in point-slope form
alge894 Writing an equation in point-slope form given the slope and a point
alge070 Writing an equation of a line given the y-intercept and another point
alge072 Writing the equation of the line through two given points
alge073 Writing the equations of vertical and horizontal lines through a given point
geom806 Finding slopes of lines parallel and perpendicular to a line given in slope-intercept form
geom807 Finding slopes of lines parallel and perpendicular to a line given in the form $Ax + By = C$
geom808 Writing equations of lines parallel and perpendicular to a given line through a point
alge897 Writing and evaluating a function that models a real-world situation: Advanced
alge701 Writing an equation and drawing its graph to model a real-world situation: Advanced
alge992 Combining functions to write a new function that models a real-world situation
alge987 Comparing properties of linear functions given in different forms
alge898 Interpreting the parameters of a linear function that models a real-world situation
alge805 Application problem with a linear function: Finding a coordinate given the slope and a point
alge806 Application problem with a linear function: Finding a coordinate given two points
alge991 Solving a linear equation by graphing
mstat030 Sketching the line of best fit
mstat023 Scatter plots and correlation
mstat068 Predictions from the line of best fit
mstat007 Approximating the equation of a line of best fit and making predictions
fun032 Identifying functions from relations
fun018 Vertical line test
fun016 Domain and range from ordered pairs
fun001 Table for a linear function
pcalc760 Evaluating functions: Linear and quadratic or cubic
fun030 Evaluating a piecewise-defined function
fun033 Variable expressions as inputs of functions: Problem type 1
alge294 Finding outputs of a one-step function that models a real-world situation: Function notation
alge295 Finding outputs of a two-step function with decimals that models a real-world situation: Function notation
alge296 Finding inputs and outputs of a two-step function that models a real-world situation: Function notation
alge990 Domain and range of a linear function that models a real-world situation function
alge297 Finding an output of a function from its graph
pcalc761 Finding inputs and outputs of a function from its graph
fun007 Domain and range from the graph of a discrete relation
fun024 Domain and range from the graph of a continuous function
fun025 Domain and range from the graph of a piecewise function
pcalc750 Finding intercepts of a nonlinear function given its graph
alge999 Finding where a function is increasing, decreasing, or constant given the graph
pcalc751 Finding where a function is increasing, decreasing, or constant given the graph: Interval notation
pcalc752 Finding local maxima and minima of a function given the graph
mstat018 Choosing a graph to fit a narrative: Basic
mstat051 Choosing a graph to fit a narrative: Advanced
alge896 Graphing an integer function and finding its range for a given domain
alge570 Graphing a function of the form $f(x) = ax + b$: Integer slope
alge571 Graphing a function of the form $f(x) = ax + b$: Fractional slope
alge913 Graphing an absolute value equation of the form $y = \pm x$
alge954 Graphing a parabola of the form $y = ax^2$
alge955 Graphing a parabola of the form $y = ax^2 + c$
alge572 Graphing a function of the form $f(x) = ax^2$
alge573 Graphing a function of the form $f(x) = ax^2 + c$
alge262 Graphing a cubic function of the form \( y = ax^3 \)
fun031 Graphing a piecewise-defined function: Problem type 1
pcalc768 Finding the average rate of change of a function
alge998 Finding the average rate of change of a function given its graph

Exponents and Polynomials

alge821 Understanding the product rule of exponents
alge024 Introduction to the product rule of exponents
alge311 Product rule with positive exponents: Univariate
alge030 Product rule with positive exponents: Multivariate
arith029 Ordering numbers with positive exponents
alge826 Understanding the power rules of exponents
alge306 Introduction to the power of a power rule of exponents
alge305 Introduction to the power of a product rule of exponents
alge307 Power rules with positive exponents: Multivariate products
alge308 Power rules with positive exponents: Multivariate quotients
alge756 Power and product rules with positive exponents
alge451 Simplifying a ratio of multivariate monomials: Basic
alge827 Introduction to the quotient rule of exponents
alge452 Simplifying a ratio of univariate monomials
alge026 Quotient of expressions involving exponents
alge453 Simplifying a ratio of multivariate monomials: Advanced
alge927 Power and quotient rules with positive exponents
alge790 Evaluating expressions with exponents of zero
arith729 Evaluating an expression with a negative exponent: Whole number base
arith042 Evaluating an expression with a negative exponent: Positive fraction base
arith043 Evaluating an expression with a negative exponent: Negative integer base
arith024 Ordering numbers with negative exponents
alge791 Rewriting an algebraic expression without a negative exponent
alge961 Introduction to the product rule with negative exponents
alge028 Product rule with negative exponents
alge755 Quotient rule with negative exponents: Problem type 1
alge926 Quotient rule with negative exponents: Problem type 2
alge025 Power of a power rule with negative exponents
alge799 Power rules with negative exponents
alge928 Power and quotient rules with negative exponents: Problem type 1
alge929 Power and quotient rules with negative exponents: Problem type 2
alge757 Power, product, and quotient rules with negative exponents
arith036 Scientific notation with positive exponent
arith037 Scientific notation with negative exponent
scinot012 Converting between scientific notation and standard form in a real-world situation
scinot008 Multiplying numbers written in scientific notation: Basic
scinot009 Multiplying numbers written in scientific notation: Advanced
scinot010 Dividing numbers written in scientific notation: Basic
scinot011 Dividing numbers written in scientific notation: Advanced
alge758 Degree and leading coefficient of a univariate polynomial
alge031 Degree of a multivariate polynomial
alge798 Simplifying a sum or difference of two univariate polynomials
alge029 Simplifying a sum or difference of three univariate polynomials
alge932 Simplifying a sum or difference of multivariate polynomials
alge735 Multiplying a univariate polynomial by a monomial with a positive coefficient
alge972 Multiplying a univariate polynomial by a monomial with a negative coefficient
alge835 Multiplying a multivariate polynomial by a monomial
alge033 Multiplying binomials with leading coefficients of 1
alge983 Multiplying binomials with leading coefficients greater than 1
alge765 Multiplying binomials in two variables
alge764 Multiplying conjugate binomials: Univariate
alge081 Multiplying conjugate binomials: Multivariate
alge032 Squaring a binomial: Univariate
B.12. GEORGIA MATH 0999-MATH 1111

alge068 Squaring a binomial: Multivariate
alge973 Multiplying binomials with negative coefficients
alge935 Multiplication involving binomials and trinomials in one variable
alge180 Multiplication involving binomials and trinomials in two variables
arith034 Prime numbers
arith035 Prime factorization
arith033 Greatest common factor of 2 numbers
alge605 Factoring a linear binomial
alge736 Introduction to the GCF of two monomials
alge930 Greatest common factor of three univariate monomials
alge037 Greatest common factor of two multivariate monomials
alge788 Factoring out a monomial from a polynomial: Univariate
alge739 Factoring out a monomial from a polynomial: Multivariate
alge949 Factoring out a binomial from a polynomial: GCF factoring, basic
alge923 Factoring a univariate polynomial by grouping: Problem type 1
alge950 Factoring a univariate polynomial by grouping: Problem type 2
alge951 Factoring a multivariate polynomial by grouping: Problem type 1
alge952 Factoring a multivariate polynomial by grouping: Problem type 2
alge039 Factoring a quadratic with leading coefficient 1
alge942 Factoring a quadratic in two variables with leading coefficient 1
alge939 Factoring out a constant before factoring a quadratic
alge939 Factoring a quadratic with leading coefficient greater than 1: Problem type 1
alge940 Factoring a quadratic with leading coefficient greater than 1: Problem type 2
alge941 Factoring a quadratic with leading coefficient greater than 1: Problem type 3
alge978 Factoring a quadratic by the ac-method
alge265 Factoring a quadratic in two variables with leading coefficient greater than 1
alge937 Factoring a quadratic with a negative leading coefficient
alge944 Factoring a perfect square trinomial with leading coefficient 1
alge945 Factoring a perfect square trinomial with leading coefficient greater than 1
alge946 Factoring a perfect square trinomial in two variables
alge290 Factoring a difference of squares in one variable: Basic
alge947 Factoring a difference of squares in one variable: Advanced
alge839 Factoring a difference of squares in two variables
alge948 Factoring a polynomial involving a GCF and a difference of squares: Univariate
alge833 Factoring a polynomial involving a GCF and a difference of squares: Multivariate
alge041 Factoring a product of a quadratic trinomial and a monomial
alge042 Factoring with repeated use of the difference of squares formula
alge044 Factoring a sum or difference of two cubes
pcalc675 Factoring out a binomial from a polynomial: GCF factoring or substitution
alge681 Solving an equation written in factored form
alge956 Finding the roots of a quadratic equation of the form ax^2 + bx = 0
alge045 Finding the roots of a quadratic equation with leading coefficient 1
alge948 Finding the roots of a quadratic equation with leading coefficient greater than 1
alge211 Solving a quadratic equation needing simplification
alge046 Roots of a product of polynomials
alge163 Writing a quadratic equation given the roots and the leading coefficient
alge703 Solving a word problem using a quadratic equation with rational roots
alge407 Introduction to the Pythagorean Theorem
geom044 Pythagorean Theorem
alge408 Word problem involving the Pythagorean Theorem
alge713 Using the Pythagorean Theorem and a quadratic equation to find side lengths of a right triangle

Rational Expressions

alge049 Restriction on a variable in a denominator: Linear
alge467 Restriction on a variable in a denominator: Quadratic
alge468 Evaluating a rational function: Problem type 1
alge469 Evaluating a rational function: Problem type 2
alge715 Domain of a rational function: Excluded values
alge454 Simplifying a ratio of factored polynomials: Linear factors
APPENDIX B. SYLLABI IN ALEKS

alge455 Simplifying a ratio of factored polynomials: Factors with exponents
alge456 Simplifying a ratio of polynomials using GCF factoring
alge457 Simplifying a ratio of linear polynomials: 1, -1, and no simplification
alge458 Simplifying a ratio of polynomials by factoring a quadratic with leading coefficient 1
alge710 Simplifying a ratio of polynomials: Problem type 1
alge682 Simplifying a ratio of polynomials: Problem type 2
alge459 Simplifying a ratio of polynomials: Problem type 3
alge634 Simplifying a ratio of multivariate polynomials
alge620 Multiplying rational expressions involving quadratics with leading coefficients of 1
alge641 Multiplying rational expressions involving quadratics with leading coefficients greater than 1
alge462 Multiplying rational expressions involving multivariate quadratics
alge654 Dividing rational expressions involving linear expressions
alge766 Dividing rational expressions involving quadratics with leading coefficients of 1
alge464 Dividing rational expressions involving quadratics with leading coefficients greater than 1
alge465 Dividing rational expressions involving multivariate quadratics
alge466 Multiplication and division of 3 rational expressions
alge737 Introduction to the LCM of two monomials
alge055 Least common multiple of two monomials
alge427 Finding the LCD of rational expressions with linear denominators: Relatively prime
alge428 Finding the LCD of rational expressions with linear denominators: Common factors
alge429 Finding the LCD of rational expressions with quadratic denominators
alge430 Writing equivalent rational expressions with monomial denominators
alge431 Writing equivalent rational expressions with polynomial denominators
alge432 Writing equivalent rational expressions involving opposite factors
alge433 Adding rational expressions with common denominators and monomial numerators
alge056 Adding rational expressions with common denominators and binomial numerators
alge434 Adding rational expressions with common denominators and GCF factoring
alge435 Adding rational expressions with common denominators and quadratic factoring
alge436 Adding rational expressions with different denominators and a single occurrence of a variable
alge437 Adding rational expressions with denominators ax and bx: Basic
alge438 Adding rational expressions with denominators ax and bx: Advanced
alge439 Adding rational expressions with denominators axn and bxm
alge440 Adding rational expressions with multivariate monomial denominators: Basic
alge226 Adding rational expressions with multivariate monomial denominators: Advanced
alge441 Adding rational expressions with linear denominators without common factors: Basic
alge442 Adding rational expressions with linear denominators without common factors: Advanced
alge443 Adding rational expressions with linear denominators with common factors: Basic
alge444 Adding rational expressions with linear denominators with common factors: Advanced
alge445 Adding rational expressions with denominators ax-b and b-ax
alge446 Adding rational expressions involving different quadratic denominators
alge447 Adding 3 rational expressions with different quadratic denominators
arith695 Complex fraction without variables: Problem type 1
arith696 Complex fraction without variables: Problem type 2
alge470 Complex fraction involving univariate monomials
alge058 Complex fraction involving multivariate monomials
alge471 Complex fraction: GCF factoring
alge472 Complex fraction: Quadratic factoring
alge473 Complex fraction made of sums involving rational expressions: Problem type 1
alge474 Complex fraction made of sums involving rational expressions: Problem type 2
alge475 Complex fraction made of sums involving rational expressions: Problem type 3
alge476 Complex fraction made of sums involving rational expressions: Problem type 4
alge477 Complex fraction made of sums involving rational expressions: Problem type 5
alge478 Complex fraction made of sums involving rational expressions: Problem type 6
alge479 Complex fraction made of sums involving rational expressions: Multivariate
alge480 Complex fraction with negative exponents: Problem type 1
alge481 Complex fraction with negative exponents: Problem type 2
alge162 Complex fraction that contains a complex fraction
alge271 Solving a proportion of the form $\frac{a}{(x+b)} = \frac{c}{x}$
B.12. GEORGIA MATH 0999-MATH 1111

alge060 Solving a rational equation that simplifies to linear: Denominator x
alge205 Solving a rational equation that simplifies to linear: Denominator x+a
alge769 Solving a rational equation that simplifies to linear: Denominators a, x, or ax
alge421 Solving a rational equation that simplifies to linear: Denominators ax and bx
alge422 Solving a rational equation that simplifies to linear: Like binomial denominators
alge206 Solving a rational equation that simplifies to linear: Unlike binomial denominators
alge423 Solving a rational equation that simplifies to linear: Factorable quadratic denominator
alge424 Solving a rational equation that simplifies to quadratic: Proportional form, basic
alge425 Solving a rational equation that simplifies to quadratic: Denominator x
alge212 Solving a rational equation that simplifies to quadratic: Binomial denominators, constant numerators
alge062 Solving a rational equation that simplifies to quadratic: Binomial denominators and numerators
alge426 Solving a rational equation that simplifies to quadratic: Factorable quadratic denominator
alge047 Solving a rational equation that simplifies to quadratic: Proportional form, advanced
alge508 Solving for a variable in terms of other variables in a rational equation: Problem type 1
alge509 Solving for a variable in terms of other variables in a rational equation: Problem type 2
alge510 Solving for a variable in terms of other variables in a rational equation: Problem type 3
arith610 Word problem on proportions: Problem type 1
arith611 Word problem on proportions: Problem type 2
geom037 Similar polygons
geom038 Similar right triangles
geom337 Indirect measurement
geom133 Ratio of volumes
arith612 Word problem involving multiple rates
alge770 Solving a work problem using a rational equation
alge450 Solving a distance, rate, time problem using a rational equation
alge059 Ordering fractions with variables
alge982 Identifying direct variation equations
alge938 Identifying direct variation from ordered pairs and writing equations
alge904 Writing a direct variation equation
alge175 Word problem on direct variation
alge828 Interpreting direct variation from a graph
alge905 Writing an inverse variation equation
alge963 Identifying direct and inverse variation equations
alge902 Identifying direct and inverse variation from ordered pairs and writing equations
alge176 Word problem on inverse variation
alge220 Word problem on inverse proportions
pcalc681 Writing an equation that models variation
alge772 Word problem on combined variation

Radicals

alge413 Finding all square roots of a number
arith601 Square root of a rational perfect square
arith760 Square roots of perfect squares with signs
arith761 Square roots of integers raised to even exponents
alge415 Introduction to simplifying a radical expression with an even exponent
alge264 Square root of a perfect square monomial
alge537 Using absolute value to simplify square roots of perfect square monomials
arith594 Cube root of an integer
alge549 Finding nth roots of perfect nth powers with signs
arith768 Finding the nth root of a perfect nth power fraction
alge550 Finding the nth root of a perfect nth power monomial
alge538 Using absolute value to simplify higher radical expressions
alge539 Table for a square root function
alge546 Evaluating a cube root function
alge540 Domain of a square root function: Basic
pcalc763 Domain of a square root function: Advanced
alge547 Domains of higher root functions
alge543 Graphing a square root function: Problem type 1
alge544 Graphing a square root function: Problem type 2
APPENDIX B. SYLLABI IN ALEKS

alge545 Graphing a square root function: Problem type 3
alge548 Graphing a cube root function
alge812 Converting between radical form and exponent form
alge560 Rational exponents: Unit fraction exponents and whole number bases
alge561 Rational exponents: Unit fraction exponents and bases involving signs
alge250 Rational exponents: Non-unit fraction exponent with a whole number base
alge251 Rational exponents: Negative exponents and fractional bases
alge558 Rational exponents: Product rule
alge559 Rational exponents: Quotient rule
alge773 Rational exponents: Products and quotients with negative exponents
alge562 Rational exponents: Power of a power rule
alge249 Rational exponents: Powers of powers with negative exponents
arith093 Simplifying the square root of a whole number less than 100
arith762 Simplifying the square root of a whole number greater than 100
alge080 Simplifying a radical expression with an even exponent
alge520 Introduction to simplifying a radical expression with an odd exponent
alge521 Simplifying a radical expression with an odd exponent
alge275 Simplifying a radical expression with two variables
alge273 Simplifying a higher root of a whole number
alge551 Introduction to simplifying a higher radical expression
alge552 Simplifying a higher radical expression: Univariate
alge811 Simplifying a higher radical expression: Multivariate
arith767 Introduction to square root addition or subtraction
arith032 Square root addition or subtraction
alge533 Square root addition or subtraction with three terms
alge531 Introduction to simplifying a sum or difference of radical expressions: Univariate
alge532 Simplifying a sum or difference of radical expressions: Univariate
alge084 Simplifying a sum or difference of radical expressions: Multivariate
alge554 Simplifying a sum or difference of higher roots
alge555 Simplifying a sum or difference of higher radical expressions
arith764 Introduction to square root multiplication
arith765 Square root multiplication: Basic
arith039 Square root multiplication: Advanced
alge522 Introduction to simplifying a product of radical expressions: Univariate
alge523 Simplifying a product of radical expressions: Univariate
alge640 Simplifying a product of radical expressions: Multivariate
alge082 Simplifying a product of radical expressions: Multivariate, fractional expressions
alge556 Introduction to simplifying a product of higher roots
alge557 Simplifying a product of higher radical expressions
alge525 Introduction to simplifying a product involving square roots using the distributive property
alge526 Simplifying a product involving square roots using the distributive property: Basic
alge276 Simplifying a product involving square roots using the distributive property: Advanced
alge774 Special products of radical expressions: Conjugates and squaring
alge084 Classifying sums and products as rational or irrational
arith766 Simplifying a quotient of square roots
alge530 Simplifying a quotient involving a sum or difference with a square root
alge527 Rationalizing a denominator: Quotient involving square roots
alge528 Rationalizing a denominator: Square root of a fraction
alge529 Rationalizing a denominator: Quotient involving a monomial
alge534 Rationalizing a denominator using conjugates: Integer numerator
alge535 Rationalizing a denominator using conjugates: Square root in numerator
alge536 Rationalizing a denominator using conjugates: Variable in denominator
alge564 Rationalizing a denominator: Quotient involving a higher radical
alge775 Rationalizing a denominator: Quotient involving higher radicals and monomials
alge563 Simplifying products or quotients of higher radicals with different indices: Univariate
alge776 Simplifying products or quotients of higher radicals with different indices: Multivariate
alge400 Introduction to solving a radical equation
pcalc682 Evaluating functions: Absolute value, rational, radical
pcalc754 Finding the domain of a fractional function involving radicals
alge089 Solving a radical equation that simplifies to a linear equation: One radical, basic
alge402 Solving a radical equation that simplifies to a linear equation: One radical, advanced
alge090 Solving a radical equation that simplifies to a linear equation: Two radicals
Quadratic Equations and Functions

alge962 Solving an equation of the form \( x^2 = a \) using the square root property
alge092 Solving a quadratic equation using the square root property: Exact answers, basic
alge227 Solving a quadratic equation using the square root property: Exact answers, advanced
alge963 Completing the square
alge780 Solving a quadratic equation by completing the square: Exact answers
alge995 Applying the quadratic formula: Exact answers
alge963 Applying the quadratic formula: Decimal answers
pcalc051 Solving a quadratic equation with complex roots
alge214 Discriminant of a quadratic equation
alge193 Discriminant of a quadratic equation with parameter
alge093 Solving an equation using the odd-root property: Problem type 1
alge228 Solving an equation using the odd-root property: Problem type 2
alge230 Solving an equation with positive rational exponent
alge231 Solving an equation with negative rational exponent
alge781 Solving an equation that can be written in quadratic form: Problem type 1
alge782 Solving an equation that can be written in quadratic form: Problem type 2
alge974 Finding the vertex, x-intercepts, and axis of symmetry from the graph of a parabola
alge253 Graphing a parabola of the form \( y = (x-h)^2 + k \)
apclc746 Graphing a parabola of the form \( y = ax^2 + bx + c \): Integer coefficients
apclc747 Graphing a parabola of the form \( y = ax^2 + bx + c \): Rational coefficients
alge977 Finding the x-intercept(s) and the vertex of a parabola
apclc793 Using a graphing calculator to find the x-intercept(s) and vertex of a quadratic function
apclc774 Rewriting a quadratic function to find the vertex of its graph
apclc775 Finding the maximum or minimum of a quadratic function
alge785 Word problem involving the maximum or minimum of a quadratic function
alge975 Domain and range from the graph of a parabola
apclc762 Range of a quadratic function
apclc680 Writing the equation of a quadratic function given its graph
alge957 Solving a quadratic equation by graphing
alge996 Comparing properties of quadratic functions given in different forms
alge792 Classifying the graph of a function
apclc679 Testing an equation for symmetry about the axes and origin
apclc114 Even and odd functions: Problem type 1
alge953 Translating the graph of a parabola: One step
alge723 How the leading coefficient affects the shape of a parabola
alge898 Translating the graph of an absolute value function: One step
alge899 Translating the graph of an absolute value function: Two steps
APPENDIX B. SYLLABI IN ALEKS

alge900 Graphing an absolute value equation in the plane: Basic
alge168 Graphing an absolute value equation in the plane: Advanced
alge901 How the leading coefficient affects the graph of an absolute value function
alge185 Writing an equation for a function after a vertical translation
pcalc769 Translating the graph of a function: One step
pcalc770 Translating the graph of a function: Two steps
pcalc771 Transforming the graph of a function by reflecting over an axis
pcalc772 Transforming the graph of a function by shrinking or stretching
pcalc773 Transforming the graph of a function using more than one transformation
fun020 Writing an equation for a function after a vertical and horizontal translation
fun019 Sum, difference, and product of two functions
pcalc753 Finding a difference quotient for a linear or quadratic function
alge786 Quotient of two functions: Basic
pcalc756 Combining functions: Advanced
fun022 Composition of two functions: Basic
pcalc776 Expressing a function as a composition of two functions
fun021 Composition of two functions: Domain and range
alge129 Composition of two functions: Advanced
pcalc694 Determining whether an equation defines a function: Basic
pcalc757 Determining whether an equation defines a function: Advanced
fun011 Horizontal line test
pcalc777 Determining whether two functions are inverses of each other
fun012 Inverse functions: Linear, discrete
alge130 Inverse functions: Rational
pcalc778 Inverse functions: Quadratic, cubic, radical

Polynomial and Rational Functions

pcalc764 Finding zeros of a polynomial function written in factored form
pcalc766 Finding a polynomial of a given degree with given zeros: Real zeros
pcalc765 Finding x- and y-intercepts given a polynomial function
pcalc678 Finding x- and y-intercepts of the graph of a nonlinear equation
pcalc782 Determining the end behavior of the graph of a polynomial function
pcalc783 Matching graphs with polynomial functions
pcalc738 Inferring properties of a polynomial function from its graph
pcalc794 Using a graphing calculator to find local extrema of a polynomial function
pcalc115 Using a graphing calculator to solve a word problem involving a local extremum of a polynomial function
alge759 Dividing a polynomial by a monomial: Univariate
alge760 Dividing a polynomial by a monomial: Multivariate
alge761 Polynomial long division: Problem type 1
alge762 Polynomial long division: Problem type 2
alge763 Polynomial long division: Problem type 3
pcalc117 Synthetic division
alge985 Closure properties of integers and polynomials
pcalc786 Using the remainder theorem to evaluate a polynomial
pcalc787 The Factor Theorem
pcalc118 Remainder theorem: Advanced
pcalc741 Using a given zero to write a polynomial as a product of linear factors: Real zeros
pcalc758 Finding all possible rational zeros using the rational zeros theorem: Problem type 1
pcalc759 Finding all possible rational zeros using the rational zeros theorem: Problem type 2
pcalc880 Descartes’ Rule of Signs
pcalc743 Using the rational zeros theorem to find all zeros of a polynomial: Rational zeros
pcalc744 Using the rational zeros theorem to find all zeros of a polynomial: Irrational zeros
pcalc795 Using a graphing calculator to find zeros of a polynomial function
pcalc703 Using a graphing calculator to solve a word problem involving a polynomial of degree 3
pcalc785 Multiplying expressions involving complex conjugates
pcalc767 Finding a polynomial of a given degree with given zeros: Complex zeros
pcalc742 Using a given zero to write a polynomial as a product of linear factors: Complex zeros
pcalc745 Using the rational zeros theorem to find all zeros of a polynomial: Complex zeros
pcalc703 Using the conjugate zeros theorem to find all zeros of a polynomial
pcalc705 Linear factors theorem and conjugate zeros theorem
pcalc917 Finding the asymptotes of a rational function: Constant over linear
pcalc918 Finding the asymptotes of a rational function: Linear over linear
pcalc790 Finding horizontal and vertical asymptotes of a rational function: Quadratic numerator or denominator
alge515 Graphing a rational function: Constant over linear
alge516 Graphing a rational function: Linear over linear
pcalc109 Graphing a rational function: Quadratic over linear
pcalc792 Graphing rational functions with holes
pcalc791 Matching graphs with rational functions: Two vertical asymptotes
pcalc706 Writing the equation of a rational function given its graph
alge784 Solving a quadratic inequality written in factored form
alge771 Solving a quadratic inequality
pcalc676 Solving a polynomial inequality
alge783 Solving a rational inequality: Problem type 1
pcalc677 Solving a rational inequality: Problem type 2

Exponential and Logarithmic Functions

alge971 Table for an exponential function
alge969 Graphing an exponential function: $f(x) = ax$
alge970 Graphing an exponential function: $f(x) = a(b)^x$
alge712 Graphing an exponential function and its asymptote: $f(x) = a(b)^x$
palc792 Translating the graph of an exponential function
pcalc797 The graph, domain, and range of an exponential function
pcalc103 Graphing an exponential function and its asymptote: $f(x) = a(e)^{x-b} + c$
alge830 Evaluating an exponential function that models a real-world situation
pcalc919 Evaluating an exponential function with base e that models a real-world situation
arith853 Introduction to compound interest
alge741 Finding the initial amount and rate of change given an exponential function
alge966 Finding the initial amount and rate of change given an exponential function
alge968 Writing an equation that models exponential growth or decay
alge967 Writing an exponential function rule given a table of ordered pairs
alge993 Comparing linear, polynomial, and exponential functions
alge108 Converting between logarithmic and exponential equations
pcalc799 Converting between natural logarithmic and exponential equations
alge232 Evaluating a logarithmic expression
alge233 Solving an equation of the form $\log_b a = c$
palc823 Translating the graph of a logarithmic function
alge788 Graphing a logarithmic function: Basic
pcalc800 The graph, domain, and range of a logarithmic function
pcalc801 Domain of a logarithmic function: Advanced
pcalc104 Graphing a logarithmic function: Advanced
pcalc708 Basic properties of logarithms
pcalc779 Expanding a logarithmic expression: Problem type 1
pcalc780 Expanding a logarithmic expression: Problem type 2
alge787 Writing an expression as a single logarithm
pcalc612 Change of base for logarithms: Problem type 1
pcalc613 Change of base for logarithms: Problem type 2
pcalc803 Solving a multi-step equation involving a single logarithm
pcalc804 Solving a multi-step equation involving natural logarithms
alge113 Solving an equation involving logarithms on both sides: Problem type 1
pcalc805 Solving an equation involving logarithms on both sides: Problem type 2
alge301 Solving an exponential equation by finding common bases: Linear exponents
alge482 Solving an exponential equation by finding common bases: Linear and quadratic exponents
pcalc920 Solving an exponential equation by using logarithms: Decimal answers, basic
pcalc921 Solving an exponential equation by using natural logarithms: Decimal answers
alge111 Solving an exponential equation by using logarithms: Exact answers in logarithmic form
pcalc802 Solving an exponential equation by using substitution and quadratic factoring
alge178 Finding the time to reach a limit in a word problem on exponential growth or decay
pcalc614 Finding the initial or final amount in a word problem on exponential growth or decay
pcalc615 Finding the rate or time in a word problem on continuous exponential growth or decay

Conic Sections

alge132 Distance between two points in the plane: Exact answers
alge191 Midpoint of a line segment in the plane
alge414 Finding an endpoint of a line segment given the other endpoint and the midpoint
pcalc067 Graphing a parabola of the form ay^2 + by + cx + d = 0 or ax^2 + bx + cy + d = 0
pcalc069 Finding the focus of a parabola of the form ay^2 + by + cx + d = 0 or ax^2 + bx + cy + d = 0
pcalc065 Graphing a circle given its equation in standard form
pcalc128 Graphing a circle given its equation in general form: Basic
pcalc129 Graphing a circle given its equation in general form: Advanced
pcalc065 Writing an equation of a circle given its center and a point on the circle
pcalc066 Writing an equation of a circle given the endpoints of a diameter
pcalc734 Graphing an ellipse given its equation in standard form
pcalc070 Graphing an ellipse centered at the origin: Ax^2 + By^2 = C
pcalc071 Graphing an ellipse given its equation in general form
pcalc072 Finding the foci of an ellipse given its equation in general form
pcalc074 Writing an equation of an ellipse given the center, an endpoint of an axis, and the length of the other axis
pcalc073 Writing an equation of an ellipse given the foci and the major axis length
pcalc735 Graphing a hyperbola given its equation in standard form
pcalc075 Graphing a hyperbola centered at the origin: Ax^2 - By^2 = C
pcalc076 Graphing a hyperbola given its equation in general form
pcalc077 Finding the foci of a hyperbola given its equation in general form
pcalc078 Writing an equation of a hyperbola given the foci and the vertices
pcalc079 Writing an equation of a hyperbola given the foci and the asymptotes: Advanced
pcalc736 Classifying conics given their equations

Systems and Matrices

alge914 Identifying solutions to a system of linear equations
alge075 Classifying systems of linear equations from graphs
alge725 Graphically solving a system of linear equations
alge751 Solving a system of linear equations using substitution
alge915 Solving a system of linear equations using elimination with addition
alge076 Solving a system of linear equations using elimination with multiplication and addition
alge916 Solving a system of linear equations with fractional coefficients
alge917 Solving a system of linear equations with decimal coefficients
alge752 Solving a 2x2 system of linear equations that is inconsistent or consistent dependent
alge077 Creating an inconsistent system of linear equations
alge988 Identifying the operations used to create equivalent systems of equations
pcalc099 Consistency and independence of a system of linear equations
alge753 Solving a 3x3 system of linear equations: Problem type 1
alge263 Interpreting the graphs of two functions
alge078 Solving a word problem involving a sum and another basic relationship using a system of linear equations
alge919 Solving a word problem using a system of linear equations of the form Ax + By = C
alge918 Solving a word problem using a system of linear equations of the form y = mx + b
alge184 Solving a value mixture problem using a system of linear equations
alge192 Solving a percent mixture problem using a system of linear equations
alge224 Solving a distance, rate, time problem using a system of linear equations
alge172 Solving a tax rate or interest rate problem using a system of linear equations
alge703 Solving a word problem using a 3x3 system of linear equations: Problem type 1
pcalc037 Scalar multiplication of a matrix
pcalc038 Addition or subtraction of matrices
Sequences, Series, and Probability

alg644 Finding the first terms of an arithmetic sequence using an explicit rule
alg645 Finding the first terms of a geometric sequence using an explicit rule
pcalc808 Finding the first terms of a sequence using an explicit rule with multiple occurrences of n
alg906 Finding the next terms of an arithmetic sequence with integers
alg908 Finding the first terms of a sequence using a recursive rule
alg979 Identifying arithmetic sequences and finding the common difference
alg931 Finding a specified term of an arithmetic sequence given the first terms
pcalc885 Finding a specified term of an arithmetic sequence given the common difference and first term
pcalc715 Finding a specified term of an arithmetic sequence given two terms of the sequence
alg909 Writing an explicit rule for an arithmetic sequence
alg910 Writing a recursive rule for an arithmetic sequence
pcalc718 Sum of the first n terms of an arithmetic sequence
alg907 Finding the next terms of a geometric sequence with signed numbers
alg981 Identifying arithmetic and geometric sequences
alg980 Identifying geometric sequences and finding the common ratio
alg934 Finding a specified term of a geometric sequence given the first terms
pcalc886 Finding a specified term of a geometric sequence given the common ratio and first term
pcalc717 Finding a specified term of a geometric sequence given two terms of the sequence
pcalc713 Arithmetic and geometric sequences: Identifying and writing an explicit rule
alg911 Writing recursive rules for arithmetic and geometric sequences
pcalc719 Sum of the first n terms of a geometric sequence
pcalc720 Sum of an infinite geometric series
APPENDIX B. SYLLABI IN ALEKS

alge965 Identifying linear, quadratic, and exponential functions given ordered pairs
pcalc082 Factorial expressions
mstat041 Interpreting a tree diagram
mstat040 Introduction to the counting principle
mstat015 Counting principle
mstat017 Computing permutations and combinations
pcalc899 Introduction to permutations and combinations
pcalc810 Permutations and combinations: Problem type 1
pcalc889 Permutations and combinations: Problem type 2
pcalc890 Permutations and combinations: Problem type 3
pcalc087 Binomial formula
mstat010 Probability of an event
mstat046 Experimental and theoretical probability
stat106 Outcomes and event probability
mstat011 Area as probability
stat850 Probability of independent events
stat851 Probability of dependent events
stat117 Probabilities of draws with replacement
stat118 Probabilities of draws without replacement
mstat042 Interpreting a Venn diagram of 2 sets
mstat043 Interpreting a Venn diagram of 3 sets
stat119 Venn diagrams: Two events
stat101 Venn diagrams: Word problems
stat112 Probabilities involving two dice
stat114 Probability of intersection or union: Word problems
stat115 Independent events: Basic
stat120 Probability of union: Basic
stat116 Conditional probability: Basic
stat109 Intersection and conditional probability
stat174 Binomial problems: Basic
stat155 Binomial problems: Advanced

B.13 New York MAT 117

Algebra and Geometry Review

arith687 Fractional position on a number line
arith605 Plotting rational numbers on a number line
arith601 Ordering integers
arith602 Estimating a square root
arith712 Ordering real numbers
algx001 Identifying numbers as integers or non-integers
algx002 Identifying numbers as rational or irrational
arith116 Signed fraction addition or subtraction: Basic
arith864 Signed fraction subtraction involving double negation
arith116 Signed fraction addition or subtraction: Advanced
arith811 Addition and subtraction of 3 fractions involving signs
arith822 Signed fraction multiplication: Basic
arith105 Signed fraction multiplication: Advanced
arith814 Signed fraction division
arith104 Operations with absolute value: Problem type 2
geom525 Computing distances between decimals on the number line
arith702 Exponents and integers: Problem type 1
arith703 Exponents and integers: Problem type 2
arith704 Exponents and signed fractions
arith118 Order of operations with integers
arith600 Order of operations with integers and exponents
algx005 Evaluating a linear expression: Integer multiplication with addition or subtraction
alge973 Multiplying binomials with negative coefficients
alge935 Multiplication involving binomials and trinomials in one variable
alge180 Multiplication involving binomials and trinomials in two variables
arith034 Prime numbers
arith035 Prime factorization
arith033 Greatest common factor of 2 numbers
alge605 Factoring a linear binomial
alge736 Introduction to the GCF of two monomials
alge930 Greatest common factor of three univariate monomials
alge037 Greatest common factor of two multivariate monomials
alge738 Factoring out a monomial from a polynomial: Univariate
alge739 Factoring out a monomial from a polynomial: Multivariate
alge949 Factoring out a binomial from a polynomial: GCF factoring, basic
alge923 Factoring a univariate polynomial by grouping: Problem type 1
alge950 Factoring a univariate polynomial by grouping: Problem type 2
alge951 Factoring a multivariate polynomial by grouping: Problem type 1
alge952 Factoring a multivariate polynomial by grouping: Problem type 2
alge039 Factoring a quadratic with leading coefficient 1
alge942 Factoring a quadratic in two variables with leading coefficient 1
alge936 Factoring out a constant before factoring a quadratic
alge909 Factoring a quadratic with leading coefficient greater than 1: Problem type 1
alge940 Factoring a quadratic with leading coefficient greater than 1: Problem type 2
alge941 Factoring a quadratic with leading coefficient greater than 1: Problem type 3
alge978 Factoring a quadratic by the ac-method
alge265 Factoring a quadratic in two variables with leading coefficient greater than 1
alge907 Factoring a quadratic with a negative leading coefficient
alge944 Factoring a perfect square trinomial with leading coefficient 1
alge945 Factoring a perfect square trinomial with leading coefficient greater than 1
alge946 Factoring a perfect square trinomial in two variables
alge290 Factoring out a binomial from a polynomial: GCF factoring or substitution
alge041 Factoring a product of a quadratic trinomial and a monomial
alge042 Factoring with repeated use of the difference of squares formula
alge044 Factoring a sum or difference of two cubes
pcalc675 Factoring out a binomial from a polynomial: GCF factoring or substitution
alge049 Restriction on a variable in a denominator: Linear
alge454 Simplifying a ratio of factored polynomials: Linear factors
alge455 Simplifying a ratio of factored polynomials: Factors with exponents
alge456 Simplifying a ratio of polynomials using GCF factoring
alge457 Simplifying a ratio of linear polynomials: 1, -1, and no simplification
alge458 Simplifying a ratio of polynomials by factoring a quadratic with leading coefficient 1
alge710 Simplifying a ratio of polynomials: Problem type 1
alge682 Simplifying a ratio of polynomials: Problem type 2
alge459 Simplifying a ratio of polynomials: Problem type 3
alge034 Simplifying a ratio of multivariate polynomials
alge053 Multiplying rational expressions involving multivariate monomials
alge460 Multiplying rational expressions made up of linear expressions
alge620 Multiplying rational expressions involving quadratics with leading coefficients of 1
alge461 Multiplying rational expressions involving quadratics with leading coefficients greater than 1
alge462 Multiplying rational expressions involving multivariate quadratics
alge054 Dividing rational expressions involving multivariate monomials
alge463 Dividing rational expressions involving linear expressions
alge766 Dividing rational expressions involving quadratics with leading coefficients of 1
alge464 Dividing rational expressions involving quadratics with leading coefficients greater than 1
alge465 Dividing rational expressions involving multivariate quadratics
alge466 Multiplication and division of 3 rational expressions
arith070 Least common multiple of 2 numbers
arith084 Least common multiple of 3 numbers
alge737 Introduction to the LCM of two monomials
alge055 Least common multiple of two monomials
alge427 Finding the LCD of rational expressions with linear denominators: Relatively prime
alge428 Finding the LCD of rational expressions with linear denominators: Common factors
alge429 Finding the LCD of rational expressions with quadratic denominators
alge430 Writing equivalent rational expressions with monomial denominators
alge431 Writing equivalent rational expressions with polynomial denominators
alge432 Introduction to adding fractions with variables and common denominators
alge056 Adding rational expressions with common denominators and monomial numerators
alge057 Adding rational expressions with common denominators and binomial numerators
alge434 Adding rational expressions with common denominators and GCF factoring
alge435 Adding rational expressions with common denominators and quadratic factoring
alge436 Adding rational expressions with different denominators and a single occurrence of a variable
alge437 Adding rational expressions with denominators ax and bx: Basic
alge438 Adding rational expressions with denominators ax and bx: Advanced
alge439 Adding rational expressions with denominators axn and bxm
alge440 Adding rational expressions with multivariate monomial denominators: Basic
alge441 Adding rational expressions with multivariate monomial denominators: Advanced
alge442 Adding rational expressions with linear denominators without common factors: Basic
alge443 Adding rational expressions with linear denominators without common factors: Advanced
alge444 Adding rational expressions with linear denominators with common factors: Basic
alge445 Adding rational expressions with linear denominators with common factors: Advanced
alge446 Adding rational expressions involving different quadratic denominators
alge447 Adding 3 rational expressions with different quadratic denominators
arith695 Complex fraction without variables: Problem type 1
arith696 Complex fraction without variables: Problem type 2
arith697 Complex fraction: GCF factoring
arith698 Complex fraction: Quadratic factoring
arith699 Complex fraction made of sums involving rational expressions: Problem type 1
arith700 Complex fraction made of sums involving rational expressions: Problem type 2
arith701 Complex fraction made of sums involving rational expressions: Problem type 3
arith702 Complex fraction made of sums involving rational expressions: Problem type 4
arith703 Complex fraction made of sums involving rational expressions: Problem type 5
arith704 Complex fraction made of sums involving rational expressions: Problem type 6
arith705 Complex fraction made of sums involving rational expressions: Multivariate
arith706 Complex fraction with negative exponents: Problem type 1
arith707 Complex fraction with negative exponents: Problem type 2
arith708 Complex fraction that contains a complex fraction
arith709 Finding all square roots of a number
arith710 Square root of a rational perfect square
arith711 Square roots of perfect squares with signs
arith712 Square roots of integers raised to even exponents
arith713 Introduction to simplifying a radical expression with an even exponent
arith714 Square root of a perfect square monomial
arith715 Introduction to solving an absolute value equation
arith716 Using absolute value to simplify square roots of perfect square monomials
arith717 Cube root of an integer
arith718 Finding nth roots of perfect nth powers with signs
arith719 Finding the nth root of a perfect nth power fraction
arith720 Finding the nth root of a perfect nth power monomial
arith721 Using absolute value to simplify higher radical expressions
arith722 Converting between radical form and exponent form
arith723 Rational exponents: Unit fraction exponents and whole number bases
arith724 Rational exponents: Unit fraction exponents and bases involving signs
arith725 Rational exponents: Non-unit fraction exponent with a whole number base
arith726 Rational exponents: Negative exponents and fractional bases
arith727 Rational exponents: Product rule
arith728 Rational exponents: Quotient rule
arith729 Rational exponents: Products and quotients with negative exponents
APPENDIX B. SYLLABI IN ALEKS

alge562 Rational exponents: Power of a power rule
alge249 Rational exponents: Powers of powers with negative exponents
arith093 Simplifying the square root of a whole number less than 100
arith762 Simplifying the square root of a whole number greater than 100
alge080 Simplifying a radical expression with an even exponent
alge520 Introduction to simplifying a radical expression with an odd exponent
alge521 Simplifying a radical expression with an odd exponent
alge275 Simplifying a radical expression with two variables
alge273 Simplifying a higher root of a whole number
alge551 Introduction to simplifying a higher radical expression
alge552 Simplifying a higher radical expression: Univariate
alge811 Simplifying a higher radical expression: Multivariate
arith767 Introduction to square root addition or subtraction
arith032 Square root addition or subtraction
alge533 Square root addition or subtraction with three terms
alge531 Introduction to simplifying a sum or difference of radical expressions: Univariate
alge532 Simplifying a sum or difference of radical expressions: Univariate
alge084 Simplifying a sum or difference of radical expressions: Multivariate
alge554 Simplifying a sum or difference of higher roots
alge555 Simplifying a sum or difference of higher radical expressions
arith764 Introduction to square root multiplication
arith639 Square root multiplication: Basic
arith639 Square root multiplication: Advanced
alge522 Introduction to simplifying a product of radical expressions: Univariate
alge523 Simplifying a product of radical expressions: Univariate
alge640 Simplifying a product of radical expressions: Multivariate
alge082 Simplifying a product of radical expressions: Multivariate, fractional expressions
alge556 Introduction to simplifying a product of higher roots
alge557 Simplifying a product of higher radical expressions
alge525 Introduction to simplifying a product involving square roots using the distributive property
alge526 Simplifying a product involving square roots using the distributive property: Basic
alge276 Simplifying a product involving square roots using the distributive property: Advanced
alge774 Special products of radical expressions: Conjugates and squaring
alge984 Classifying sums and products as rational or irrational
arith766 Simplifying a quotient of square roots
alge530 Simplifying a quotient involving a sum or difference with a square root
alge527 Rationalizing a denominator: Quotient involving square roots
alge528 Rationalizing a denominator: Square root of a fraction
alge529 Rationalizing a denominator: Quotient involving a monomial
alge534 Rationalizing a denominator using conjugates: Integer numerator
alge535 Rationalizing a denominator using conjugates: Square root in numerator
alge536 Rationalizing a denominator using conjugates: Variable in denominator
alge564 Rationalizing a denominator: Quotient involving a higher radical
alge775 Rationalizing a denominator: Quotient involving higher radicals and monomials
alge563 Simplifying products or quotients of higher radicals with different indices: Univariate
alge776 Simplifying products or quotients of higher radicals with different indices: Multivariate
geom340 Area of a piecewise rectangular figure
geom142 Word problem involving the area between two rectangles
geom801 Area of a triangle
geom022 Area of a parallelogram
geom023 Area of a trapezoid
geom016 Circumference of a circle
geom301 Perimeter involving rectangles and circles
geom802 Circumference and area of a circle
geom302 Area involving rectangles and circles
geom036 Word problem involving the area between two concentric circles
geom214 Area involving inscribed figures
geom311 Volume of a rectangular prism
geom090 Volume of a triangular prism
geom033 Volume of a pyramid
geom335 Volume of a cylinder
geom092 Word problem involving the rate of filling or emptying a cylinder
B.13. NEW YORK MAT 117

geom622 Volume of a cone
geom841 Volume of a sphere
geom031 Surface area of a cube or a rectangular prism
geom091 Surface area of a triangular prism
geom621 Surface area of a cylinder
geom842 Surface area of a sphere
alge407 Introduction to the Pythagorean Theorem
geom044 Pythagorean Theorem
alge408 Word problem involving the Pythagorean Theorem

Equations and Inequalities

alge836 Additive property of equality with signed fractions
alge012 Multiplicative property of equality with signed fractions
alge837 Solving a multi-step equation given in fractional form
alge086 Identifying properties used to solve a linear equation
alge011 Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
alge013 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
alge209 Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions
alge420 Solving a linear equation with several occurrences of the variable: Fractional forms with monomial numerators
alge208 Solving a two-step equation with signed fractions
alge061 Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
alge179 Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators
alge742 Solving equations with zero, one, or infinitely many solutions
alge840 Solving a proportion of the form \((x+a)\div b = c\div d\)
alge511 Solving for a variable in terms of other variables using addition or subtraction: Basic
alge512 Solving for a variable in terms of other variables using addition or subtraction: Advanced
alge513 Solving for a variable in terms of other variables using multiplication or division: Basic
alge514 Solving for a variable in terms of other variables using multiplication or division: Advanced
alge517 Solving for a variable in terms of other variables using addition or subtraction with division
alge518 Solving for a variable inside parentheses in terms of other variables
alge507 Solving for a variable in terms of other variables in a linear equation with fractions
alge016 Translating a sentence into a one-step equation
alge841 Translating a sentence into a multi-step equation
alge014 Solving a word problem with two unknowns using a linear equation
alge173 Solving a decimal word problem using a linear equation of the form \(Ax + B = C\)
alge219 Solving a decimal word problem using a linear equation with the variable on both sides
alge704 Solving a fraction word problem using a linear equation with the variable on both sides
alge792 Solving a word problem with three unknowns using a linear equation
alge842 Solving a word problem involving consecutive integers
alge730 Writing a multi-step equation for a real-world situation
alge794 Solving a value mixture problem using a linear equation
alge823 Solving a one-step word problem using the formula \(d = rt\)
alge796 Solving a distance, rate, time problem using a linear equation
geom817 Finding a side length given the perimeter and side lengths with variables
geom143 Finding the perimeter or area of a rectangle given one of these values
geom838 Circumference ratios
geom530 Solving equations involving vertical angles
geom023 Finding angle measures of a triangle given angles with variables
stat803 Finding the value for a new score that will yield a given mean
arith852 Finding the multiplier to give a final amount after a percentage increase or decrease
arith847 Finding the sale price given the original price and percent discount
arith848 Finding the total cost including tax or markup
arith031 Finding the original price given the sale price and percent discount
<table>
<thead>
<tr>
<th>Course</th>
<th>Topic Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>arith854</td>
<td>Computing a percent mixture</td>
</tr>
<tr>
<td>alge795</td>
<td>Solving a percent mixture problem using a linear equation</td>
</tr>
<tr>
<td>arith232</td>
<td>Finding simple interest without a calculator</td>
</tr>
<tr>
<td>alge864</td>
<td>Solving an absolute value equation: Problem type 1</td>
</tr>
<tr>
<td>alge865</td>
<td>Solving an absolute value equation: Problem type 2</td>
</tr>
<tr>
<td>alge866</td>
<td>Solving an absolute value equation: Problem type 3</td>
</tr>
<tr>
<td>alge867</td>
<td>Solving an absolute value equation: Problem type 4</td>
</tr>
<tr>
<td>alge167</td>
<td>Solving an absolute value equation of the form $-ax+b=-cx+d$</td>
</tr>
<tr>
<td>alge845</td>
<td>Translating a sentence into a one-step inequality</td>
</tr>
<tr>
<td>alge846</td>
<td>Translating a sentence into a multi-step inequality</td>
</tr>
<tr>
<td>alge748</td>
<td>Writing an inequality for a real-world situation</td>
</tr>
<tr>
<td>alge017</td>
<td>Graphing a linear inequality on the number line</td>
</tr>
<tr>
<td>alge822</td>
<td>Writing an inequality given a graph on the number line</td>
</tr>
<tr>
<td>alge186</td>
<td>Translating a sentence into a compound inequality</td>
</tr>
<tr>
<td>alge166</td>
<td>Graphing a compound inequality on the number line</td>
</tr>
<tr>
<td>alge847</td>
<td>Writing a compound inequality given a graph on the number line</td>
</tr>
<tr>
<td>set001</td>
<td>Set builder notation</td>
</tr>
<tr>
<td>set004</td>
<td>Set builder and interval notation</td>
</tr>
<tr>
<td>set002</td>
<td>Union and intersection of finite sets</td>
</tr>
<tr>
<td>set005</td>
<td>Union and intersection of intervals</td>
</tr>
<tr>
<td>alge844</td>
<td>Identifying solutions to a two-step linear inequality in one variable</td>
</tr>
<tr>
<td>alge852</td>
<td>Additive property of inequality with signed fractions</td>
</tr>
<tr>
<td>alge964</td>
<td>Multiplicative property of inequality with signed fractions</td>
</tr>
<tr>
<td>alge855</td>
<td>Solving a two-step linear inequality: Problem type 1</td>
</tr>
<tr>
<td>alge856</td>
<td>Solving a two-step linear inequality: Problem type 2</td>
</tr>
<tr>
<td>alge857</td>
<td>Solving a two-step linear inequality with a fractional coefficient</td>
</tr>
<tr>
<td>alge977</td>
<td>Solving a linear inequality with multiple occurrences of the variable: Problem type 1</td>
</tr>
<tr>
<td>alge858</td>
<td>Solving a linear inequality with multiple occurrences of the variable: Problem type 2</td>
</tr>
<tr>
<td>alge859</td>
<td>Solving a linear inequality with multiple occurrences of the variable: Problem type 3</td>
</tr>
<tr>
<td>alge860</td>
<td>Solving inequalities with no solution or all real numbers as solutions</td>
</tr>
<tr>
<td>alge746</td>
<td>Solving a compound linear inequality: Graph solution, basic</td>
</tr>
<tr>
<td>alge747</td>
<td>Solving a compound linear inequality: Interval notation</td>
</tr>
<tr>
<td>alge749</td>
<td>Solving a decimal word problem using a two-step linear inequality</td>
</tr>
<tr>
<td>alge750</td>
<td>Solving a decimal word problem using a linear inequality with the variable on both sides</td>
</tr>
<tr>
<td>alge868</td>
<td>Solving an absolute value inequality: Problem type 1</td>
</tr>
<tr>
<td>alge943</td>
<td>Writing an absolute value inequality given a graph on the number line</td>
</tr>
<tr>
<td>alge869</td>
<td>Solving an absolute value inequality: Problem type 2</td>
</tr>
<tr>
<td>alge870</td>
<td>Solving an absolute value inequality: Problem type 3</td>
</tr>
<tr>
<td>alge871</td>
<td>Solving an absolute value inequality: Problem type 4</td>
</tr>
<tr>
<td>alge872</td>
<td>Solving an absolute value inequality: Problem type 5</td>
</tr>
<tr>
<td>alge271</td>
<td>Solving a proportion of the form $a/(x+b) = c/x$</td>
</tr>
<tr>
<td>alge060</td>
<td>Solving a rational equation that simplifies to linear: Denominator $x$</td>
</tr>
<tr>
<td>alge205</td>
<td>Solving a rational equation that simplifies to linear: Denominator $x+a$</td>
</tr>
<tr>
<td>alge768</td>
<td>Solving a rational equation that simplifies to linear: Denominators $a$, $x$, or $ax$</td>
</tr>
<tr>
<td>alge421</td>
<td>Solving a rational equation that simplifies to linear: Denominators $ax$ and $bx$</td>
</tr>
<tr>
<td>alge422</td>
<td>Solving a rational equation that simplifies to linear: Like binomial denominators</td>
</tr>
<tr>
<td>alge206</td>
<td>Solving a rational equation that simplifies to linear: Unlike binomial denominators</td>
</tr>
<tr>
<td>alge508</td>
<td>Solving for a variable in terms of other variables in a rational equation: Problem type 1</td>
</tr>
<tr>
<td>alge509</td>
<td>Solving for a variable in terms of other variables in a rational equation: Problem type 2</td>
</tr>
<tr>
<td>alge510</td>
<td>Solving for a variable in terms of other variables in a rational equation: Problem type 3</td>
</tr>
<tr>
<td>arith610</td>
<td>Word problem on proportions: Problem type 1</td>
</tr>
<tr>
<td>arith611</td>
<td>Word problem on proportions: Problem type 2</td>
</tr>
<tr>
<td>geom037</td>
<td>Similar polygons</td>
</tr>
<tr>
<td>geom038</td>
<td>Similar right triangles</td>
</tr>
<tr>
<td>geom337</td>
<td>Indirect measurement</td>
</tr>
<tr>
<td>geom133</td>
<td>Ratio of volumes</td>
</tr>
<tr>
<td>arith612</td>
<td>Word problem involving multiple rates</td>
</tr>
<tr>
<td>alge770</td>
<td>Solving a work problem using a rational equation</td>
</tr>
<tr>
<td>alge450</td>
<td>Solving a distance, rate, time problem using a rational equation</td>
</tr>
<tr>
<td>alge059</td>
<td>Ordering fractions with variables</td>
</tr>
<tr>
<td>alge778</td>
<td>Using $i$ to rewrite square roots of negative numbers</td>
</tr>
<tr>
<td>alge779</td>
<td>Simplifying a product and quotient involving square roots of negative numbers</td>
</tr>
</tbody>
</table>
pcalc048 Adding or subtracting complex numbers
pcalc049 Multiplying complex numbers
pcalc050 Dividing complex numbers
pcalc053 Simplifying a power of i
alge681 Solving an equation written in factored form
alge956 Finding the roots of a quadratic equation of the form ax^2 + bx = 0
alge045 Finding the roots of a quadratic equation with leading coefficient 1
alge048 Finding the roots of a quadratic equation with leading coefficient greater than 1
alge211 Solving a quadratic equation needing simplification
alge046 Roots of a product of polynomials
alge163 Writing a quadratic equation given the roots and the leading coefficient
alge703 Solving a word problem using a quadratic equation with rational roots
alge713 Using the Pythagorean Theorem and a quadratic equation to find side lengths of a right triangle
alge962 Solving an equation of the form x^2 = a using the square root property
alge092 Solving a quadratic equation using the square root property: Exact answers, basic
alge227 Solving a quadratic equation using the square root property: Exact answers, advanced
alge094 Completing the square
alge780 Solving a quadratic equation by completing the square: Exact answers
alge095 Applying the quadratic formula: Exact answers
alge963 Applying the quadratic formula: Decimal answers
pcalc051 Solving a quadratic equation with complex roots
alge214 Discriminant of a quadratic equation
alge193 Discriminant of a quadratic equation with parameter
alge524 Solving a word problem using a quadratic equation with irrational roots
alge093 Solving an equation using the odd-root property: Problem type 1
alge228 Solving an equation using the odd-root property: Problem type 2
alge467 Restriction on a variable in a denominator: Quadratic
alge423 Solving a rational equation that simplifies to linear: Factorable quadratic denominator
alge424 Solving a rational equation that simplifies to quadratic: Proportional form, basic
alge425 Solving a rational equation that simplifies to quadratic: Denominator x
alge212 Solving a rational equation that simplifies to quadratic: Binomial denominators, constant numerators
alge062 Solving a rational equation that simplifies to quadratic: Binomial denominators and numerators
alge426 Solving a rational equation that simplifies to quadratic: Factorable quadratic denominator
alge047 Solving a rational equation that simplifies to quadratic: Proportional form, advanced
alge400 Introduction to solving a radical equation
alge089 Solving a radical equation that simplifies to a linear equation: One radical, basic
alge402 Solving a radical equation that simplifies to a linear equation: One radical, advanced
alge090 Solving a radical equation that simplifies to a linear equation: Two radicals
alge403 Solving a radical equation that simplifies to a quadratic equation: One radical, basic
alge404 Solving a radical equation that simplifies to a quadratic equation: One radical, advanced
alge411 Solving a radical equation with a quadratic expression under the radical
alge405 Solving a radical equation with two radicals that simplifies to sqrt(x) = a
alge182 Solving a radical equation that simplifies to a quadratic equation: Two radicals
alge412 Algebraic symbol manipulation with radicals
alge542 Word problem involving radical equations: Basic
alge409 Word problem involving radical equations: Advanced
alge410 Solving an equation with a root index greater than 2: Problem type 1
alge417 Solving an equation with a root index greater than 2: Problem type 2
alge416 Solving an equation with exponent 1/a: Problem type 1
alge418 Solving an equation with exponent 1/a: Problem type 2
alge230 Solving an equation with positive rational exponent
alge231 Solving an equation with negative rational exponent
alge781 Solving an equation that can be written in quadratic form: Problem type 1
alge782 Solving an equation that can be written in quadratic form: Problem type 2

Graphs and Functions

alge064 Reading a point in the coordinate plane
alge067 Plotting a point in the coordinate plane
alge850 Table for a linear equation
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>alge873</td>
<td>Identifying solutions to a linear equation in two variables</td>
</tr>
<tr>
<td>alge066</td>
<td>Finding a solution to a linear equation in two variables</td>
</tr>
<tr>
<td>alge877</td>
<td>Graphing a linear equation of the form $y = mx$</td>
</tr>
<tr>
<td>alge878</td>
<td>Graphing a line given its equation in slope-intercept form: Integer slope</td>
</tr>
<tr>
<td>alge879</td>
<td>Graphing a line given its equation in slope-intercept form: Fractional slope</td>
</tr>
<tr>
<td>alge880</td>
<td>Graphing a line given its equation in standard form</td>
</tr>
<tr>
<td>alge198</td>
<td>Graphing a vertical or horizontal line</td>
</tr>
<tr>
<td>alge884</td>
<td>Finding $x$- and $y$-intercepts given the graph of a line on a grid</td>
</tr>
<tr>
<td>alge924</td>
<td>Finding $x$- and $y$-intercepts of a line given the equation: Basic</td>
</tr>
<tr>
<td>alge210</td>
<td>Finding $x$- and $y$-intercepts of a line given the equation: Advanced</td>
</tr>
<tr>
<td>alge197</td>
<td>Graphing a line given its $x$- and $y$-intercepts</td>
</tr>
<tr>
<td>alge881</td>
<td>Graphing a line by first finding its $x$- and $y$-intercepts</td>
</tr>
<tr>
<td>pcalc750</td>
<td>Finding intercepts of a nonlinear function given its graph</td>
</tr>
<tr>
<td>pcalc678</td>
<td>Finding $x$- and $y$-intercepts of the graph of a nonlinear equation</td>
</tr>
<tr>
<td>alge913</td>
<td>Graphing an absolute value equation of the form $y = A-x$</td>
</tr>
<tr>
<td>alge954</td>
<td>Graphing a parabola of the form $y = ax^2$</td>
</tr>
<tr>
<td>alge955</td>
<td>Graphing a parabola of the form $y = ax^2 + c$</td>
</tr>
<tr>
<td>alge262</td>
<td>Graphing a cubic function of the form $y = ax^3$</td>
</tr>
<tr>
<td>pcalc679</td>
<td>Testing an equation for symmetry about the axes and origin</td>
</tr>
<tr>
<td>alge875</td>
<td>Classifying slopes given graphs of lines</td>
</tr>
<tr>
<td>alge886</td>
<td>Finding slope given the graph of a line on a grid</td>
</tr>
<tr>
<td>alge887</td>
<td>Finding slope given two points on the line</td>
</tr>
<tr>
<td>alge885</td>
<td>Finding the slope of horizontal and vertical lines</td>
</tr>
<tr>
<td>alge888</td>
<td>Finding the coordinate that yields a given slope</td>
</tr>
<tr>
<td>alge259</td>
<td>Graphing a line given its slope and $y$-intercept</td>
</tr>
<tr>
<td>alge196</td>
<td>Graphing a line through a given point with a given slope</td>
</tr>
<tr>
<td>alge876</td>
<td>Identifying linear equations: Advanced</td>
</tr>
<tr>
<td>alge874</td>
<td>Identifying linear functions given ordered pairs</td>
</tr>
<tr>
<td>alge891</td>
<td>Rewriting a linear equation in the form $Ax + By = C$</td>
</tr>
<tr>
<td>alge889</td>
<td>Finding the slope and $y$-intercept of a line given its equation in the form $y = mx + b$</td>
</tr>
<tr>
<td>alge890</td>
<td>Finding the slope and $y$-intercept of a line given its equation in the form $Ax + By = C$</td>
</tr>
<tr>
<td>alge882</td>
<td>Graphing a line by first finding its slope and $y$-intercept</td>
</tr>
<tr>
<td>alge258</td>
<td>Writing an equation of a line given its slope and $y$-intercept</td>
</tr>
<tr>
<td>alge892</td>
<td>Writing an equation and graphing a line given its slope and $y$-intercept</td>
</tr>
<tr>
<td>alge883</td>
<td>Writing an equation in slope-intercept form given the slope and a point</td>
</tr>
<tr>
<td>alge883</td>
<td>Graphing a line given its equation in point-slope form</td>
</tr>
<tr>
<td>alge894</td>
<td>Writing an equation in point-slope form given the slope and a point</td>
</tr>
<tr>
<td>alge070</td>
<td>Writing an equation of a line given the $y$-intercept and another point</td>
</tr>
<tr>
<td>alge072</td>
<td>Writing the equation of the line through two given points</td>
</tr>
<tr>
<td>alge073</td>
<td>Writing the equations of vertical and horizontal lines through a given point</td>
</tr>
<tr>
<td>geom806</td>
<td>Finding slopes of lines parallel and perpendicular to a line given in slope-intercept form</td>
</tr>
<tr>
<td>geom807</td>
<td>Finding slopes of lines parallel and perpendicular to a line given in the form $Ax + By = C$</td>
</tr>
<tr>
<td>alge895</td>
<td>Identifying parallel and perpendicular lines from equations</td>
</tr>
<tr>
<td>geom095</td>
<td>Writing equations of lines parallel and perpendicular to a given line through a point</td>
</tr>
<tr>
<td>alge897</td>
<td>Writing and evaluating a function that models a real-world situation: Advanced</td>
</tr>
<tr>
<td>alge701</td>
<td>Writing an equation and drawing its graph to model a real-world situation: Advanced</td>
</tr>
<tr>
<td>alge992</td>
<td>Combining functions to write a new function that models a real-world situation</td>
</tr>
<tr>
<td>alge987</td>
<td>Comparing properties of linear functions given in different forms</td>
</tr>
<tr>
<td>alge989</td>
<td>Interpreting the parameters of a linear function that models a real-world situation</td>
</tr>
<tr>
<td>alge805</td>
<td>Application problem with a linear function: Finding a coordinate given the slope and a point</td>
</tr>
<tr>
<td>alge806</td>
<td>Application problem with a linear function: Finding a coordinate given two points</td>
</tr>
<tr>
<td>alge991</td>
<td>Solving a linear equation by graphing</td>
</tr>
<tr>
<td>mstat030</td>
<td>Sketching the line of best fit</td>
</tr>
<tr>
<td>mstat023</td>
<td>Scatter plots and correlation</td>
</tr>
<tr>
<td>mstat068</td>
<td>Predictions from the line of best fit</td>
</tr>
<tr>
<td>mstat067</td>
<td>Approximating the equation of a line of best fit and making predictions</td>
</tr>
<tr>
<td>alge914</td>
<td>Identifying solutions to a system of linear equations</td>
</tr>
<tr>
<td>alge725</td>
<td>Graphically solving a system of linear equations</td>
</tr>
<tr>
<td>alge751</td>
<td>Solving a system of linear equations using substitution</td>
</tr>
<tr>
<td>alge915</td>
<td>Solving a system of linear equations using elimination with addition</td>
</tr>
<tr>
<td>alge076</td>
<td>Solving a system of linear equations using elimination with multiplication and addition</td>
</tr>
<tr>
<td>alge078</td>
<td>Solving a word problem involving a sum and another basic relationship using a system of linear equations</td>
</tr>
</tbody>
</table>
algebra 919 Solving a word problem using a system of linear equations of the form $Ax + By = C$

algebra 918 Solving a word problem using a system of linear equations of the form $y = mx + b$

algebra 184 Solving a value mixture problem using a system of linear equations

distance between two points in the plane: Exact answers

algebra 191 Finding an endpoint of a line segment given the other endpoint and the midpoint

parabola 605 Graphing a circle given its equation in standard form

parabola 128 Graphing a circle given its equation in general form: Basic

parabola 129 Graphing a circle given its equation in general form: Advanced

parabola 605 Writing an equation of a circle given its center and a point on the circle

parabola 066 Writing an equation of a circle given the endpoints of a diameter

function 032 Identifying functions from relations

function 010 Vertical line test

parabola 605 Evaluating functions: Linear and quadratic or cubic

algebra 468 Evaluating a rational function: Problem type 1

algebra 469 Evaluating a rational function: Problem type 2

algebra 539 Table for a square root function

algebra 546 Evaluating a cube root function

parabola 682 Evaluating functions: Absolute value, rational, radical

function 030 Evaluating a piecewise-defined function

function 033 Variable expressions as inputs of functions: Problem type 1

function 016 Domain and range from ordered pairs

algebra 715 Domain of a rational function: Excluded values

algebra 540 Domain of a square root function: Basic

parabola 763 Domain of a square root function: Advanced

algebra 547 Domains of higher root functions

parabola 754 Finding the domain of a fractional function involving radicals

parabola 924 Determining whether an equation defines a function: Basic

parabola 757 Determining whether an equation defines a function: Advanced

algebra 294 Finding outputs of a one-step function that models a real-world situation: Function notation

algebra 295 Finding outputs of a two-step function with decimals that models a real-world situation: Function notation

algebra 296 Finding inputs and outputs of a two-step function that models a real-world situation: Function notation

parabola 753 Finding a difference quotient for a linear or quadratic function

function 026 Finding an output of a function from its graph

parabola 761 Finding inputs and outputs of a function from its graph

function 007 Domain and range from the graph of a discrete relation

function 024 Domain and range from the graph of a continuous function

function 025 Domain and range from the graph of a piecewise function

algebra 999 Finding where a function is increasing, decreasing, or constant given the graph

parabola 751 Finding where a function is increasing, decreasing, or constant given the graph: Interval notation

parabola 752 Finding local maxima and minima of a function given the graph

math 018 Choosing a graph to fit a narrative: Basic

math 051 Choosing a graph to fit a narrative: Advanced

algebra 896 Graphing an integer function and finding its range for a given domain

algebra 570 Graphing a function of the form $f(x) = ax + b$: Integer slope

algebra 571 Graphing a function of the form $f(x) = ax + b$: Fractional slope

algebra 900 Graphing an absolute value equation in the plane: Basic

algebra 168 Graphing an absolute value equation in the plane: Advanced

algebra 572 Graphing a function of the form $f(x) = ax^2$

algebra 573 Graphing a function of the form $f(x) = ax^2 + c$

algebra 253 Graphing a parabola of the form $y = (x-h)^2 + k$

algebra 543 Graphing a square root function: Problem type 1

algebra 544 Graphing a square root function: Problem type 2

algebra 545 Graphing a square root function: Problem type 3

algebra 548 Graphing a cube root function

function 031 Graphing a piecewise-defined function: Problem type 1

parabola 708 Finding the average rate of change of a function

algebra 988 Finding the average rate of change of a function given its graph

parabola 114 Even and odd functions: Problem type 1
Polynomial and Rational Functions

alge974 Finding the vertex, x-intercepts, and axis of symmetry from the graph of a parabola
alge569 Graphing a parabola of the form $y = x^2 + bx + c$
pcalc746 Graphing a parabola of the form $y = ax^2 + bx + c$: Integer coefficients
pcalc747 Graphing a parabola of the form $y = ax^2 + bx + c$: Rational coefficients
alge277 Finding the x-intercept(s) and the vertex of a parabola
pcalc783 Using a graphing calculator to find the x-intercept(s) and vertex of a quadratic function
pcalc774 Rewriting a quadratic function to find the vertex of its graph
pcalc775 Finding the maximum or minimum of a quadratic function
alge785 Word problem involving the maximum or minimum of a quadratic function
alge975 Domain and range from the graph of a parabola
pcalc762 Range of a quadratic function
pcalc680 Writing the equation of a quadratic function given its graph
alge957 Solving a quadratic equation by graphing
alge986 Comparing properties of quadratic functions given in different forms
alge702 Classifying the graph of a function
pcalc764 Finding zeros of a polynomial function written in factored form
pcalc766 Finding a polynomial of a given degree with given zeros: Real zeros
pcalc765 Finding x- and y-intercepts given a polynomial function
pcalc782 Determining the end behavior of the graph of a polynomial function
pcalc783 Matching graphs with polynomial functions
pcalc738 Inferring properties of a polynomial function from its graph
pcalc794 Using a graphing calculator to find local extrema of a polynomial function
pcalc115 Using a graphing calculator to solve a word problem involving a local extremum of a polynomial function
alge759 Dividing a polynomial by a monomial: Univariate
alge760 Dividing a polynomial by a monomial: Multivariate
alge761 Polynomial long division: Problem type 1
alge762 Polynomial long division: Problem type 2
alge763 Polynomial long division: Problem type 3
pcalc117 Synthetic division
pcalc786 Using the remainder theorem to evaluate a polynomial
pcalc787 The Factor Theorem
pcalc118 Remainder theorem: Advanced
Exponential and Logarithmic Functions

alge971 Table for an exponential function
alge969 Graphing an exponential function: \( f(x) = ax \)
alge970 Graphing an exponential function: \( f(x) = a(b)x \)
alge712 Graphing an exponential function and its asymptote: \( f(x) = a(b)x \)
pcalc922 Translating the graph of an exponential function
pcalc797 The graph, domain, and range of an exponential function
pcalc103 Graphing an exponential function and its asymptote: \( f(x) = a(e)x - b + c \)
alge830 Evaluating an exponential function that models a real-world situation
pcalc919 Evaluating an exponential function with base \( e \) that models a real-world situation
arith853 Introduction to compound interest
alge177 Finding a final amount in a word problem on exponential growth or decay
alge741 Finding the final amount in a word problem on compound interest
alge966 Finding the initial amount and rate of change given an exponential function
alge968 Writing an equation that models exponential growth or decay
alge967 Writing an exponential function rule given a table of ordered pairs
alge993 Comparing linear, polynomial, and exponential functions
APPENDIX B. SYLLABI IN ALEKS

alge108 Converting between logarithmic and exponential equations
pcalc799 Converting between natural logarithmic and exponential equations
alge232 Evaluating a logarithmic expression
alge233 Solving an equation of the form logbase_c = x
pcalc923 Translating the graph of a logarithmic function
alge788 Graphing a logarithmic function: Basic
pcalc800 The graph, domain, and range of a logarithmic function
pcalc801 Domain of a logarithmic function: Advanced
pcalc104 Graphing a logarithmic function: Advanced
pcalc708 Basic properties of logarithms
pcalc779 Expanding a logarithmic expression: Problem type 1
pcalc780 Expanding a logarithmic expression: Problem type 2
alge787 Writing an expression as a single logarithm
pcalc612 Change of base for logarithms: Problem type 1
pcalc613 Change of base for logarithms: Problem type 2
pcalc803 Solving a multi-step equation involving a single logarithm
pcalc804 Solving a multi-step equation involving natural logarithms
alge113 Solving an equation involving logarithms on both sides: Problem type 1
pcalc805 Solving an equation involving logarithms on both sides: Problem type 2
alge301 Solving an exponential equation by finding common bases: Linear exponents
alge482 Solving an exponential equation by finding common bases: Linear and quadratic exponents
pcalc920 Solving an exponential equation by using logarithms: Decimal answers, basic
pcalc921 Solving an exponential equation by using natural logarithms: Decimal answers
alge111 Solving an exponential equation by using logarithms: Exact answers in logarithmic form
pcalc802 Solving an exponential equation by using substitution and quadratic factoring
pcalc616 Using a graphing calculator to solve an exponential or logarithmic equation
alge178 Finding the time to reach a limit in a word problem on exponential growth or decay
pcalc614 Finding the initial or final amount in a word problem on exponential growth or decay
pcalc615 Finding the rate or time in a word problem on continuous exponential growth or decay

Trigonometric Functions

pcalc001 Converting degrees-minutes-seconds to decimal degrees
pcalc661 Converting a decimal degree to degrees-minutes-seconds
pcalc002 Converting between degree and radian measure: Problem type 1
pcalc621 Converting between degree and radian measure: Problem type 2
pcalc006 Sketching an angle in standard position
pcalc622 Coterminal angles
pcalc605 Arc length and central angle measure
pcalc623 Area of a sector of a circle
pcalc624 Angular and linear speed
pcalc627 Finding coordinates on the unit circle for special angles
pcalc625 Finding a point on the unit circle given one coordinate
pcalc609 Sine, cosine, and tangent ratios: Numbers for side lengths
pcalc600 Sine, cosine, and tangent ratios: Variables for side lengths
pcalc629 Trigonometric functions and special angles: Problem type 1
pcalc628 Finding trigonometric ratios from a point on the unit circle
pcalc630 Trigonometric functions and special angles: Problem type 2
pcalc631 Trigonometric functions and special angles: Problem type 3
geom506 Special right triangles: Exact answers
pcalc616 Using a calculator to approximate sine, cosine, and tangent values
pcalc606 Using the Pythagorean Theorem to find a trigonometric ratio
pcalc608 Finding trigonometric ratios given a right triangle
pcalc607 Using a trigonometric ratio to find a side length in a right triangle
pcalc610 Using trigonometry to find a length in a word problem with one right triangle
pcalc608 Using a trigonometric ratio to find an angle measure in a right triangle
pcalc611 Using trigonometry to find angles of elevation or depression in a word problem
pcalc642 Solving a right triangle
pcalc626 Reference angles: Problem type 1
pcalc632 Reference angles: Problem type 2
Trigonometric Identities and Equations

pcalc648 Simplifying trigonometric expressions
pcalc666 Using cofunction identities
pcalc034 Proving trigonometric identities: Problem type 1
pcalc404 Proving trigonometric identities: Problem type 2
pcalc605 Proving trigonometric identities: Problem type 3
pcalc606 Proving trigonometric identities using odd and even properties
pcalc609 Sum and difference identities: Problem type 1
pcalc663 Sum and difference identities: Problem type 2
pcalc664 Sum and difference identities: Problem type 3
pcalc603 Proving trigonometric identities using sum and difference properties
pcalc630 Double-angle identities: Problem type 1
pcalc667 Double-angle identities: Problem type 2
pcalc662 Half-angle identities: Problem type 1
pcalc665 Half-angle identities: Problem type 2
pcalc124 Product-to-sum and sum-to-product identities: Problem type 1
pcalc674 Product-to-sum and sum-to-product identities: Problem type 2
pcalc602 Proving trigonometric identities using double-angle properties
pcalc650 Finding solutions in an interval for a basic equation involving sine or cosine
pcalc651 Finding solutions in an interval for a basic tangent, cotangent, secant, or cosecant equation
pcalc660 Solving a basic trigonometric equation using a calculator
pcalc6020 Solving a basic trigonometric equation involving sine or cosine
pcalc6021 Solving a basic trigonometric equation involving tangent, cotangent, secant, or cosecant
pcalc670 Finding solutions in an interval for a trigonometric equation in factored form
pcalc652 Finding solutions in an interval for a trigonometric equation with a squared function: Problem type 1
pcalc653 Finding solutions in an interval for a trigonometric equation with a squared function: Problem type 2
pcalc654 Finding solutions in an interval for a trigonometric equation using Pythagorean identities: Problem type 1
pcalc657 Finding solutions in an interval for an equation with sine and cosine using double-angle identities
pcalc668 Solving a trigonometric equation modeling a real-world situation
pcalc811 Using a graphing calculator to solve a trigonometric equation
APPENDIX B. SYLLABI IN ALEKS

pcalc127 Using a graphing calculator to solve a trigonometric inequality
pcalc022 Solving a trigonometric equation involving a squared function: Problem type 1
pcalc023 Solving a trigonometric equation involving a squared function: Problem type 2
pcalc024 Solving a trigonometric equation involving more than one function
pcalc025 Solving a trigonometric equation involving an angle multiplied by a constant
pcalc655 Finding solutions in an interval for a trigonometric equation with an angle multiplied by a constant
pcalc656 Finding solutions in an interval for an equation with sine and cosine using sum and difference identities
pcalc026 Solving a trigonometric equation using sum and difference identities
pcalc027 Solving a trigonometric equation using double-angle identities
pcalc028 Solving a trigonometric equation using half-angle identities

Additional Topics in Trigonometry

pcalc031 Solving a triangle with the law of sines: Problem type 1
pcalc032 Solving a triangle with the law of sines: Problem type 2
pcalc644 Solving a word problem using the law of sines
pcalc633 Solving a triangle with the law of cosines
pcalc645 Solving a word problem using the law of cosines
pcalc646 Finding the area of a triangle using trigonometry
pcalc647 Heron’s formula
pcalc650 Magnitude of a vector given in component form
pcalc739 Multiplication of a vector by a scalar: Geometric approach
pcalc663 Translation of a vector
geom856 Vector addition and scalar multiplication: Component form
pcalc729 Unit vectors
vector008 Linear combination of vectors: Component form
geom857 Vector addition: Geometric approach
vector007 Vector subtraction: Geometric approach
vector002 Finding the magnitude and direction of a vector given its graph
vector006 Finding the components of a vector given its graph
vector011 Finding magnitudes of forces related to a sum of three vectors
vector012 Finding magnitudes of forces related to an object suspended by cables
vector009 Dot product of vectors given in component form
vector010 Using the dot product to find perpendicular vectors
pcalc730 Finding the angle between two vectors given in component form
vector006 Finding the component of a vector along another vector
pcalc655 Plotting a point in polar coordinates
pcalc656 Converting rectangular coordinates to polar coordinates: Special angles
pcalc657 Converting polar coordinates to rectangular coordinates
pcalc658 Converting an equation written in rectangular form to one written in polar form
pcalc659 Converting an equation written in polar form to one written in rectangular coordinates
pcalc652 Writing a complex number in trigonometric form: Decimal answers
pcalc654 De Moivre’s theorem: Answers in standard form
pcalc807 Finding the nth roots of a number: Problem type 1
pcalc808 Finding the nth roots of a number: Problem type 2

Systems of Equations and Matrices

alge075 Classifying systems of linear equations from graphs
alge916 Solving a system of linear equations with fractional coefficients
alge917 Solving a system of linear equations with decimal coefficients
alge752 Solving a 2x2 system of linear equations that is inconsistent or consistent dependent
alge077 Creating an inconsistent system of linear equations
alge988 Identifying the operations used to create equivalent systems of equations
pcalc999 Consistency and independence of a system of linear equations
alge753 Solving a 3x3 system of linear equations: Problem type 1
alge263 Interpreting the graphs of two functions
alge192 Solving a percent mixture problem using a system of linear equations
alge224 Solving a distance, rate, time problem using a system of linear equations
alge172 Solving a tax rate or interest rate problem using a system of linear equations
alge793 Solving a word problem using a 3x3 system of linear equations: Problem type 1
pcalc037 Scalar multiplication of a matrix
pcalc038 Addition or subtraction of matrices
pcalc740 Linear combination of matrices
pcalc039 Multiplication of matrices: Basic
pcalc710 Multiplication of matrices: Advanced
pcalc712 Gauss-Jordan elimination with a 2x2 matrix
pcalc046 Solving a system of linear equations given its augmented matrix
pcalc040 Finding the inverse of a 2x2 matrix
pcalc041 Finding the inverse of a 3x3 matrix
pcalc711 Using the inverse of a matrix to solve a 3x3 system of linear equations
pcalc042 Finding the determinant of a 2x2 matrix
pcalc043 Finding the determinant of a 3x3 matrix
pcalc045 Using Cramer’s rule to solve a 2x2 system of linear equations
pcalc047 Using Cramer’s rule to solve a 3x3 system of linear equations
pcalc713 Partial fraction decomposition with distinct linear factors
pcalc813 Partial fraction decomposition with repeated linear factors
pcalc814 Partial fraction decomposition with an irreducible quadratic factor
alge994 Graphically solving a system of linear and quadratic equations
pcalc796 Using a graphing calculator to solve a system of equations
alge995 Solving a system of linear and quadratic equations
pcalc098 Solving a system of nonlinear equations: Problem type 1
alge912 Identifying solutions to a linear inequality in two variables
alge925 Graphing a linear inequality in the plane: Vertical or horizontal line
alge720 Graphing a linear inequality in the plane: Slope-intercept form
alge018 Graphing a linear inequality in the plane: Standard form
pcalc748 Graphing a quadratic inequality: Problem type 1
pcalc749 Graphing a quadratic inequality: Problem type 2
alge079 Graphing a system of two linear inequalities: Basic
alge921 Graphing a system of two linear inequalities: Advanced
alge922 Graphing a system of three linear inequalities
pcalc096 Graphing a system of nonlinear inequalities: Problem type 1
alge729 Writing a multi-step inequality for a real-world situation
pcalc093 Solving a word problem using a system of linear inequalities: Problem type 1
pcalc095 Linear programming
pcalc094 Solving a word problem using linear programming

Conic Sections

pcalc067 Graphing a parabola of the form ay2 + by + cx + d = 0 or ax2 + bx + cy + d = 0
pcalc068 Writing an equation of a parabola given the vertex and the focus
pcalc069 Finding the focus of a parabola of the form ay2 + by + cx + d = 0 or ax2 + bx + cy + d = 0
pcalc734 Graphing an ellipse given its equation in standard form
pcalc070 Graphing an ellipse centered at the origin: Ax2 + By2 = C
pcalc071 Graphing an ellipse given its equation in general form
pcalc072 Finding the foci of an ellipse given its equation in general form
pcalc074 Writing an equation of an ellipse given the center, an endpoint of an axis, and the length of the other axis
pcalc073 Writing an equation of an ellipse given the foci and the major axis length
pcalc097 Graphing a system of nonlinear inequalities: Problem type 2
pcalc735 Graphing a hyperbola given its equation in standard form
pcalc075 Graphing a hyperbola centered at the origin: Ax2 - By2 = C
pcalc076 Graphing a hyperbola given its equation in general form
pcalc077 Finding the foci of a hyperbola given its equation in general form
pcalc078 Writing an equation of a hyperbola given the foci and the vertices
pcalc079 Writing an equation of a hyperbola given the foci and the asymptotes: Advanced
pcalc736 Classifying conics given their equations
APPENDIX B. SYLLABI IN ALEKS

Sequences, Series, and Probability

alge644 Finding the first terms of an arithmetic sequence using an explicit rule
alge645 Finding the first terms of a geometric sequence using an explicit rule
pcalc089 Finding the first terms of a sequence using an explicit rule with multiple occurrences of n
alge906 Finding the next terms of an arithmetic sequence with integers
alge908 Finding the first terms of a sequence using a recursive rule
alge979 Identifying arithmetic sequences and finding the common difference
alge931 Finding a specified term of an arithmetic sequence given the first terms
pcalc085 Finding a specified term of an arithmetic sequence given the common difference and first term
pcalc715 Finding a specified term of an arithmetic sequence given two terms of the sequence
alge909 Writing an explicit rule for an arithmetic sequence
alge910 Writing a recursive rule for an arithmetic sequence
pcalc718 Sum of the first n terms of an arithmetic sequence
alge907 Finding the next terms of a geometric sequence with signed numbers
alge981 Identifying arithmetic and geometric sequences
alge980 Identifying geometric sequences and finding the common ratio
alge934 Finding a specified term of a geometric sequence given the first terms
pcalc086 Finding a specified term of a geometric sequence given the common ratio and first term
pcalc717 Finding a specified term of a geometric sequence given two terms of the sequence
pcalc713 Arithmetic and geometric sequences: Identifying and writing an explicit rule
alge911 Writing recursive rules for arithmetic and geometric sequences
pcalc719 Sum of the first n terms of a geometric sequence
pcalc720 Sum of an infinite geometric series
alge965 Identifying linear, quadratic, and exponential functions given ordered pairs
pcalc082 Factorial expressions
mstat041 Interpreting a tree diagram
mstat040 Introduction to the counting principle
mstat015 Counting principle
mstat017 Computing permutations and combinations
pcalc809 Introduction to permutations and combinations
pcalc810 Permutations and combinations: Problem type 1
pcalc089 Permutations and combinations: Problem type 2
pcalc090 Permutations and combinations: Problem type 3
pcalc087 Binomial formula
mstat010 Probability of an event
mstat046 Experimental and theoretical probability
stat106 Outcomes and event probability
mstat011 Area as probability
stat850 Probability of independent events
stat851 Probability of dependent events
stat117 Probabilities of draws with replacement
stat118 Probabilities of draws without replacement
mstat042 Interpreting a Venn diagram of 2 sets
mstat043 Interpreting a Venn diagram of 3 sets
stat119 Venn diagrams: Two events
stat101 Venn diagrams: Word problems
stat112 Probabilities involving two dice
stat114 Probability of intersection or union: Word problems
stat115 Independent events: Basic
stat120 Probability of union: Basic
stat116 Conditional probability: Basic
stat109 Intersection and conditional probability
stat174 Binomial problems: Basic
stat155 Binomial problems: Advanced

Limits and Continuity

pcalc901 Estimating a limit numerically
pcalc902 Finding limits from a graph
B.14  Texas DMAT 0093-MATH 1314

Real Numbers

arith687 Fractional position on a number line
arith605 Plotting rational numbers on a number line
arith691 Ordering integers
arith602 Estimating a square root
arith712 Ordering real numbers
alge001 Identifying numbers as integers or non-integers
alge002 Identifying numbers as rational or irrational
arith670 Least common multiple of 2 numbers
arith804 Least common multiple of 3 numbers
arith116 Signed fraction addition or subtraction: Basic
arith864 Signed fraction subtraction involving double negation
arith106 Signed fraction addition or subtraction: Advanced
arith811 Addition and subtraction of 3 fractions involving signs
arith822 Signed fraction multiplication: Basic
arith105 Signed fraction multiplication: Advanced
arith814 Signed fraction division
arith104 Operations with absolute value: Problem type 2
geom525 Computing distances between decimals on the number line
arith702 Exponents and integers: Problem type 1
arith703 Exponents and integers: Problem type 2
arith704 Exponents and signed fractions
arith118 Order of operations with integers
arith600 Order of operations with integers and exponents
alge005 Evaluating a linear expression: Integer multiplication with addition or subtraction
alge004 Evaluating a quadratic expression: Integers
alge808 Evaluating a linear expression: Signed fraction multiplication with addition or subtraction
mstat065 Converting between temperatures in Fahrenheit and Celsius
alge187 Properties of addition
alge188 Properties of real numbers
alge604 Distributive property: Integer coefficients
alge608 Using distribution and combining like terms to simplify: Univariate
alge609 Using distribution with double negation and combining like terms to simplify: Multivariate
geom340 Area of a piecewise rectangular figure
geom142 Word problem involving the area between two rectangles
geom801 Area of a triangle
geom622 Area of a parallelogram
geom623 Area of a trapezoid
geom616 Circumference of a circle
geom301 Perimeter involving rectangles and circles
geom802 Circumference and area of a circle
geom302 Area involving rectangles and circles
geom303 Word problem involving the area between two concentric circles
geom214 Area involving inscribed figures
geom311 Volume of a rectangular prism
geom990 Volume of a triangular prism
geom933 Volume of a pyramid
geom935 Volume of a cylinder
geom992 Word problem involving the rate of filling or emptying a cylinder
geom222 Volume of a cone
geom841 Volume of a sphere
geom031 Surface area of a cube or a rectangular prism
geom091 Surface area of a triangular prism
geom621 Surface area of a cylinder
geom842 Surface area of a sphere

Linear Equations and Inequalities

alge836 Additive property of equality with signed fractions
alge012 Multiplicative property of equality with signed fractions
alge837 Solving a multi-step equation given in fractional form
alge986 Identifying properties used to solve a linear equation
alge011 Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
alge013 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
alge209 Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions
alge420 Solving a linear equation with several occurrences of the variable: Fractional forms with monomial numerators
alge208 Solving a two-step equation with signed fractions
alge061 Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
alge179 Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators
alge742 Solving equations with zero, one, or infinitely many solutions
alge840 Solving a proportion of the form \((x+1)\div a=b\)
alge511 Solving for a variable in terms of other variables using addition or subtraction: Basic
alge512 Solving for a variable in terms of other variables using addition or subtraction: Advanced
alge513 Solving for a variable in terms of other variables using multiplication or division: Basic
alge514 Solving for a variable in terms of other variables using multiplication or division: Advanced
alge517 Solving for a variable in terms of other variables using addition or subtraction with division
alge518 Solving for a variable inside parentheses in terms of other variables
alge507 Solving for a variable in terms of other variables in a linear equation with fractions
alge016 Translating a sentence into a one-step equation
alge841 Translating a sentence into a multi-step equation
alge014 Solving a word problem with two unknowns using a linear equation
alge173 Solving a decimal word problem using a linear equation of the form \(Ax + B = C\)
alge219 Solving a decimal word problem using a linear equation with the variable on both sides
alge704 Solving a fraction word problem using a linear equation with the variable on both sides
alge792 Solving a word problem with three unknowns using a linear equation
alge842 Solving a word problem involving consecutive integers
alge730 Writing a multi-step equation for a real-world situation
alge794 Solving a value mixture problem using a linear equation
alge823 Solving a one-step word problem using the formula \(d = rt\)
alge796 Solving a distance, rate, time problem using a linear equation
geom817 Finding a side length given the perimeter and side lengths with variables
geom143 Finding the perimeter or area of a rectangle given one of these values
geom838 Circumference ratios
geom530 Solving equations involving vertical angles
geom623 Finding angle measures of a triangle given angles with variables
stat803 Finding the value for a new score that will yield a given mean
arith852 Finding the multiplier to give a final amount after a percentage increase or decrease
arith847 Finding the sale price given the original price and percent discount
arith848 Finding the total cost including tax or markup
arith831 Finding the original price given the sale price and percent discount
arith854 Computing a percent mixture
alge795 Solving a percent mixture problem using a linear equation
arith832 Finding simple interest without a calculator
alge845 Translating a sentence into a one-step inequality
alge846 Translating a sentence into a multi-step inequality
alge748 Writing an inequality for a real-world situation
alge017 Graphing a linear inequality on the number line
alge822 Writing an inequality given a graph on the number line
alge186 Translating a sentence into a compound inequality
alge166 Graphing a compound inequality on the number line
alge847 Writing a compound inequality given a graph on the number line
set001 Set builder notation
set004 Set builder and interval notation
set002 Union and intersection of finite sets
set005 Union and intersection of intervals
alge844 Identifying solutions to a two-step linear inequality in one variable
alge852 Additive property of inequality with signed fractions
alge964 Multiplicative property of inequality with signed fractions
alge855 Solving a two-step linear inequality: Problem type 1
alge856 Solving a two-step linear inequality: Problem type 2
alge857 Solving a two-step linear inequality with a fractional coefficient
alge977 Solving a linear inequality with multiple occurrences of the variable: Problem type 1
alge858 Solving a linear inequality with multiple occurrences of the variable: Problem type 2
alge859 Solving a linear inequality with multiple occurrences of the variable: Problem type 3
alge860 Solving inequalities with no solution or all real numbers as solutions
alge746 Solving a compound linear inequality: Graph solution, basic
alge747 Solving a compound linear inequality: Interval notation
alge749 Solving a decimal word problem using a two-step linear inequality
alge750 Solving a decimal word problem using a linear inequality with the variable on both sides
alge603 Introduction to solving an absolute value equation
alge864 Solving an absolute value equation: Problem type 1
alge865 Solving an absolute value equation: Problem type 2
alge866 Solving an absolute value equation: Problem type 3
alge867 Solving an absolute value equation: Problem type 4
alge167 Solving an absolute value equation of the form \(-ax+b = -cx+d\)
alge868 Solving an absolute value inequality: Problem type 1
alge943 Writing an absolute value inequality given a graph on the number line
alge869 Solving an absolute value inequality: Problem type 2
alge870 Solving an absolute value inequality: Problem type 3
alge871 Solving an absolute value inequality: Problem type 4
alge872 Solving an absolute value inequality: Problem type 5

Lines and Functions

alge064 Reading a point in the coordinate plane
alge067 Plotting a point in the coordinate plane
alge850 Table for a linear equation
alge873 Identifying solutions to a linear equation in two variables
alge866 Finding a solution to a linear equation in two variables
alge877 Graphing a linear equation of the form \(y = nx\)
alge878 Graphing a line given its equation in slope-intercept form: Integer slope
alge879 Graphing a line given its equation in slope-intercept form: Fractional slope
alge880 Graphing a line given its equation in standard form
alge198 Graphing a vertical or horizontal line
alge884 Finding x- and y-intercepts given the graph of a line on a grid
alge924 Finding x- and y-intercepts of a line given the equation: Basic
alge210 Finding x- and y-intercepts of a line given the equation: Advanced
alge197 Graphing a line given its x- and y-intercepts
alge881 Graphing a line by first finding its x- and y-intercepts
alge875 Classifying slopes given graphs of lines
alge886 Finding slope given the graph of a line on a grid
alge887 Finding slope given two points on the line
alge885 Finding the slope of horizontal and vertical lines
alge888 Finding the coordinate that yields a given slope
alge259 Graphing a line given its slope and y-intercept
alge196 Graphing a line through a given point with a given slope
alge876 Identifying linear equations: Advanced
alge874 Identifying linear functions given ordered pairs
alge891 Rewriting a linear equation in the form Ax + By = C
alge889 Finding the slope and y-intercept of a line given its equation in the form y = mx + b
alge890 Finding the slope and y-intercept of a line given its equation in the form Ax+By=C
alge882 Graphing a line by first finding its slope and y-intercept
alge258 Writing an equation of a line given its slope and y-intercept
alge892 Writing an equation and graphing a line given its slope and y-intercept
alge893 Writing an equation in slope-intercept form given the slope and a point
alge883 Graphing a line given its equation in point-slope form
alge894 Writing an equation in point-slope form given the slope and a point
alge070 Writing an equation of a line given the y-intercept and another point
alge072 Writing the equation of the line through two given points
alge073 Writing the equations of vertical and horizontal lines through a given point
goom806 Finding slopes of lines parallel and perpendicular to a line given in slope-intercept form
goom807 Finding slopes of lines parallel and perpendicular to a line given in the form Ax + By = C
goom805 Identifying parallel and perpendicular lines from equations
goom808 Writing equations of lines parallel and perpendicular to a given line through a point
goom897 Writing and evaluating a function that models a real-world situation: Advanced
goom701 Writing an equation and drawing its graph to model a real-world situation: Advanced
goom992 Combining functions to write a new function that models a real-world situation
goom987 Comparing properties of linear functions given in different forms
goom989 Interpreting the parameters of a linear function that models a real-world situation
goom805 Application problem with a linear function: Finding a coordinate given the slope and a point
goom806 Application problem with a linear function: Finding a coordinate given two points
goom991 Solving a linear equation by graphing
mstat030 Sketching the line of best fit
mstat023 Scatter plots and correlation
mstat068 Predictions from the line of best fit
mstat067 Approximating the equation of a line of best fit and making predictions
fun032 Identifying functions from relations
fun010 Vertical line test
fun016 Domain and range from ordered pairs
fun001 Table for a linear function
pcalc760 Evaluating functions: Linear and quadratic or cubic
fun030 Evaluating a piecewise-defined function
fun033 Variable expressions as inputs of functions: Problem type 1
goom294 Finding outputs of a one-step function that models a real-world situation: Function notation
goom295 Finding outputs of a two-step function with decimals that models a real-world situation: Function notation
goom296 Finding inputs and outputs of a two-step function that models a real-world situation: Function notation
goom990 Domain and range of a linear function that models a real-world situation
fun026 Finding an output of a function from its graph
pcalc761 Finding inputs and outputs of a function from its graph
fun007 Domain and range from the graph of a discrete relation
fun024 Domain and range from the graph of a continuous function
fun025 Domain and range from the graph of a piecewise function
pcalc750 Finding intercepts of a nonlinear function given its graph
goom999 Finding where a function is increasing, decreasing, or constant given the graph
pcalc751 Finding where a function is increasing, decreasing, or constant given the graph: Interval notation
pcalc752 Finding local maxima and minima of a function given the graph
Exponents and Polynomials

alge821 Understanding the product rule of exponents
alge024 Introduction to the product rule of exponents
alge311 Product rule with positive exponents: Univariate
alge030 Product rule with positive exponents: Multivariate
arith029 Ordering numbers with positive exponents
alge826 Understanding the power rules of exponents
alge306 Introduction to the power of a power rule of exponents
alge305 Introduction to the power of a product rule of exponents
alge307 Power rules with positive exponents: Multivariate products
alge308 Power rules with positive exponents: Multivariate quotients
alge756 Power and product rules with positive exponents
alge451 Simplifying a ratio of multivariate monomials: Basic
alge827 Introduction to the quotient rule of exponents
alge452 Simplifying a ratio of univariate monomials
alge026 Quotient of expressions involving exponents
alge453 Simplifying a ratio of multivariate monomials: Advanced
alge927 Power and quotient rules with positive exponents
alge790 Evaluating expressions with exponents of zero
arith729 Evaluating an expression with a negative exponent: Whole number base
arith642 Evaluating an expression with a negative exponent: Positive fraction base
arith643 Evaluating an expression with a negative exponent: Negative integer base
arith624 Ordering numbers with negative exponents
alge791 Rewriting an algebraic expression without a negative exponent
alge961 Introduction to the product rule with negative exponents
alge028 Product rule with negative exponents
alge755 Quotient rule with negative exponents: Problem type 1
alge926 Quotient rule with negative exponents: Problem type 2
alge025 Power of a power rule with negative exponents
alge799 Power rules with negative exponents
alge928 Power and quotient rules with negative exponents: Problem type 1
alge929 Power and quotient rules with negative exponents: Problem type 2
alge757 Power, product, and quotient rules with negative exponents
arith636 Scientific notation with positive exponent
arith637 Scientific notation with negative exponent
scinot012 Converting between scientific notation and standard form in a real-world situation
scinot008 Multiplying numbers written in scientific notation: Basic
scinot009 Multiplying numbers written in scientific notation: Advanced
scinot010 Dividing numbers written in scientific notation: Basic
scinot011 Dividing numbers written in scientific notation: Advanced
alge758 Degree and leading coefficient of a univariate polynomial
alge031 Degree of a multivariate polynomial
alge798 Simplifying a sum or difference of two univariate polynomials
alge029 Simplifying a sum or difference of three univariate polynomials
APPENDIX B. SYLLABI IN ALEKS

alge932 Simplifying a sum or difference of multivariate polynomials
alge735 Multiplying a univariate polynomial by a monomial with a positive coefficient
alge972 Multiplying a univariate polynomial by a monomial with a negative coefficient
alge835 Multiplying a multivariate polynomial by a monomial
alge033 Multiplying binomials with leading coefficients of 1
alge983 Multiplying binomials with leading coefficients greater than 1
alge765 Multiplying binomials in two variables
alge764 Multiplying conjugate binomials: Univariate
alge081 Multiplying conjugate binomials: Multivariate
alge032 Squaring a binomial: Univariate
alge068 Squaring a binomial: Multivariate
alge973 Multiplying binomials with negative coefficients
alge935 Multiplication involving binomials and trinomials in one variable
alge180 Multiplication involving binomials and trinomials in two variables
arith034 Prime numbers
arith035 Prime factorization
arith033 Greatest common factor of 2 numbers
alge605 Factoring a linear binomial
alge736 Introduction to the GCF of two monomials
alge930 Greatest common factor of three univariate monomials
alge037 Greatest common factor of two multivariate monomials
alge738 Factoring out a monomial from a polynomial: Univariate
alge739 Factoring out a monomial from a polynomial: Multivariate
alge949 Factoring out a binomial from a polynomial: GCF factoring, basic
alge923 Factoring a univariate polynomial by grouping: Problem type 1
alge950 Factoring a univariate polynomial by grouping: Problem type 2
alge951 Factoring a multivariate polynomial by grouping: Problem type 1
alge952 Factoring a multivariate polynomial by grouping: Problem type 2
alge039 Factoring a quadratic with leading coefficient 1
alge942 Factoring a quadratic in two variables with leading coefficient 1
alge936 Factoring out a constant before factoring a quadratic
alge939 Factoring a quadratic with leading coefficient greater than 1: Problem type 1
alge940 Factoring a quadratic with leading coefficient greater than 1: Problem type 2
alge941 Factoring a quadratic with leading coefficient greater than 1: Problem type 3
alge265 Factoring a quadratic in two variables with leading coefficient greater than 1
alge937 Factoring a quadratic with a negative leading coefficient
alge944 Factoring a perfect square trinomial with leading coefficient 1
alge945 Factoring a perfect square trinomial with leading coefficient greater than 1
alge946 Factoring a perfect square trinomial in two variables
alge290 Factoring a difference of squares in one variable: Basic
alge947 Factoring a difference of squares in one variable: Advanced
alge839 Factoring a difference of squares in two variables
alge948 Factoring a polynomial involving a GCF and a difference of squares: Univariate
alge833 Factoring a polynomial involving a GCF and a difference of squares: Multivariate
alge041 Factoring a product of a quadratic trinomial and a monomial
alge042 Factoring with repeated use of the difference of squares formula
alge044 Factoring a sum or difference of two cubes
pcalc675 Factoring out a binomial from a polynomial: GCF factoring or substitution
alge681 Solving an equation written in factored form
alge956 Finding the roots of a quadratic equation of the form ax^2 + bx = 0
alge045 Finding the roots of a quadratic equation with leading coefficient 1
alge048 Finding the roots of a quadratic equation with leading coefficient greater than 1
alge211 Solving a quadratic equation needing simplification
alge046 Roots of a product of polynomials
alge163 Writing a quadratic equation given the roots and the leading coefficient
alge703 Solving a word problem using a quadratic equation with rational roots
alge407 Introduction to the Pythagorean Theorem
geom044 Pythagorean Theorem
alge408 Word problem involving the Pythagorean Theorem
alge713 Using the Pythagorean Theorem and a quadratic equation to find side lengths of a right triangle
Rational Expressions

- Restriction on a variable in a denominator: Linear
- Restriction on a variable in a denominator: Quadratic
- Evaluating a rational function: Problem type 1
- Evaluating a rational function: Problem type 2
- Domain of a rational function: Excluded values
- Simplifying a ratio of factored polynomials: Linear factors
- Simplifying a ratio of polynomials using GCF factoring
- Simplifying a ratio of linear polynomials: 1, -1, and no simplification
- Simplifying a ratio of polynomials by factoring a quadratic with leading coefficient 1
- Simplifying a ratio of polynomials: Problem type 1
- Simplifying a ratio of polynomials: Problem type 2
- Simplifying a ratio of polynomials: Problem type 3
- Multiplying rational expressions made up of linear expressions
- Multiplying rational expressions involving quadratics with leading coefficients of 1
- Multiplying rational expressions involving quadratics with leading coefficients greater than 1
- Dividing rational expressions involving multivariate quadratics
- Dividing rational expressions involving multivariate monomials
- Dividing rational expressions made up of linear expressions
- Dividing rational expressions involving quadratics with leading coefficients of 1
- Dividing rational expressions involving quadratics with leading coefficients greater than 1
- Dividing rational expressions involving multivariate quadratics
- Multiplication and division of 3 rational expressions
- Introduction to the LCM of two monomials
- Least common multiple of two monomials
- Finding the LCD of rational expressions with linear denominators: Relatively prime
- Finding the LCD of rational expressions with linear denominators: Common factors
- Finding the LCD of rational expressions with quadratic denominators
- Writing equivalent rational expressions with monomial denominators
- Writing equivalent rational expressions with polynomial denominators
- Writing equivalent rational expressions involving opposite factors
- Introduction to adding fractions with variables and common denominators
- Adding rational expressions with common denominators and monomial numerators
- Adding rational expressions with common denominators and binomial numerators
- Adding rational expressions with common denominators and GCF factoring
- Adding rational expressions with common denominators and quadratic factoring
- Adding rational expressions with different denominators and a single occurrence of a variable
- Adding rational expressions with denominators ax and bx: Basic
- Adding rational expressions with denominators ax and bx: Advanced
- Adding rational expressions with denominators axn and bxm
- Adding rational expressions with multivariate monomial denominators: Basic
- Adding rational expressions with multivariate monomial denominators: Advanced
- Adding rational expressions with linear denominators without common factors: Basic
- Adding rational expressions with linear denominators without common factors: Advanced
- Adding rational expressions with linear denominators with common factors: Basic
- Adding rational expressions with linear denominators with common factors: Advanced
- Adding rational expressions involving different quadratic denominators
- Adding 3 rational expressions with different quadratic denominators
- Complex fraction without variables: Problem type 1
- Complex fraction without variables: Problem type 2
- Complex fraction involving univariate monomials
- Complex fraction involving multivariate monomials
- Complex fraction: GCF factoring
- Complex fraction: Quadratic factoring
- Complex fraction made of sums involving rational expressions: Problem type 1
- Complex fraction made of sums involving rational expressions: Problem type 2
- Complex fraction made of sums involving rational expressions: Problem type 3
APPENDIX B. SYLLABI IN ALEKS

alge476 Complex fraction made of sums involving rational expressions: Problem type 4
alge477 Complex fraction made of sums involving rational expressions: Problem type 5
alge478 Complex fraction made of sums involving rational expressions: Problem type 6
alge479 Complex fraction made of sums involving rational expressions: Multivariate
alge480 Complex fraction with negative exponents: Problem type 1
alge481 Complex fraction with negative exponents: Problem type 2
alge162 Complex fraction that contains a complex fraction
alge271 Solving a proportion of the form a/(x+b) = c/x
alge060 Solving a rational equation that simplifies to linear: Denominator x
alge205 Solving a rational equation that simplifies to linear: Denominator x+a
alge769 Solving a rational equation that simplifies to linear: Denominators a, x, or ax
alge421 Solving a rational equation that simplifies to linear: Denominators ax and bx
alge422 Solving a rational equation that simplifies to linear: Like binomial denominators
alge206 Solving a rational equation that simplifies to linear: Unlike binomial denominators
alge423 Solving a rational equation that simplifies to linear: Factorable quadratic denominator
alge424 Solving a rational equation that simplifies to quadratic: Proportional form, basic
alge425 Solving a rational equation that simplifies to quadratic: Denominator x
alge212 Solving a rational equation that simplifies to quadratic: Binomial denominators, constant numerators
alge062 Solving a rational equation that simplifies to quadratic: Binomial denominators and numerators
alge426 Solving a rational equation that simplifies to quadratic: Factorable quadratic denominator
alge047 Solving a rational equation that simplifies to quadratic: Proportional form, advanced
alge508 Solving for a variable in terms of other variables in a rational equation: Problem type 1
alge509 Solving for a variable in terms of other variables in a rational equation: Problem type 2
alge510 Solving for a variable in terms of other variables in a rational equation: Problem type 3
arith610 Word problem on proportions: Problem type 1
arith611 Word problem on proportions: Problem type 2
geom037 Indirect measurement
geom133 Ratio of volumes
arith612 Word problem involving multiple rates
alge770 Solving a work problem using a rational equation
alge450 Solving a distance, rate, time problem using a rational equation
alge059 Ordering fractions with variables
alge938 Identifying direct variation from ordered pairs and writing equations
alge904 Writing a direct variation equation
alge175 Word problem on direct variation
alge828 Interpreting direct variation from a graph
alge905 Writing an inverse variation equation
alge903 Identifying direct and inverse variation equations
alge902 Identifying direct and inverse variation from ordered pairs and writing equations
alge176 Word problem on inverse variation
alge220 Word problem on inverse proportions
pcalc681 Writing an equation that models variation
alge772 Word problem on combined variation

Radicals

alge413 Finding all square roots of a number
arith601 Square root of a rational perfect square
arith760 Square roots of perfect squares with signs
arith761 Square roots of integers raised to even exponents
alge415 Introduction to simplifying a radical expression with an even exponent
alge264 Square root of a perfect square monomial
alge537 Using absolute value to simplify square roots of perfect square monomials
arith694 Cube root of an integer
alge549 Finding nth roots of perfect nth powers with signs
arith768 Finding the nth root of a perfect nth power fraction
alge550 Finding the nth root of a perfect nth power monomial
Using absolute value to simplify higher radical expressions
Table for a square root function
Evaluating a cube root function
Domain of a square root function: Basic
Domains of higher root functions
Graphing a square root function: Problem type 1
Graphing a square root function: Problem type 2
Graphing a square root function: Problem type 3
Graphing a cube root function
Converting between radical form and exponent form
Rational exponents: Unit fraction exponents and whole number bases
Rational exponents: Unit fraction exponents and bases involving signs
Rational exponents: Non-unit fraction exponent with a whole number base
Rational exponents: Negative exponents and fractional bases
Rational exponents: Product rule
Rational exponents: Quotient rule
Rational exponents: Products and quotients with negative exponents
Rational exponents: Power of a power rule
Rational exponents: Powers of powers with negative exponents
Simplifying the square root of a whole number less than 100
Simplifying the square root of a whole number greater than 100
Simplifying a radical expression with an even exponent
Introduction to simplifying a radical expression with an odd exponent
Simplifying a radical expression with an odd exponent
Simplifying a radical expression with two variables
Simplifying a higher root of a whole number
Introduction to simplifying a higher radical expression
Simplifying a higher radical expression: Univariate
Simplifying a higher radical expression: Multivariate
Introduction to square root addition or subtraction
Square root addition or subtraction
Square root addition or subtraction with three terms
Introduction to simplifying a sum or difference of radical expressions: Univariate
Simplifying a sum or difference of radical expressions: Univariate
Simplifying a sum or difference of radical expressions: Multivariate
Simplifying a sum or difference of higher roots
Simplifying a sum or difference of higher radical expressions
Introduction to square root multiplication
Square root multiplication: Basic
Square root multiplication: Advanced
Introduction to simplifying a product of radical expressions: Univariate
Simplifying a product of radical expressions: Univariate
Simplifying a product of radical expressions: Multivariate, fractional expressions
Introduction to simplifying a product of higher roots
Simplifying a product of higher radical expressions
Introduction to simplifying a product involving square roots using the distributive property
Simplifying a product involving square roots using the distributive property: Basic
Simplifying a product involving square roots using the distributive property: Advanced
Special products of radical expressions: Conjugates and squaring
Classifying sums and products as rational or irrational
Simplifying a quotient of square roots
Simplifying a quotient involving a sum or difference with a square root
Rationalizing a denominator: Quotient involving square roots
Rationalizing a denominator: Square root of a fraction
Rationalizing a denominator: Quotient involving a monomial
Rationalizing a denominator using conjugates: Integer numerator
Rationalizing a denominator using conjugates: Square root in numerator
Rationalizing a denominator using conjugates: Variable in denominator
Rationalizing a denominator: Quotient involving a higher radical
Rationalizing a denominator: Quotient involving higher radicals and monomials
APPENDIX B. SYLLABI IN ALEKS

alge563 Simplifying products or quotients of higher radicals with different indices: Univariate
alge776 Simplifying products or quotients of higher radicals with different indices: Multivariate
alge400 Introduction to solving a radical equation
pcalc682 Evaluating functions: Absolute value, rational, radical
pcalc754 Finding the domain of a fractional function involving radicals
alge089 Solving a radical equation that simplifies to a linear equation: One radical, basic
alge402 Solving a radical equation that simplifies to a linear equation: One radical, advanced
alge090 Solving a radical equation that simplifies to a linear equation: Two radicals
alge403 Solving a radical equation that simplifies to a quadratic equation: One radical, basic
alge404 Solving a radical equation that simplifies to a quadratic equation: One radical, advanced
alge411 Solving a radical equation with a quadratic expression under the radical
alge405 Solving a radical equation with two radicals that simplifies to sqrt(x) = a
alge182 Solving a radical equation that simplifies to a quadratic equation: Two radicals
alge412 Algebraic symbol manipulation with radicals
alge0542 Word problem involving radical equations: Basic
alge049 Word problem involving radical equations: Advanced
alge410 Solving an equation with a root index greater than 2: Problem type 1
alge417 Solving an equation with a root index greater than 2: Problem type 2
alge416 Solving an equation with exponent 1/a: Problem type 1
alge418 Solving an equation with exponent 1/a: Problem type 2
alge778 Using i to rewrite square roots of negative numbers
alge779 Simplifying a product and quotient involving square roots of negative numbers
pcalc048 Adding or subtracting complex numbers
pcalc049 Multiplying complex numbers
pcalc050 Dividing complex numbers
pcalc053 Simplifying a power of i

Quadratic Equations and Functions

alge962 Solving an equation of the form x^2 = a using the square root property
alge092 Solving a quadratic equation using the square root property: Exact answers, basic
alge227 Solving a quadratic equation using the square root property: Exact answers, advanced
alge094 Completing the square
alge780 Solving a quadratic equation by completing the square: Exact answers
alge095 Applying the quadratic formula: Exact answers
alge963 Applying the quadratic formula: Decimal answers
pcalc051 Solving a quadratic equation with complex roots
alge214 Discriminant of a quadratic equation
alge193 Discriminant of a quadratic equation with parameter
alge524 Solving a word problem using a quadratic equation with irrational roots
alge083 Solving an equation using the odd-root property: Problem type 1
alge228 Solving an equation using the odd-root property: Problem type 2
alge230 Solving an equation with positive rational exponent
alge231 Solving an equation with negative rational exponent
alge781 Solving an equation that can be written in quadratic form: Problem type 1
alge782 Solving an equation that can be written in quadratic form: Problem type 2
alge974 Finding the vertex, x-intercepts, and axis of symmetry from the graph of a parabola
alge253 Graphing a parabola of the form y = (x-h)^2 + k
alge569 Graphing a parabola of the form y = x^2 + bx + c: Integer coefficients
pcalc746 Graphing a parabola of the form y = ax^2 + bx + c: Rational coefficients
alge277 Finding the x-intercept(s) and the vertex of a parabola
pcalc793 Using a graphing calculator to find the x-intercept(s) and vertex of a quadratic function
pcalc774 Rewriting a quadratic function to find the vertex of its graph
pcalc775 Finding the maximum or minimum of a quadratic function
alge785 Word problem involving the maximum or minimum of a quadratic function
alge975 Domain and range from the graph of a parabola
pcalc762 Range of a quadratic function
pcalc768 Finding the equation of a quadratic function given its graph
alge957 Solving a quadratic equation by graphing
alge996 Comparing properties of quadratic functions given in different forms
alge702 Classifying the graph of a function
pcalc679 Testing an equation for symmetry about the axes and origin
pcalc114 Even and odd functions: Problem type 1
alge953 Translating the graph of a parabola: One step
alge723 How the leading coefficient affects the shape of a parabola
alge898 Translating the graph of an absolute value function: One step
alge899 Translating the graph of an absolute value function: Two steps
alge900 Graphing an absolute value equation in the plane: Basic
alge168 Graphing an absolute value equation in the plane: Advanced
alge901 How the leading coefficient affects the graph of an absolute value function
alge185 Writing an equation for a function after a vertical translation
pcalc769 Translating the graph of a function: One step
pcalc770 Translating the graph of a function: Two steps
pcalc771 Transforming the graph of a function by reflecting over an axis
pcalc772 Transforming the graph of a function by shrinking or stretching
pcalc773 Transforming the graph of a function using more than one transformation
fun020 Writing an equation for a function after a vertical and horizontal translation
fun019 Sum, difference, and product of two functions
pcalc753 Finding a difference quotient for a linear or quadratic function
alge786 Quotient of two functions: Basic
pcalc756 Combining functions: Advanced
fun022 Composition of two functions: Basic
pcalc777 Expressing a function as a composition of two functions
fun021 Composition of two functions: Domain and range
alge129 Composition of two functions: Advanced
pcalc924 Determining whether an equation defines a function: Basic
pcalc757 Determining whether an equation defines a function: Advanced
fun011 Horizontal line test
pcalc777 Determining whether two functions are inverses of each other
fun012 Inverse functions: Linear, discrete
alge130 Inverse functions: Rational
pcalc778 Inverse functions: Quadratic, cubic, radical

Polynomial and Rational Functions

pcalc764 Finding zeros of a polynomial function written in factored form
pcalc766 Finding a polynomial of a given degree with given zeros: Real zeros
pcalc765 Finding x- and y-intercepts given a polynomial function
pcalc678 Finding x- and y-intercepts of the graph of a nonlinear equation
pcalc782 Determining the end behavior of the graph of a polynomial function
pcalc783 Matching graphs with polynomial functions
pcalc738 Inferring properties of a polynomial function from its graph
pcalc794 Using a graphing calculator to find local extrema of a polynomial function
pcalc115 Using a graphing calculator to solve a word problem involving a local extremum of a polynomial function
alge759 Dividing a polynomial by a monomial: Univariate
alge760 Dividing a polynomial by a monomial: Multivariate
alge761 Polynomial long division: Problem type 1
alge762 Polynomial long division: Problem type 2
alge763 Polynomial long division: Problem type 3
pcalc117 Synthetic division
alge985 Closure properties of integers and polynomials
pcalc786 Using the remainder theorem to evaluate a polynomial
pcalc787 The Factor Theorem
pcalc118 Remainder theorem: Advanced
pcalc741 Using a given zero to write a polynomial as a product of linear factors: Real zeros
pcalc758 Finding all possible rational zeros using the rational zeros theorem: Problem type 1
pcalc759 Finding all possible rational zeros using the rational zeros theorem: Problem type 2
pcalc788 Descartes’ Rule of Signs
**Exponential and Logarithmic Functions**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>alge971</td>
<td>Table for an exponential function</td>
</tr>
<tr>
<td>alge969</td>
<td>Graphing an exponential function: ( f(x) = ax )</td>
</tr>
<tr>
<td>alge970</td>
<td>Graphing an exponential function: ( f(x) = a(b)^x )</td>
</tr>
<tr>
<td>alge712</td>
<td>Graphing an exponential function and its asymptote: ( f(x) = a(b)^x )</td>
</tr>
<tr>
<td>pcalc797</td>
<td>The graph, domain, and range of an exponential function</td>
</tr>
<tr>
<td>pcalc103</td>
<td>Graphing an exponential function and its asymptote: ( f(x) = a(e)^{x-b} + c )</td>
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<tr>
<td>alge830</td>
<td>Evaluating an exponential function that models a real-world situation</td>
</tr>
<tr>
<td>pcalc919</td>
<td>Evaluating an exponential function with base ( e ) that models a real-world situation</td>
</tr>
<tr>
<td>arith853</td>
<td>Introduction to compound interest</td>
</tr>
<tr>
<td>alge177</td>
<td>Finding a final amount in a word problem on exponential growth or decay</td>
</tr>
<tr>
<td>alge741</td>
<td>Finding the final amount in a word problem on compound interest</td>
</tr>
<tr>
<td>alge966</td>
<td>Finding the initial amount and rate of change given an exponential function</td>
</tr>
<tr>
<td>alge968</td>
<td>Writing an equation that models exponential growth or decay</td>
</tr>
<tr>
<td>alge967</td>
<td>Writing an exponential function rule given a table of ordered pairs</td>
</tr>
<tr>
<td>alge993</td>
<td>Comparing linear, polynomial, and exponential functions</td>
</tr>
<tr>
<td>alge108</td>
<td>Converting between logarithmic and exponential equations</td>
</tr>
<tr>
<td>pcalc799</td>
<td>Converting between natural logarithmic and exponential equations</td>
</tr>
<tr>
<td>alge232</td>
<td>Evaluating a logarithmic expression</td>
</tr>
<tr>
<td>alge233</td>
<td>Solving an equation of the form ( \log_b a = c )</td>
</tr>
<tr>
<td>pcalc912</td>
<td>Translating the graph of a logarithmic function</td>
</tr>
<tr>
<td>alge788</td>
<td>Graphing a logarithmic function: Basic</td>
</tr>
<tr>
<td>pcalc800</td>
<td>The graph, domain, and range of a logarithmic function</td>
</tr>
<tr>
<td>pcalc801</td>
<td>Domain of a logarithmic function: Advanced</td>
</tr>
<tr>
<td>pcalc104</td>
<td>Graphing a logarithmic function: Advanced</td>
</tr>
<tr>
<td>pcalc708</td>
<td>Basic properties of logarithms</td>
</tr>
<tr>
<td>pcalc779</td>
<td>Expanding a logarithmic expression: Problem type 1</td>
</tr>
<tr>
<td>pcalc780</td>
<td>Expanding a logarithmic expression: Problem type 2</td>
</tr>
<tr>
<td>alge787</td>
<td>Writing an expression as a single logarithm</td>
</tr>
<tr>
<td>pcalc612</td>
<td>Change of base for logarithms: Problem type 1</td>
</tr>
<tr>
<td>pcalc613</td>
<td>Change of base for logarithms: Problem type 2</td>
</tr>
<tr>
<td>pcalc803</td>
<td>Solving a multi-step equation involving a single logarithm</td>
</tr>
<tr>
<td>pcalc804</td>
<td>Solving a multi-step equation involving natural logarithms</td>
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</tbody>
</table>
B.14. TEXAS DMAT 0093-MATH 1314

Conic Sections

alge132 Distance between two points in the plane: Exact answers
alge191 Midpoint of a line segment in the plane
alge414 Finding an endpoint of a line segment given the other endpoint and the midpoint
pcalc067 Graphing a parabola of the form $ay^2 + by + cx + d = 0$ or $ax^2 + bx + cy + d = 0$
pcalc068 Writing an equation of a parabola given the vertex and the focus
pcalc069 Finding the focus of a parabola of the form $ay^2 + by + cx + d = 0$ or $ax^2 + bx + cy + d = 0$
pcalc065 Writing an equation of a parabola given its equation in standard form
pcalc128 Graphing a circle given its equation in general form: Basic
pcalc129 Graphing a circle given its equation in general form: Advanced
pcalc065 Writing an equation of a circle given its center and a point on the circle
pcalc066 Writing an equation of a circle given the endpoints of a diameter
pcalc734 Graphing an ellipse given its equation in standard form
pcalc070 Graphing an ellipse centered at the origin: $Ax^2 + By^2 = C$
pcalc074 Writing an equation of an ellipse given its equation in general form
pcalc072 Finding the foci of an ellipse given its equation in general form
pcalc074 Writing an equation of an ellipse given the center, an endpoint of an axis, and the length of the other axis
pcalc073 Writing an equation of an ellipse given the foci and the major axis length
pcalc735 Graphing a hyperbola given its equation in standard form
pcalc075 Graphing a hyperbola centered at the origin: $Ax^2 - By^2 = C = 0$
pcalc076 Graphing a hyperbola given its equation in general form
pcalc077 Finding the foci of a hyperbola given its equation in general form
pcalc078 Writing an equation of a hyperbola given the foci and the vertices
pcalc079 Writing an equation of a hyperbola given the foci and the asymptotes: Advanced
pcalc736 Classifying conics given their equations

Systems and Matrices

alge914 Identifying solutions to a system of linear equations
alge075 Classifying systems of linear equations from graphs
alge725 Graphically solving a system of linear equations
alge751 Solving a system of linear equations using substitution
alge915 Solving a system of linear equations using elimination with addition
alge076 Solving a system of linear equations using elimination with multiplication and addition
alge916 Solving a system of linear equations with fractional coefficients
alge917 Solving a system of linear equations with decimal coefficients
alge752 Solving a 2x2 system of linear equations that is inconsistent or consistent dependent
alge077 Creating an inconsistent system of linear equations
alge988 Identifying the operations used to create equivalent systems of equations
pcalc999 Consistency and independence of a system of linear equations
alge753 Solving a 3x3 system of linear equations: Problem type 1
alge263 Interpreting the graphs of two functions
alge078 Solving a word problem involving a sum and another basic relationship using a system of linear equations
alge919 Solving a word problem using a system of linear equations of the form $Ax + By = C$
APPENDIX B. SYLLABI IN ALEKS

alge918 Solving a word problem using a system of linear equations of the form $y = mx + b$
alge184 Solving a value mixture problem using a system of linear equations
alge192 Solving a percent mixture problem using a system of linear equations
alge224 Solving a distance, rate, time problem using a system of linear equations
alge172 Solving a tax rate or interest rate problem using a system of linear equations
alge793 Solving a word problem using a 3x3 system of linear equations: Problem type 1
pcalc037 Scalar multiplication of a matrix
pcalc038 Addition or subtraction of matrices
pcalc740 Linear combination of matrices
pcalc039 Multiplication of matrices: Basic
pcalc710 Multiplication of matrices: Advanced
pcalc712 Gauss-Jordan elimination with a 2x2 matrix
pcalc040 Finding the inverse of a 2x2 matrix
pcalc041 Finding the inverse of a 3x3 matrix
pcalc711 Using the inverse of a matrix to solve a 3x3 system of linear equations
pcalc042 Finding the determinant of a 2x2 matrix
pcalc043 Finding the determinant of a 3x3 matrix
pcalc045 Using Cramer’s rule to solve a 2x2 system of linear equations
pcalc047 Using Cramer’s rule to solve a 3x3 system of linear equations
pcalc812 Partial fraction decomposition with distinct linear factors
pcalc813 Partial fraction decomposition with repeated linear factors
pcalc814 Partial fraction decomposition with an irreducible quadratic factor
alge994 Graphically solving a system of linear and quadratic equations
pcalc796 Using a graphing calculator to solve a system of equations
pcalc806 Using a graphing calculator to solve an exponential or logarithmic equation
alge995 Solving a system of linear and quadratic equations
pcalc098 Solving a system of nonlinear equations: Problem type 1
alge912 Identifying solutions to a linear inequality in two variables
alge225 Graphing a linear inequality in the plane: Vertical or horizontal line
alge720 Graphing a linear inequality in the plane: Slope-intercept form
alge018 Graphing a linear inequality in the plane: Standard form
pcalc748 Graphing a quadratic inequality: Problem type 1
pcalc749 Graphing a quadratic inequality: Problem type 2
alge906 Finding the next terms of a sequence with integers
alge910 Finding a specified term of an arithmetic sequence given the first terms
pcalc715 Finding a specified term of an arithmetic sequence given two terms of the sequence
alge909 Writing an explicit rule for an arithmetic sequence
alge910 Writing a recursive rule for an arithmetic sequence
pcalc718 Sum of the first n terms of an arithmetic sequence
alge907 Finding the next terms of a geometric sequence with signed numbers
alge981 Identifying arithmetic and geometric sequences

Sequences, Series, and Probability

alge644 Finding the first terms of an arithmetic sequence using an explicit rule
alge645 Finding the first terms of a geometric sequence using an explicit rule
pcalc080 Finding the first terms of a sequence using an explicit rule with multiple occurrences of n
alge906 Finding the next terms of an arithmetic sequence with integers
alge908 Finding the first terms of a sequence using a recursive rule
alge979 Identifying arithmetic sequences and finding the common difference
alge931 Finding a specified term of an arithmetic sequence given the first terms
pcalc085 Finding a specified term of an arithmetic sequence given the common difference and first term
pcalc715 Finding a specified term of an arithmetic sequence given two terms of the sequence
alge909 Writing an explicit rule for an arithmetic sequence
alge910 Writing a recursive rule for an arithmetic sequence
pcalc718 Sum of the first n terms of an arithmetic sequence
alge907 Finding the next terms of a geometric sequence with signed numbers
alge981 Identifying arithmetic and geometric sequences
### B.15 College Algebra with Trigonometry

#### Algebra and Geometry Review

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>alge980</td>
<td>Identifying geometric sequences and finding the common ratio</td>
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<td>alge934</td>
<td>Finding a specified term of a geometric sequence given the first terms</td>
</tr>
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<td>pcalc086</td>
<td>Finding a specified term of a geometric sequence given the common ratio and first term</td>
</tr>
<tr>
<td>pcalc717</td>
<td>Finding a specified term of a geometric sequence given two terms of the sequence</td>
</tr>
<tr>
<td>pcalc713</td>
<td>Arithmetic and geometric sequences: Identifying and writing an explicit rule</td>
</tr>
<tr>
<td>alge911</td>
<td>Writing recursive rules for arithmetic and geometric sequences</td>
</tr>
<tr>
<td>pcalc719</td>
<td>Sum of the first n terms of a geometric sequence</td>
</tr>
<tr>
<td>pcalc720</td>
<td>Sum of an infinite geometric series</td>
</tr>
<tr>
<td>alge965</td>
<td>Identifying linear, quadratic, and exponential functions given ordered pairs</td>
</tr>
<tr>
<td>pcalc082</td>
<td>Factorial expressions</td>
</tr>
<tr>
<td>mstat041</td>
<td>Interpreting a tree diagram</td>
</tr>
<tr>
<td>mstat015</td>
<td>Counting principle</td>
</tr>
<tr>
<td>mstat017</td>
<td>Computing permutations and combinations</td>
</tr>
<tr>
<td>pcalc089</td>
<td>Introduction to permutations and combinations</td>
</tr>
<tr>
<td>pcalc810</td>
<td>Permutations and combinations: Problem type 1</td>
</tr>
<tr>
<td>pcalc809</td>
<td>Permutations and combinations: Problem type 2</td>
</tr>
<tr>
<td>pcalc990</td>
<td>Permutations and combinations: Problem type 3</td>
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<td>pcalc807</td>
<td>Binomial formula</td>
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<tr>
<td>mstat010</td>
<td>Probability of an event</td>
</tr>
<tr>
<td>mstat004</td>
<td>Experimental and theoretical probability</td>
</tr>
<tr>
<td>mstat011</td>
<td>Area as probability</td>
</tr>
<tr>
<td>mstat850</td>
<td>Probability of independent events</td>
</tr>
<tr>
<td>mstat851</td>
<td>Probability of dependent events</td>
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<tr>
<td>mstat117</td>
<td>Probabilities of draws with replacement</td>
</tr>
<tr>
<td>mstat118</td>
<td>Probabilities of draws without replacement</td>
</tr>
<tr>
<td>mstat042</td>
<td>Interpreting a Venn diagram of 2 sets</td>
</tr>
<tr>
<td>mstat043</td>
<td>Interpreting a Venn diagram of 3 sets</td>
</tr>
<tr>
<td>stat119</td>
<td>Venn diagrams: Two events</td>
</tr>
<tr>
<td>stat101</td>
<td>Venn diagrams: Word problems</td>
</tr>
<tr>
<td>stat112</td>
<td>Probabilities involving two dice</td>
</tr>
<tr>
<td>stat114</td>
<td>Probability of intersection or union: Word problems</td>
</tr>
<tr>
<td>stat115</td>
<td>Independent events: Basic</td>
</tr>
<tr>
<td>stat120</td>
<td>Probability of union: Basic</td>
</tr>
<tr>
<td>stat116</td>
<td>Conditional probability: Basic</td>
</tr>
<tr>
<td>stat109</td>
<td>Intersection and conditional probability</td>
</tr>
<tr>
<td>stat174</td>
<td>Binomial problems: Basic</td>
</tr>
<tr>
<td>stat155</td>
<td>Binomial problems: Advanced</td>
</tr>
</tbody>
</table>

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**Notes:**

- arith687 Fractional position on a number line
- arith605 Plotting rational numbers on a number line
- arith691 Ordering integers
- arith602 Estimating a square root
- arith712 Ordering real numbers
- alge001 Identifying numbers as integers or non-integers
- alge002 Identifying numbers as rational or irrational
- arith116 Signed fraction addition or subtraction: Basic
- arith864 Signed fraction subtraction involving double negation
- arith106 Signed fraction addition or subtraction: Advanced
- arith811 Addition and subtraction of 3 fractions involving signs
- arith822 Signed fraction multiplication: Basic
- arith105 Signed fraction multiplication: Advanced
- arith814 Signed fraction division
arith104 Operations with absolute value: Problem type 2
alge694 Computing the distance between two integers on a number line
arith702 Exponents and integers: Problem type 1
arith703 Exponents and integers: Problem type 2
arith704 Exponents and signed fractions
arith118 Order of operations with integers
arith600 Order of operations with integers and exponents
alge005 Evaluating a linear expression: Integer multiplication with addition or subtraction
alge004 Evaluating a quadratic expression: Integers
alge808 Evaluating a linear expression: Signed fraction multiplication with addition or subtraction
mstat065 Converting between temperatures in Fahrenheit and Celsius
alge187 Properties of addition
alge188 Properties of real numbers
alge604 Distributive property: Integer coefficients
alge608 Using distribution and combining like terms to simplify: Univariate
alge667 Identifying properties used to simplify an algebraic expression
alge609 Using distribution with double negation and combining like terms to simplify: Multivariate
alge821 Understanding the product rule of exponents
alge024 Introduction to the product rule of exponents
alge311 Product rule with positive exponents: Univariate
alge030 Product rule with positive exponents: Multivariate
arith029 Ordering numbers with positive exponents
alge306 Introduction to the power of a power rule of exponents
alge305 Introduction to the power of a product rule of exponents
alge307 Power rules with positive exponents: Multivariate products
alge308 Power rules with positive exponents: Multivariate quotients
alge756 Power and product rules with positive exponents
alge451 Simplifying a ratio of multivariate monomials: Basic
alge827 Introduction to the quotient rule of exponents
alge452 Simplifying a ratio of univariate monomials
alge026 Quotient of expressions involving exponents
alge453 Simplifying a ratio of multivariate monomials: Advanced
alge927 Power and quotient rules with positive exponents
alge790 Evaluating expressions with exponents of zero
arith042 Evaluating an expression with a negative exponent: Positive fraction base
arith043 Evaluating an expression with a negative exponent: Negative integer base
arith025 Power of a power rule with negative exponents
arith799 Power rules with negative exponents
arith928 Power and quotient rules with negative exponents: Problem type 1
arith929 Power and quotient rules with negative exponents: Problem type 2
arith757 Power, product, and quotient rules with negative exponents
arith030 Scientific notation with positive exponent
arith037 Scientific notation with negative exponent
scinot012 Converting between scientific notation and standard form in a real-world situation
scinot008 Multiplying numbers written in scientific notation: Basic
scinot009 Multiplying numbers written in scientific notation: Advanced
scinot019 Multiplying numbers written in decimal form or scientific notation in a real-world situation
scinot010 Dividing numbers written in scientific notation: Basic
scinot011 Dividing numbers written in scientific notation: Advanced
scinot013 Finding the scale factor between numbers given in scientific notation in a real-world situation
alge758 Degree and leading coefficient of a univariate polynomial
alge601 Degree of a multivariate polynomial
alge788 Simplifying a sum or difference of two univariate polynomials
alge029 Simplifying a sum or difference of three univariate polynomials
B.15. COLLEGE ALGEBRA WITH TRIGONOMETRY

alge932 Simplifying a sum or difference of multivariate polynomials
alge735 Multiplying a univariate polynomial by a monomial with a positive coefficient
alge972 Multiplying a univariate polynomial by a monomial with a negative coefficient
alge835 Multiplying a multivariate polynomial by a monomial
alge033 Multiplying binomials with leading coefficients of 1
alge983 Multiplying binomials with leading coefficients greater than 1
alge765 Multiplying binomials in two variables
alge764 Multiplying conjugate binomials: Univariate
alge081 Multiplying conjugate binomials: Multivariate
alge032 Squaring a binomial: Univariate
alge068 Squaring a binomial: Multivariate
alge973 Multiplying binomials with negative coefficients
alge935 Multiplication involving binomials and trinomials in one variable
alge180 Multiplication involving binomials and trinomials in two variables
arith034 Prime numbers
arith035 Prime factorization
arith033 Greatest common factor of 2 numbers
alge605 Factoring a linear binomial
alge736 Introduction to the GCF of two monomials
alge930 Greatest common factor of three univariate monomials
alge037 Greatest common factor of two multivariate monomials
alge738 Factoring out a monomial from a polynomial: Univariate
alge739 Factoring out a monomial from a polynomial: Multivariate
alge949 Factoring out a binomial from a polynomial: GCF factoring, basic
alge923 Factoring a univariate polynomial by grouping: Problem type 1
alge950 Factoring a univariate polynomial by grouping: Problem type 2
alge951 Factoring a multivariate polynomial by grouping: Problem type 1
alge952 Factoring a multivariate polynomial by grouping: Problem type 2
alge039 Factoring a quadratic with leading coefficient 1
alge942 Factoring a quadratic in two variables with leading coefficient 1
alge936 Factoring out a constant before factoring a quadratic
alge939 Factoring a quadratic with leading coefficient greater than 1: Problem type 1
alge940 Factoring a quadratic with leading coefficient greater than 1: Problem type 2
alge941 Factoring a quadratic with leading coefficient greater than 1: Problem type 3
alge265 Factoring a quadratic in two variables with leading coefficient greater than 1
alge937 Factoring a quadratic with a negative leading coefficient
alge944 Factoring a perfect square trinomial with leading coefficient 1
alge945 Factoring a perfect square trinomial with leading coefficient greater than 1
alge946 Factoring a perfect square trinomial in two variables
alge290 Factoring a difference of squares in one variable: Basic
alge947 Factoring a difference of squares in one variable: Advanced
alge839 Factoring a difference of squares in two variables
alge084 Factoring a polynomial involving a GCF and a difference of squares: Univariate
alge833 Factoring a polynomial involving a GCF and a difference of squares: Multivariate
alge041 Factoring a product of a quadratic trinomial and a monomial
alge042 Factoring with repeated use of the difference of squares formula
alge844 Factoring a sum or difference of two cubes
pcalc577 Factoring out binomials from a polynomial: GCF factoring, advanced
pcalc578 Using substitution to factor polynomials
alge049 Restriction on a variable in a denominator: Linear
alge454 Simplifying a ratio of factored polynomials: Linear factors
alge455 Simplifying a ratio of factored polynomials: Factors with exponents
alge456 Simplifying a ratio of polynomials using GCF factoring
alge457 Simplifying a ratio of linear polynomials: 1, -1, and no simplification
alge458 Simplifying a ratio of polynomials by factoring a quadratic with leading coefficient 1
alge710 Simplifying a ratio of polynomials: Problem type 1
alge682 Simplifying a ratio of polynomials: Problem type 2
alge459 Simplifying a ratio of polynomials: Problem type 3
alge684 Simplifying a ratio of multivariate polynomials
alge053 Multiplying rational expressions involving multivariate monomials
alge460 Multiplying rational expressions made up of linear expressions
APPENDIX B. SYLLABI IN ALEKS

alge620 Multiplying rational expressions involving quadratics with leading coefficients of 1
alge461 Multiplying rational expressions involving quadratics with leading coefficients greater than 1
alge462 Multiplying rational expressions involving multivariate quadratics
alge054 Dividing rational expressions involving multivariate monomials
alge463 Dividing rational expressions involving linear expressions
alge706 Dividing rational expressions involving quadratics with leading coefficients of 1
alge464 Dividing rational expressions involving quadratics with leading coefficients greater than 1
alge465 Dividing rational expressions involving multivariate quadratics
alge466 Multiplication and division of 3 rational expressions
arith070 Least common multiple of 2 numbers
arith804 Least common multiple of 3 numbers
alge737 Introduction to the LCM of two monomials
alge055 Least common multiple of two monomials
alge427 Finding the LCD of rational expressions with linear denominators: Relatively prime
alge428 Finding the LCD of rational expressions with linear denominators: Common factors
alge429 Finding the LCD of rational expressions with quadratic denominators
alge430 Writing equivalent rational expressions with monomial denominators
alge431 Writing equivalent rational expressions with polynomial denominators
alge304 Writing equivalent rational expressions involving opposite factors
alge432 Introduction to adding fractions with variables and common denominators
alge433 Adding rational expressions with common denominators and monomial numerators
alge056 Adding rational expressions with common denominators and binomial numerators
alge434 Adding rational expressions with common denominators and GCF factoring
alge435 Adding rational expressions with common denominators and quadratic factoring
alge436 Adding rational expressions with different denominators and a single occurrence of a variable
alge437 Adding rational expressions with denominators ax and bx: Basic
alge438 Adding rational expressions with denominators ax and bx: Advanced
alge439 Adding rational expressions with denominators axn and bxm
alge440 Adding rational expressions with multivariate monomial denominators: Basic
alge226 Adding rational expressions with multivariate monomial denominators: Advanced
alge441 Adding rational expressions with linear denominators without common factors: Basic
alge442 Adding rational expressions with linear denominators without common factors: Advanced
alge443 Adding rational expressions with linear denominators with common factors: Basic
alge444 Adding rational expressions with linear denominators with common factors: Advanced
alge445 Adding rational expressions with denominators ax-b and b-ax
alge661 Adding rational expressions involving different quadratic denominators
alge446 Adding 3 rational expressions with different quadratic denominators
arith695 Complex fraction without variables: Problem type 1
arith696 Complex fraction without variables: Problem type 2
alge470 Complex fraction involving univariate monomials
alge058 Complex fraction involving multivariate monomials
alge471 Complex fraction: GCF factoring
alge472 Complex fraction: Quadratic factoring
alge473 Complex fraction made of sums involving rational expressions: Problem type 1
alge474 Complex fraction made of sums involving rational expressions: Problem type 2
alge475 Complex fraction made of sums involving rational expressions: Problem type 3
alge476 Complex fraction made of sums involving rational expressions: Problem type 4
alge477 Complex fraction made of sums involving rational expressions: Problem type 5
alge478 Complex fraction made of sums involving rational expressions: Problem type 6
alge479 Complex fraction made of sums involving rational expressions: Multivariate
alge480 Complex fraction with negative exponents: Problem type 1
alge481 Complex fraction with negative exponents: Problem type 2
alge162 Complex fraction that contains a complex fraction
alge413 Finding all square roots of a number
arith601 Square root of a rational perfect square
arith760 Square roots of perfect squares with signs
arith761 Square roots of integers raised to even exponents
alge415 Introduction to simplifying a radical expression with an even exponent
alge264 Square root of a perfect square monomial
alge603 Introduction to solving an absolute value equation
alge537 Using absolute value to simplify square roots of perfect square monomials
arith694 Cube root of an integer
alge549 Finding nth roots of perfect nth powers with signs
arith768 Finding the nth root of a perfect nth power fraction
alge550 Finding the nth root of a perfect nth power monomial
alge538 Using absolute value to simplify higher radical expressions
alge812 Converting between radical form and exponent form
alge560 Rational exponents: Unit fraction exponents and whole number bases
alge561 Rational exponents: Unit fraction exponents and bases involving signs
alge250 Rational exponents: Non-unit fraction exponent with a whole number base
alge251 Rational exponents: Negative exponents and fractional bases
alge558 Rational exponents: Product rule
alge559 Rational exponents: Quotient rule
alge773 Rational exponents: Products and quotients with negative exponents
alge562 Rational exponents: Power of a power rule
alge249 Rational exponents: Powers of powers with negative exponents
arith953 Simplifying the square root of a whole number less than 100
arith762 Simplifying the square root of a whole number greater than 100
alge680 Simplifying a radical expression with an even exponent
alge520 Introduction to simplifying a radical expression with an odd exponent
alge521 Simplifying a radical expression with an odd exponent
alge275 Simplifying a radical expression with two variables
alge273 Simplifying a higher root of a whole number
alge551 Introduction to simplifying a higher radical expression
alge552 Simplifying a higher radical expression: Univariate
alge811 Simplifying a higher radical expression: Multivariate
arith767 Introduction to square root addition or subtraction
arith632 Square root addition or subtraction
alge533 Square root addition or subtraction with three terms
alge531 Introduction to simplifying a sum or difference of radical expressions: Univariate
alge532 Simplifying a sum or difference of radical expressions: Univariate
alge084 Simplifying a sum or difference of radical expressions: Multivariate
alge554 Simplifying a sum or difference of higher roots
alge555 Simplifying a sum or difference of higher radical expressions
arith764 Introduction to square root multiplication
arith765 Square root multiplication: Basic
arith639 Square root multiplication: Advanced
alge522 Introduction to simplifying a product of radical expressions: Univariate
alge523 Simplifying a product of radical expressions: Univariate
alge640 Simplifying a product of radical expressions: Multivariate
alge082 Simplifying a product of radical expressions: Multivariate, fractional expressions
alge556 Introduction to simplifying a product of higher roots
alge557 Simplifying a product of higher radical expressions
alge525 Introduction to simplifying a product involving square roots using the distributive property
alge526 Simplifying a product involving square roots using the distributive property: Basic
alge276 Simplifying a product involving square roots using the distributive property: Advanced
alge774 Special products of radical expressions: Conjugates and squaring
alge984 Classifying sums and products as rational or irrational
arith766 Simplifying a quotient of square roots
alge530 Simplifying a quotient involving a sum or difference with a square root
alge527 Rationalizing a denominator: Quotient involving square roots
alge528 Rationalizing a denominator: Square root of a fraction
alge529 Rationalizing a denominator: Quotient involving a monomial
alge531 Rationalizing a denominator using conjugates: Integer numerator
alge533 Rationalizing a denominator using conjugates: Square root in numerator
alge534 Rationalizing a denominator using conjugates: Variable in denominator
alge564 Rationalizing a denominator: Quotient involving a higher radical
alge775 Rationalizing a denominator: Quotient involving higher radicals and monomials
alge563 Simplifying products or quotients of higher radicals with different indices: Univariate
alge776 Simplifying products or quotients of higher radicals with different indices: Multivariate
geom340 Area of a piecewise rectangular figure
geom142 Word problem involving the area between two rectangles
geom801 Area of a triangle
geom822 Area of a parallelogram
APPENDIX B. SYLLABI IN ALEKS

geom023 Area of a trapezoid
geom016 Circumference of a circle
geom301 Perimeter involving rectangles and circles
geom802 Circumference and area of a circle
geom477 Circumference and area of a circle: Exact answers in terms of pi
geom302 Area involving rectangles and circles
geom836 Word problem involving the area between two concentric circles
geom214 Area involving inscribed figures
geom311 Volume of a rectangular prism
geom909 Volume of a triangular prism
geom033 Volume of a pyramid
geom035 Volume of a cylinder
geom802 Word problem involving the rate of filling or emptying a cylinder
geom622 Volume of a cone
geom86 Volume of a cone: Exact answers in terms of pi
geom841 Volume of a sphere
geom631 Surface area of a cube or a rectangular prism
geom891 Surface area of a triangular prism
geom62 Surface area of a cylinder
geom634 Surface area of a cylinder: Exact answers in terms of pi
geom842 Surface area of a sphere
alge407 Introduction to the Pythagorean Theorem
geom844 Pythagorean Theorem
alge408 Word problem involving the Pythagorean Theorem

Equations and Inequalities

alge836 Additive property of equality with signed fractions
alge012 Multiplicative property of equality with signed fractions
alge837 Solving a multi-step equation given in fractional form
alge896 Identifying properties used to solve a linear equation
alge011 Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
alge013 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
alge209 Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions
alge420 Solving a linear equation with several occurrences of the variable: Fractional forms with monomial numerators
algebra209 Solving a two-step equation with signed fractions
alge061 Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
alge179 Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators
alge742 Solving equations with zero, one, or infinitely many solutions
alge840 Solving a proportion of the form \((x+a)\div b = c\div d\)
alge511 Solving for a variable in terms of other variables using addition or subtraction: Basic
alge512 Solving for a variable in terms of other variables using addition or subtraction: Advanced
alge513 Solving for a variable in terms of other variables using multiplication or division: Basic
alge514 Solving for a variable in terms of other variables using multiplication or division: Advanced
alge517 Solving for a variable in terms of other variables using addition or subtraction with division
alge518 Solving for a variable inside parentheses in terms of other variables
alge507 Solving for a variable in terms of other variables in a linear equation with fractions
alge016 Translating a sentence into a one-step equation
alge841 Translating a sentence into a multi-step equation
alge014 Solving a word problem with two unknowns using a linear equation
alge173 Solving a decimal word problem using a linear equation of the form \(Ax + B = C\)
alge219 Solving a decimal word problem using a linear equation with the variable on both sides
alge704 Solving a fraction word problem using a linear equation with the variable on both sides
alge792 Solving a word problem with three unknowns using a linear equation
alge842 Solving a word problem involving consecutive integers
alge730 Writing a multi-step equation for a real-world situation
alge794 Solving a value mixture problem using a linear equation
alge823 Solving a one-step word problem using the formula $d = rt$
alge796 Solving a distance, rate, time problem using a linear equation
geom817 Finding a side length given the perimeter and side lengths with variables
geom143 Finding the perimeter or area of a rectangle given one of these values
geom838 Circumference ratios
geom530 Solving equations involving vertical angles
geom628 Finding angle measures of a triangle given angles with variables
stat803 Finding the value for a new score that will yield a given mean
arith852 Finding the multiplier to give a final amount after a percentage increase or decrease
arith847 Finding the sale price given the original price and percent discount
arith848 Finding the total cost including tax or markup
arith831 Finding the original price given the sale price and percent discount
arith854 Computing a percent mixture
alge895 Solving a percent mixture problem using a linear equation
arith532 Finding simple interest without a calculator
arith514 Converting a repeating decimal to a fraction
alge864 Solving an absolute value equation: Problem type 1
alge865 Solving an absolute value equation: Problem type 2
alge866 Solving an absolute value equation: Problem type 3
alge867 Solving an absolute value equation: Problem type 4
alge167 Solving an absolute value equation of the form $-ax + b = -cx + d$
alge845 Translating a sentence into a one-step inequality
alge846 Translating a sentence into a multi-step inequality
alge748 Writing an inequality for a real-world situation
alge017 Graphing a linear inequality on the number line
alge822 Writing an inequality given a graph on the number line
alge186 Translating a sentence into a compound inequality
alge166 Graphing a compound inequality on the number line
alge847 Writing a compound inequality given a graph on the number line
set001 Set builder notation
set004 Set builder and interval notation
set002 Union and intersection of finite sets
set005 Union and intersection of intervals
alge844 Identifying solutions to a two-step linear inequality in one variable
alge852 Additive property of inequality with signed fractions
alge964 Multiplicative property of inequality with signed fractions
alge855 Solving a two-step linear inequality: Problem type 1
alge856 Solving a two-step linear inequality: Problem type 2
alge857 Solving a two-step linear inequality with a fractional coefficient
alge977 Solving a linear inequality with multiple occurrences of the variable: Problem type 1
alge858 Solving a linear inequality with multiple occurrences of the variable: Problem type 2
alge859 Solving a linear inequality with multiple occurrences of the variable: Problem type 3
alge860 Solving inequalities with no solution or all real numbers as solutions
alge746 Solving a compound linear inequality: Graph solution, basic
alge874 Solving a compound linear inequality: Interval notation
alge749 Solving a decimal word problem using a two-step linear inequality
alge750 Solving a decimal word problem using a linear inequality with the variable on both sides
alge868 Solving an absolute value inequality: Problem type 1
alge943 Writing an absolute value inequality given a graph on the number line
alge869 Solving an absolute value inequality: Problem type 2
alge870 Solving an absolute value inequality: Problem type 3
alge871 Solving an absolute value inequality: Problem type 4
alge872 Solving an absolute value inequality: Problem type 5
alge271 Solving a proportion of the form $a/(x+b) = c/x$
alge060 Solving a rational equation that simplifies to linear: Denominator $x$
alge205 Solving a rational equation that simplifies to linear: Denominator $x+a$
alge769 Solving a rational equation that simplifies to linear: Denominators $a, x,$ or $ax$
alge421 Solving a rational equation that simplifies to linear: Denominators $ax$ and $bx$
alge422 Solving a rational equation that simplifies to linear: Like binomial denominators
alge206 Solving a rational equation that simplifies to linear: Unlike binomial denominators
alge508 Solving for a variable in terms of other variables in a rational equation: Problem type 1
alge509 Solving for a variable in terms of other variables in a rational equation: Problem type 2
alge510 Solving for a variable in terms of other variables in a rational equation: Problem type 3
arith610 Word problem on proportions: Problem type 1
arith611 Word problem on proportions: Problem type 2
gem037 Similar polygons
gem038 Similar right triangles
gem037 Indirect measurement
gem133 Ratio of volumes
arith612 Word problem involving multiple rates
alge770 Solving a work problem using a rational equation
alge450 Solving a distance, rate, time problem using a rational equation
alge059 Ordering fractions with variables
alge778 Using $i$ to rewrite square roots of negative numbers
pcalc048 Adding or subtracting complex numbers
pcalc049 Multiplying complex numbers
pcalc050 Dividing complex numbers
pcalc053 Simplifying a power of $i$
alge681 Solving an equation written in factored form
alge956 Finding the roots of a quadratic equation of the form $ax^2 + bx = 0$
alge045 Finding the roots of a quadratic equation with leading coefficient 1
alge048 Finding the roots of a quadratic equation with leading coefficient greater than 1
alge211 Solving a quadratic equation needing simplification
alge046 Roots of a product of polynomials
alge163 Writing a quadratic equation given the roots and the leading coefficient
alge703 Solving a word problem using a quadratic equation with rational roots
alge713 Using the Pythagorean Theorem and a quadratic equation to find side lengths of a right triangle
alge962 Solving an equation of the form $x^2 = a$ using the square root property
alge092 Solving a quadratic equation using the square root property: Exact answers, basic
alge227 Solving a quadratic equation using the square root property: Exact answers, advanced
alge094 Completing the square
alge780 Solving a quadratic equation by completing the square: Exact answers
alge095 Applying the quadratic formula: Exact answers
alge963 Applying the quadratic formula: Decimal answers
pcalc051 Solving a quadratic equation with complex roots
alge214 Discriminant of a quadratic equation
alge193 Discriminant of a quadratic equation with parameter
alge524 Solving a word problem using a quadratic equation with irrational roots
alge093 Solving an equation using the odd-root property: Problem type 1
alge228 Solving an equation using the odd-root property: Problem type 2
alge467 Restriction on a variable in a denominator: Quadratic
alge043 Solving a rational equation that simplifies to linear: Factorable quadratic denominator
alge424 Solving a rational equation that simplifies to quadratic: Proportional form, basic
alge425 Solving a rational equation that simplifies to quadratic: Denominator $X$
alge212 Solving a rational equation that simplifies to quadratic: Binomial denominators, constant numerators
alge062 Solving a rational equation that simplifies to quadratic: Binomial denominators and numerators
alge426 Solving a rational equation that simplifies to quadratic: Factorable quadratic denominator
alge047 Solving a rational equation that simplifies to quadratic: Proportional form, advanced
alge400 Introduction to solving a radical equation
alge089 Solving a radical equation that simplifies to a linear equation: One radical, basic
alge402 Solving a radical equation that simplifies to a linear equation: One radical, advanced
alge090 Solving a radical equation that simplifies to a linear equation: Two radicals
alge403 Solving a radical equation that simplifies to a quadratic equation: One radical, basic
alge404 Solving a radical equation that simplifies to a quadratic equation: One radical, advanced
alge411 Solving a radical equation with a quadratic expression under the radical
alge405 Solving a radical equation with two radicals that simplifies to $\sqrt{x} = a$
alge182 Solving a radical equation that simplifies to a quadratic equation: Two radicals
alge412 Algebraic symbol manipulation with radicals
alge542 Word problem involving radical equations: Basic
alge409 Word problem involving radical equations: Advanced
B.15. COLLEGE ALGEBRA WITH TRIGONOMETRY

alge410 Solving an equation with a root index greater than 2: Problem type 1
alge417 Solving an equation with a root index greater than 2: Problem type 2
alge416 Solving an equation with exponent 1/a: Problem type 1
alge418 Solving an equation with exponent 1/a: Problem type 2
alge230 Solving an equation with positive rational exponent
alge231 Solving an equation with negative rational exponent
alge781 Solving an equation that can be written in quadratic form: Problem type 1
alge782 Solving an equation that can be written in quadratic form: Problem type 2

Graphs and Functions

alge064 Reading a point in the coordinate plane
alge067 Plotting a point in the coordinate plane
arith405 Naming the quadrant or axis of a point given its coordinates
arith406 Naming the quadrant or axis of a point given the signs of its coordinates
geom437 Finding the area of a triangle or parallelogram in the coordinate plane
alge850 Table for a linear equation
alge132 Distance between two points in the plane: Exact answers
alge324 Distance between two points in the plane: Decimal answers
geom323 Identifying scalene, isosceles, and equilateral triangles given coordinates of their vertices
alge191 Midpoint of a line segment in the plane
alge414 Finding an endpoint of a line segment given the other endpoint and the midpoint
alge873 Identifying solutions to a linear equation in two variables
alge066 Finding a solution to a linear equation in two variables
alge877 Graphing a linear equation of the form y = mx
alge878 Graphing a line given its equation in slope-intercept form: Integer slope
alge879 Graphing a line given its equation in slope-intercept form: Fractional slope
alge880 Graphing a line given its equation in standard form
alge198 Graphing a vertical or horizontal line
alge884 Finding x- and y-intercepts given the graph of a line on a grid
alge924 Finding x- and y-intercepts of a line given the equation: Basic
alge210 Finding x- and y-intercepts of a line given the equation: Advanced
alge197 Graphing a line given its x- and y-intercepts
alge881 Graphing a line by first finding its x- and y-intercepts
pcalc750 Finding intercepts of a nonlinear function given its graph
pcalc678 Finding x- and y-intercepts of the graph of a nonlinear equation
alge913 Graphing an absolute value equation of the form y = A — x —
alge954 Graphing a parabola of the form y = ax2
alge955 Graphing a parabola of the form y = ax2 + c
alge262 Graphing a cubic function of the form y = ax3
pcalc416 Determining if graphs have symmetry with respect to the x-axis, y-axis, or origin
pcalc679 Testing an equation for symmetry about the axes and origin
alge875 Classifying slopes given graphs of lines
alge886 Finding slope given the graph of a line on a grid
alge887 Finding slope given two points on the line
alge885 Finding the slope of horizontal and vertical lines
alge888 Finding the coordinate that yields a given slope
alge259 Graphing a line given its slope and y-intercept
alge196 Graphing a line through a given point with a given slope
alge876 Identifying linear equations: Advanced
alge874 Identifying linear functions given ordered pairs
alge891 Rewriting a linear equation in the form Ax + By = C
alge889 Finding the slope and y-intercept of a line given its equation in the form y = mx + b
alge890 Finding the slope and y-intercept of a line given its equation in the form Ax + By = C
alge882 Graphing a line by first finding its slope and y-intercept
alge258 Writing an equation of a line given its slope and y-intercept
alge892 Writing an equation and graphing a line given its slope and y-intercept
alge314 Finding the slope, y-intercept, and equation for a linear function given a table of values
alge893 Writing an equation in slope-intercept form given the slope and a point
alge318 Finding the slope and a point on a line given its equation in point-slope form
alge883 Graphing a line given its equation in point-slope form
alge894 Writing an equation in point-slope form given a slope and a point
alge313 Writing an equation in standard form given the slope and a point
alge070 Writing an equation of a line given the y-intercept and another point
alge072 Writing the equation of the line through two given points
alge073 Writing the equations of vertical and horizontal lines through a given point
alge322 Comparing linear functions to the parent function \( y=x \)
geom806 Finding slopes of lines parallel and perpendicular to a line given in slope-intercept form
geom807 Finding slopes of lines parallel and perpendicular to a line given in the form \( Ax + By = C \)
alge895 Identifying parallel and perpendicular lines from equations
geom808 Writing equations of lines parallel and perpendicular to a given line through a point
geom462 Identifying parallel and perpendicular lines from coordinates
geom322 Identifying coordinates that give right triangles
alge897 Writing and evaluating a function that models a real-world situation: Advanced
alge634 Graphing ordered pairs and writing an equation from a table of values in context
alge701 Writing an equation and drawing its graph to model a real-world situation: Advanced
alge817 Finding the initial amount and rate of change given a table for a linear function
alge818 Finding the initial amount and rate of change given a graph of a linear function
alge992 Combining functions to write a new function that models a real-world situation
alge987 Comparing properties of linear functions given in different forms
alge989 Interpreting the parameters of a linear function that models a real-world situation
alge805 Application problem with a linear function: Finding a coordinate given the slope and a point
alge806 Application problem with a linear function: Finding a coordinate given two points
alge991 Solving a linear equation by graphing
mstat094 Constructing a scatter plot
mstat030 Sketching the line of best fit
mstat020 Sketching the line of best fit
mstat068 Predictions from the line of best fit
mstat067 Predictions from the line of best fit
mstat067 Approximating the equation of a line of best fit and making predictions
mstat069 Computing residuals
mstat070 Interpreting residual plots
mstat093 Classifying linear and nonlinear relationships from scatter plots
mstat071 Linear relationship and the correlation coefficient
mstat096 Identifying outliers and clustering in scatter plots
mstat005 Finding outliers in a data set
alge914 Identifying solutions to a system of linear equations
alge725 Graphically solving a system of linear equations
pcalc820 Using a graphing calculator to solve a system of linear equations: Basic
pcalc821 Using a graphing calculator to solve a system of linear equations: Advanced
alge317 Writing a system of linear equations given its graph
alge751 Solving a system of linear equations using substitution
alge915 Solving a system of linear equations using elimination with addition
alge076 Solving a system of linear equations using elimination with multiplication and addition
geom497 Identifying the center and radius to graph a circle given its equation in standard form
geom668 Identifying the center and radius to graph a circle given its equation in general form: Basic
geom499 Identifying the center and radius to graph a circle given its equation in general form: Advanced
geom499 Writing the equation of a circle centered at the origin given its radius or a point on the circle
gem495 Writing an equation of a circle and identifying points that lie on the circle
gem498 Writing an equation of a circle given its center and radius or diameter
gem493 Deriving the equation of a circle using the Pythagorean Theorem
pcalc065 Writing an equation of a circle given its center and a point on the circle
pcalc066 Writing an equation of a circle given the endpoints of a diameter
fun032 Identifying functions from relations
fun010 Vertical line test
fun001 Table for a linear function
pcalc760 Evaluating functions: Linear and quadratic or cubic
alge468 Evaluating a rational function: Problem type 1
alge469 Evaluating a rational function: Problem type 2
alge539 Table for a square root function
alge546 Evaluating a cube root function
pcalc682 Evaluating functions: Absolute value, rational, radical
fun030 Evaluating a piecewise-defined function
fun033 Variable expressions as inputs of functions: Problem type 1  
pcalc571 Variable expressions as inputs of functions: Problem type 2  
pcalc411 Variable expressions as inputs of functions: Problem type 3  
fun016 Domain and range from ordered pairs  
alg715 Domain of a rational function: Excluded values  
pcalc412 Domain of a rational function: Interval notation  
alge540 Domain of a square root function: Basic  
palc763 Domain of a square root function: Advanced  
palc754 Finding the domain of a fractional function involving radicals  
palc924 Determining whether an equation defines a function: Basic  
palc757 Determining whether an equation defines a function: Advanced  
alge294 Finding outputs of a one-step function that models a real-world situation: Function notation  
alge295 Finding outputs of a two-step function with decimals that models a real-world situation: Function notation  
alge296 Finding inputs and outputs of a two-step function that models a real-world situation: Function notation  
alge990 Domain and range of a linear function that models a real-world situation  
palc471 Rewriting a multivariate function as a univariate function given a relationship between its variables  
palc753 Finding a difference quotient for a linear or quadratic function  
palc414 Finding a difference quotient for a rational function  
fun026 Finding an output of a function from its graph  
palc761 Finding inputs and outputs of a function from its graph  
fun007 Domain and range from the graph of a discrete relation  
alg312 Finding domain and range from a linear graph in context  
fun024 Domain and range from the graph of a continuous function  
fun025 Domain and range from the graph of a piecewise function  
alge999 Finding where a function is increasing, decreasing, or constant given the graph  
palc751 Finding where a function is increasing, decreasing, or constant given the graph: Interval notation  
palc752 Finding local maxima and minima of a function given the graph  
palc439 Finding the absolute maximum and minimum of a function given the graph  
palc417 Finding values and intervals where the graph of a function is zero, positive, or negative  
msat018 Choosing a graph to fit a narrative: Basic  
msat051 Choosing a graph to fit a narrative: Advanced  
alge896 Graphing an integer function and finding its range for a given domain  
alge570 Graphing a function of the form f(x) = ax + b: Integer slope  
alge571 Graphing a function of the form f(x) = ax + b: Fractional slope  
alge900 Graphing an absolute value equation in the plane: Basic  
alge168 Graphing an absolute value equation in the plane: Advanced  
alge572 Graphing a function of the form f(x) = ax^2  
alge573 Graphing a function of the form f(x) = ax^2 + c  
alge253 Graphing a parabola of the form y = (x-h)^2 + k  
alge543 Graphing a square root function: Problem type 1  
alge544 Graphing a square root function: Problem type 2  
alge545 Graphing a square root function: Problem type 3  
alge548 Graphing a cube root function  
palc443 Matching parent graphs with their equations  
fun031 Graphing a piecewise-defined function: Problem type 1  
palc444 Graphing a piecewise-defined function: Problem type 2  
palc568 Graphing a piecewise-defined function: Problem type 3  
palc114 Even and odd functions: Problem type 1  
palc440 Even and odd functions: Problem type 2  
palc768 Finding the average rate of change of a function  
alge998 Finding the average rate of change of a function given its graph  
palc442 Word problem involving average rate of change  
palc441 Writing the equation of a secant line  
palc467 Translating the graph of a parabola: One step  
palc465 Translating the graph of a parabola: Two steps  
alge723 How the leading coefficient affects the shape of a parabola  
palc468 Translating the graph of an absolute value function: One step  
alge899 Translating the graph of an absolute value function: Two steps  
alge901 How the leading coefficient affects the graph of an absolute value function  
alge185 Writing an equation for a function after a vertical translation
APPENDIX B. SYLLABI IN ALEKS

pcalc469 Translating the graph of a function: One step
pcalc770 Translating the graph of a function: Two steps
pcalc569 Transforming the graph of a function by reflecting over an axis
pcalc470 Transforming the graph of a function by shrinking or stretching
pcalc570 Transforming the graph of a function using more than one transformation
pcalc466 Transforming the graph of a quadratic, cubic, square root, or absolute value function
fun020 Writing an equation for a function after a vertical and horizontal translation
fun019 Sum, difference, and product of two functions
alge786 Quotient of two functions: Basic
pcalc413 Quotient of two functions: Advanced
pcalc756 Combining functions: Advanced
fun022 Composition of two functions: Basic
pcalc484 Composition of a function with itself
pcalc776 Expressing a function as a composition of two functions
fun021 Composition of two functions: Domain and range
alge129 Composition of two functions: Advanced
pcalc483 Composition of two rational functions
pcalc485 Word problem involving composition of two functions
fun011 Horizontal line test
pcalc777 Determining whether two functions are inverses of each other
fun012 Inverse functions: Linear, discrete
pcalc573 Inverse functions: Quadratic, square root
pcalc572 Inverse functions: Cubic, cube root
alge130 Inverse functions: Rational
pcalc486 Graphing the inverse of a function given its graph
pcalc487 Finding, evaluating, and interpreting an inverse function for a given linear relationship

Polynomial and Rational Functions

alge974 Finding the vertex, x-intercepts, and axis of symmetry from the graph of a parabola
alge569 Graphing a parabola of the form \( y = x^2 + bx + c \)
pcalc574 Graphing a parabola of the form \( y = a(x-h)^2 + k \)
pcalc746 Graphing a parabola of the form \( y = ax^2 + bx + c \): Integer coefficients
pcalc747 Graphing a parabola of the form \( y = ax^2 + bx + c \): Rational coefficients
alge323 Finding the zeros of a quadratic function given its equation
pcalc714 Using a graphing calculator to find the zeros of a quadratic function
alge320 Writing a quadratic function given its zeros
alge277 Finding the x-intercept(s) and the vertex of a parabola
pcalc793 Using a graphing calculator to find the x-intercept(s) and vertex of a quadratic function
alge319 Rewriting a quadratic function in standard form
pcalc550 Rewriting a quadratic function to find its vertex and sketch its graph
pcalc775 Finding the maximum or minimum of a quadratic function
alge785 Word problem involving the maximum or minimum of a quadratic function
pcalc551 Word problem involving optimizing area by using a quadratic function
pcalc415 Domain and range from the graph of a quadratic function
pcalc762 Range of a quadratic function
pcalc680 Writing the equation of a quadratic function given its graph
alge957 Solving a quadratic equation by graphing
alge696 Comparing properties of quadratic functions given in different forms
alge702 Classifying the graph of a function
mstat102 Choosing a quadratic model and using it to make a prediction
pcalc546 Identifying polynomial functions
pcalc764 Finding zeros of a polynomial function written in factored form
pcalc547 Finding zeros and their multiplicities given a polynomial function written in factored form
pcalc766 Finding a polynomial of a given degree with given zeros: Real zeros
pcalc765 Finding x- and y-intercepts given a polynomial function
pcalc782 Determining the end behavior of the graph of a polynomial function
pcalc548 Determining end behavior and intercepts to graph a polynomial function
pcalc783 Matching graphs with polynomial functions
pcalc738 Inferring properties of a polynomial function from its graph
pcalc794 Using a graphing calculator to find local extrema of a polynomial function
pcalc115 Using a graphing calculator to solve a word problem involving a local extremum of a polynomial function
alg759 Dividing a polynomial by a monomial: Univariate
alg760 Dividing a polynomial by a monomial: Multivariate
alg761 Polynomial long division: Problem type 1
alg762 Polynomial long division: Problem type 2
alg763 Polynomial long division: Problem type 3
pcalc117 Synthetic division
pcalc786 Using the remainder theorem to evaluate a polynomial
pcalc787 The Factor Theorem
pcalc118 Remainder theorem: Advanced
alg985 Closure properties of integers and polynomials
pcalc741 Using a given zero to write a polynomial as a product of linear factors: Real zeros
pcalc758 Finding all possible rational zeros using the rational zeros theorem: Problem type 1
pcalc759 Finding all possible rational zeros using the rational zeros theorem: Problem type 2
pcalc788 Descartes' Rule of Signs
pcalc743 Using the rational zeros theorem to find all zeros of a polynomial: Rational zeros
pcalc744 Using the rational zeros theorem to find all zeros of a polynomial: Irrational zeros
pcalc795 Using a graphing calculator to find zeros of a polynomial function
pcalc704 Using a graphing calculator to solve a word problem involving a polynomial of degree 3
pcalc785 Multiplying expressions involving complex conjugates
pcalc767 Finding a polynomial of a given degree with given zeros: Complex zeros
pcalc742 Using a given zero to write a polynomial as a product of linear factors: Complex zeros
pcalc774 Using the rational zeros theorem to find all zeros of a polynomial: Complex zeros
pcalc703 Using the conjugate zeros theorem to find all zeros of a polynomial
pcalc705 Linear factors theorem and conjugate zeros theorem
pcalc552 Finding the intercepts, asymptotes, domain, and range from the graph of a rational function
pcalc917 Finding the asymptotes of a rational function: Constant over linear
pcalc918 Finding the asymptotes of a rational function: Linear over linear
pcalc790 Finding horizontal and vertical asymptotes of a rational function: Quadratic numerator or denominator
pcalc562 Finding the asymptotes of a rational function: Quadratic over linear
alg515 Graphing a rational function: Constant over linear
alg516 Graphing a rational function: Linear over linear
pcalc553 Transforming the graph of a rational function
pcalc109 Graphing a rational function: Quadratic over linear
pcalc792 Graphing rational functions with holes
pcalc791 Matching graphs with rational functions: Two vertical asymptotes
pcalc557 Graphing a rational function with more than one vertical asymptote
pcalc706 Writing the equation of a rational function given its graph
pcalc556 Using a graphing calculator to solve a word problem involving a local extremum of a rational function
alg684 Solving a quadratic inequality written in factored form
alg771 Solving a quadratic inequality
pcalc558 Solving a polynomial inequality: Problem type 1
pcalc560 Solving a polynomial inequality: Problem type 2
pcalc561 Solving a polynomial inequality: Problem type 3
pcalc559 Solving a polynomial inequality: Problem type 4
alg783 Solving a rational inequality: Problem type 1
pcalc677 Solving a rational inequality: Problem type 2
alg982 Identifying direct variation equations
alg938 Identifying direct variation from ordered pairs and writing equations
alg604 Writing a direct variation equation
alg175 Word problem on direct variation
alg828 Interpreting direct variation from a graph
alg905 Writing an inverse variation equation
alg903 Identifying direct and inverse variation equations
alg902 Identifying direct and inverse variation from ordered pairs and writing equations
alg176 Word problem on inverse variation
alg220 Word problem on inverse proportions
pcalc681 Writing an equation that models variation
alg772 Word problem on combined variation
Exponential and Logarithmic Functions

alge971 Table for an exponential function
pcalc488 Graphing an exponential function: \( f(x)=bx \)
pcalc489 Graphing an exponential function: \( f(x) = a(b)^x \)
pcalc567 Graphing an exponential function: \( f(x)=-b^{-x} \) or \( f(x)=-ba^x \)
pcalc922 Translating the graph of an exponential function
alge321 Finding domain and range from the graph of an exponential function
pcalc797 The graph, domain, and range of an exponential function
pcalc490 Transforming the graph of a natural exponential function
pcalc103 Graphing an exponential function and its asymptote: \( f(x) = a(e)^x-b + c \)
pcalc491 Using a calculator to evaluate exponential expressions
alge830 Evaluating an exponential function that models a real-world situation
pcalc555 Using a calculator to evaluate exponential expressions involving base e
pcalc919 Evaluating an exponential function with base e that models a real-world situation
arith853 Introduction to compound interest
arith910 Calculating and comparing simple interest and compound interest
alge177 Finding a final amount in a word problem on exponential growth or decay
alge741 Finding the final amount in a word problem on compound interest
alge966 Finding the initial amount and rate of change given an exponential function
alge968 Writing an equation that models exponential growth or decay
alge967 Writing an exponential function rule given a table of ordered pairs
mstat103 Choosing an exponential model and using it to make a prediction
alge993 Comparing linear, polynomial, and exponential functions
pcalc492 Using a calculator to evaluate natural and common logarithmic expressions
pcalc493 Converting between logarithmic and exponential equations
pcalc494 Converting between natural logarithmic and exponential equations
pcalc495 Evaluating logarithmic expressions
alge233 Solving an equation of the form \( \log_a(b) = c \)
pcalc923 Translating the graph of a logarithmic function
alge788 Graphing a logarithmic function: Basic
pcalc800 The graph, domain, and range of a logarithmic function
pcalc801 Domain of a logarithmic function: Advanced
pcalc104 Graphing a logarithmic function: Advanced
pcalc708 Basic properties of logarithms
pcalc511 Using properties of logarithms to evaluate expressions
pcalc779 Expanding a logarithmic expression: Problem type 1
pcalc521 Expanding a logarithmic expression: Problem type 2
pcalc522 Expanding a logarithmic expression: Problem type 3
alge787 Writing an expression as a single logarithm
pcalc612 Change of base for logarithms: Problem type 1
pcalc613 Change of base for logarithms: Problem type 2
pcalc513 Solving a multi-step equation involving a single logarithm: Problem type 1
pcalc510 Solving a multi-step equation involving a single logarithm: Problem type 2
pcalc804 Solving a multi-step equation involving natural logarithms
alge113 Solving an equation involving logarithms on both sides: Problem type 1
pcalc805 Solving an equation involving logarithms on both sides: Problem type 2
alge301 Solving an exponential equation by finding common bases: Linear exponents
alge482 Solving an exponential equation by finding common bases: Linear and quadratic exponents
pcalc920 Solving an exponential equation by using logarithms: Decimal answers, basic
pcalc921 Solving an exponential equation by using natural logarithms: Decimal answers
pcalc523 Solving an exponential equation by using logarithms: Decimal answers, advanced
alge111 Solving an exponential equation by using logarithms: Exact answers in logarithmic form
pcalc802 Solving an exponential equation by using substitution and quadratic factoring
alge178 Finding the time to reach a limit in a word problem on exponential growth or decay
pcalc524 Finding the time in a word problem on compound interest
pcalc508 Finding the time given an exponential function with base e that models a real-world situation
pcalc525 Finding the final amount in a word problem on continuous compound interest
pcalc527 Finding the initial amount in a word problem on continuous compound interest
pcalc526 Finding the final amount in a word problem on continuous exponential growth or decay
pcalc615 Finding the rate or time in a word problem on continuous exponential growth or decay
pcalc528 Finding half-life or doubling time
pcalc529 Writing and evaluating a function modeling continuous exponential growth or decay given doubling time or half-life
pcalc530 Writing and evaluating a function modeling continuous exponential growth or decay given two outputs

Trigonometric Functions

pcalc001 Converting degrees-minutes-seconds to decimal degrees
pcalc002 Converting between degree and radian measure: Problem type 1
pcalc21 Converting between degree and radian measure: Problem type 2
pcalc006 Sketching an angle in standard position
pcalc622 Coterminal angles
pcalc005 Arc length and central angle measure
pcalc623 Area of a sector of a circle
pcalc624 Angular and linear speed
pcalc627 Finding coordinates on the unit circle for special angles
pcalc625 Finding a point on the unit circle given one coordinate
pcalc628 Finding trigonometric ratios from a point on the unit circle
pcalc630 Trigonometric functions and special angles: Problem type 1
pcalc631 Trigonometric functions and special angles: Problem type 2
pcalc632 Amplitude and period of sine and cosine functions
pcalc633 Amplitude, period, and phase shift of sine and cosine functions
pcalc634 Amplitude, period, and phase shift of sine and cosine functions

geom506 Special right triangles: Exact answers
geom699 Sine, cosine, and tangent ratios: Numbers for side lengths
geom699 Sine, cosine, and tangent ratios: Variables for side lengths
geom606 Using the Pythagorean Theorem to find a trigonometric ratio
geom608 Finding trigonometric ratios given a right triangle
geom317 Understanding trigonometric ratios through similar right triangles
geom316 Relationship between the sines and cosines of complementary angles
geom318 Using similar right triangles to find trigonometric ratios
pcalc607 Using a trigonometric ratio to find a side length in a right triangle
pcalc610 Using trigonometry to find a length in a word problem with one right triangle
pcalc608 Using a trigonometric ratio to find an angle measure in a right triangle
pcalc611 Using trigonometry to find angles of elevation or depression in a word problem
pcalc642 Solving a right triangle
pcalc473 Using trigonometry to find a length in a word problem with two right triangles
pcalc626 Reference angles: Problem type 1
pcalc632 Reference angles: Problem type 2
pcalc671 Determining the location of a terminal point given the signs of trigonometric values
pcalc011 Finding values of trigonometric functions given information about an angle: Problem type 1
pcalc012 Finding values of trigonometric functions given information about an angle: Problem type 2
pcalc013 Finding values of trigonometric functions given information about an angle: Problem type 3
pcalc014 Finding values of trigonometric functions given information about an angle: Problem type 4
pcalc445 Sketching the graph of y=a*sin(x) or y=a*cos(x)
palc646 Sketching the graph of y=sin(bx) or y=cos(bx)
palc447 Sketching the graph of y=sin(x)+d or y=cos(x)+d
pcalc448 Sketching the graph of y=sin(x+c) or y=cos(x+c)
palc107 Sketching the graph of y=a*sin(x+c) or y=a*cos(x+c)
palc106 Sketching the graph of y=a*sin(bx) or y=a*cos(bx)
palc014 Sketching the graph of y=a*sin(bx+c) or y=a*cos(bx+c)
palc438 Sketching the graph of y=a*sin(bx)+d or y=a*cos(bx)+d
pcalc633 Amplitude and period of sine and cosine functions
pcalc634 Amplitude, period, and phase shift of sine and cosine functions
pcalc635 Writing the equation of a sine or cosine function given its graph: Problem type 1
pcalc636 Writing the equation of a sine or cosine function given its graph: Problem type 2
pcalc640 Word problem involving a sine or cosine function: Problem type 1
pcalc641 Word problem involving a sine or cosine function: Problem type 2
pcalc474 Sketching a graph of a damped sine or cosine function
pcalc428 Domains and ranges of trigonometric functions
pcalc637 Matching graphs and equations for secant, cosecant, tangent, and cotangent functions
pcalc638 Sketching the graph of a secant or cosecant function: Problem type 2
pcalc105 Sketching the graph of a tangent or cotangent function: Problem type 1
pcalc015 Sketching the graph of a tangent or cotangent function: Problem type 2
pcalc016 Values of inverse trigonometric functions
pcalc018 Composition of a trigonometric function with its inverse trigonometric function: Problem type 1
pcalc420 Composition of a trigonometric function with the inverse of another trigonometric function: Problem type 1
pcalc421 Composition of a trigonometric function with the inverse of another trigonometric function: Problem type 2
pcalc034 Proving trigonometric identities: Problem type 1
pcalc429 Proving trigonometric identities: Problem type 4
pcalc406 Proving trigonometric identities using odd and even properties
pcalc020 Solving a basic trigonometric equation involving sine or cosine
pcalc665 Half-angle identities: Problem type 2
pcalc124 Product-to-sum and sum-to-product identities: Problem type 1
pcalc674 Product-to-sum and sum-to-product identities: Problem type 2
pcalc430 Sum and difference identities: Problem type 3
pcalc650 Finding solutions in an interval for a basic trigonometric equation using a calculator
pcalc651 Finding solutions in an interval for a basic trigonometric equation using Pythagorean identities: Problem type 1
pcalc652 Finding solutions in an interval for a trigonometric equation with a squared function: Problem type 1
pcalc653 Finding solutions in an interval for a trigonometric equation with a squared function: Problem type 2
pcalc654 Finding solutions in an interval for a trigonometric equation using Pythagorean identities: Problem type 1

Trigonometric Identities and Equations

pcalc648 Simplifying trigonometric expressions
pcalc666 Using cofunction identities
pcalc110 Verifying a trigonometric identity
pcalc034 Proving trigonometric identities: Problem type 1
pcalc404 Proving trigonometric identities: Problem type 2
pcalc405 Proving trigonometric identities: Problem type 3
pcalc429 Proving trigonometric identities: Problem type 4
pcalc406 Proving trigonometric identities using odd and even properties
pcalc020 Solving a basic trigonometric equation involving sine or cosine
pcalc021 Solving a basic trigonometric equation involving tangent, secant, or cosecant
pcalc670 Finding solutions in an interval for a trigonometric equation in factored form
pcalc652 Finding solutions in an interval for a trigonometric equation with a squared function: Problem type 1
pcalc653 Finding solutions in an interval for a trigonometric equation with a squared function: Problem type 2
pcalc654 Finding solutions in an interval for a trigonometric equation using Pythagorean identities: Problem type 1
Additional Topics in Trigonometry

pcalc031 Solving a triangle with the law of sines: Problem type 1
pcalc032 Solving a triangle with the law of sines: Problem type 2
pcalc044 Solving a word problem using the law of sines
geom320 Proving the law of sines
pcalc033 Solving a triangle with the law of cosines
geom409 Proving the law of cosines
pcalc045 Solving a word problem using the law of cosines
geom439 Using trigonometry to find the area of a right triangle
pcalc046 Finding the area of a triangle using trigonometry
geom319 Expressing the area of a triangle in terms of the sine of one of its angles
pcalc047 Heron’s formula
vector028 Writing a position vector in ai+bj form given its graph
vector014 Writing a vector in ai+bj form given its initial and terminal points
vector013 Writing a vector in component form given its initial and terminal points
vector015 Magnitude of a vector given in ai+bj form
pcalc060 Magnitude of a vector given in component form
vector016 Vector addition and scalar multiplication: ai+bj form
vector017 Linear combination of vectors: ai+bj form
geom856 Vector addition and scalar multiplication: Component form
vector008 Linear combination of vectors: Component form
pcalc729 Unit vectors
pcalc739 Multiplication of a vector by a scalar: Geometric approach
geom857 Vector addition: Geometric approach
vector007 Vector subtraction: Geometric approach
vector002 Finding the magnitude and direction of a vector given its graph
vector005 Finding the components of a vector given its graph
vector019 Finding the direction angle of a vector given in ai+bj form
vector018 Writing a vector given its magnitude and direction angle
vector020 Writing a vector to represent a force pushing or pulling an object
vector021 Finding the magnitude and direction angle of the resultant force of two vectors
vector011 Finding magnitudes of forces related to a sum of three vectors
vector012 Finding magnitudes of forces related to an object suspended by cables
vector023 Dot product of vectors given in ai+bj form
vector009 Dot product of vectors given in component form
pcalc730 Finding the angle between two vectors given in component form
vector024 Classifying vector relationships by finding the angle between two vectors given in ai + bj form
vector010 Using the dot product to find perpendicular vectors
vector006 Finding the component of a vector along another vector
vector025 Decomposing a vector into two orthogonal vectors
vector026 Finding the amount of work done given a force vector and a distance
vector027 Finding magnitudes of forces related to an object on a ramp
pcalc449 Plotting points in polar coordinates
pcalc450 Multiple representations of polar coordinates
pcalc456 Converting rectangular coordinates to polar coordinates: Special angles
pcalc451 Converting rectangular coordinates to polar coordinates: Decimal answers
pcalc454 Converting polar coordinates to rectangular coordinates
pcalc452 Converting an equation written in rectangular form to one written in polar form: Problem type 1
pcalc453 Converting an equation written in polar form to one written in rectangular form: Problem type 2
pcalc450 Graphing a polar equation: Basic
pcalc455 Graphing a polar equation: Circle
pcalc456 Graphing a polar equation: Limacon
pcalc457 Graphing a polar equation: Rose
pcalc458 Graphing a polar equation: Lemniscate
pcalc459 Matching polar equations with their graphs
pcalc460 Identifying symmetries of graphs given their polar equations
pcalc461 Plotting complex numbers
pcalc462 Writing a complex number in standard form given its trigonometric form
pcalc472 Writing a complex number in trigonometric form: Special angles
pcalc452 Writing a complex number in trigonometric form: Decimal answers
pcalc463 Multiplying and dividing complex numbers in trigonometric form
pcalc464 De Moivre’s Theorem: Answers in trigonometric form
pcalc465 De Moivre’s theorem: Answers in standard form
pcalc480 Finding the nth roots of a number: Problem type 1
pcalc480 Finding the nth roots of a number: Problem type 2

Systems of Equations and Matrices

alge075 Classifying systems of linear equations from graphs
alge916 Solving a system of linear equations with fractional coefficients
alge917 Solving a system of linear equations with decimal coefficients
alge752 Solving a 2x2 system of linear equations that is inconsistent or consistent dependent
alge077 Creating an inconsistent system of linear equations
alge988 Identifying the operations used to create equivalent systems of equations
pcalc099 Consistency and independence of a system of linear equations
alge263 Interpreting the graphs of two functions
alge078 Solving a word problem involving a sum and another basic relationship using a system of linear equations
alge919 Solving a word problem using a system of linear equations of the form Ax + By = C
alge918 Solving a word problem using a system of linear equations of the form y = mx + b
alge184 Solving a value mixture problem using a system of linear equations
alge192 Solving a percent mixture problem using a system of linear equations
alge224 Solving a distance, rate, time problem using a system of linear equations
alge271 Solving a tax rate or interest rate problem using a system of linear equations
pcalc496 Introduction to solving a 3x3 system of linear equations
alge753 Solving a 3x3 system of linear equations: Problem type 1
pcalc497 Solving a 3x3 system of linear equations: Problem type 2
pcalc498 Solving a 3x3 system of linear equations that is inconsistent or consistent dependent
alge793 Solving a word problem using a 3x3 system of linear equations: Problem type 1
pcalc549 Solving a word problem using a 3x3 system of linear equations: Problem type 2
pcalc357 Scalar multiplication of a matrix
pcalc038 Addition or subtraction of matrices
pcalc740 Linear combination of matrices
pcalc507 Squaring and multiplying 2x2 matrices
pcalc039 Multiplication of matrices: Basic
pcalc710 Multiplication of matrices: Advanced
pcalc503 Word problem involving multiplication of matrices
pcalc504 Finding the inverse of a 2x2 matrix
pcalc505 Finding the inverse of a 3x3 matrix
pcalc042 Finding the determinant of a 2x2 matrix
pcalc043 Finding the determinant of a 3x3 matrix
pcalc564 Completing Gauss-Jordan elimination with a 2x2 matrix
pcalc712 Gauss-Jordan elimination with a 2x2 matrix
Conic Sections

pcalc566 Graphing a parabola of the form \( y^2 = ax \) or \( x^2 = ay \)
pcalc575 Graphing a parabola of the form \( x = a(y-k)^2 + h \) or \( y = a(x-h)^2 + k \)
pcalc067 Graphing a parabola of the form \( ay^2 + by + cx + d = 0 \) or \( ax^2 + bx + cy + d = 0 \)
pcalc068 Writing an equation of a parabola given the vertex and the focus
pcalc475 Writing an equation of a parabola given the focus and the directrix
geom494 Deriving the equation of a parabola given its focus and directrix
pcalc476 Finding the vertex, focus, directrix, and axis of symmetry of a parabola
pcalc069 Finding the focus of a parabola of the form \( ay^2 + by + cx + d = 0 \) or \( ax^2 + bx + cy + d = 0 \)
pcalc477 Writing an equation of a parabola given its graph
pcalc478 Word problem involving a parabola
pcalc734 Graphing an ellipse given its equation in standard form
pcalc070 Graphing an ellipse centered at the origin: \( Ax^2 + By^2 = C \)
pcalc071 Graphing an ellipse given its equation in general form
pcalc479 Finding the center, vertices, and foci of an ellipse
pcalc072 Finding the foci of an ellipse given its equation in general form
pcalc074 Writing an equation of an ellipse given the center, an endpoint of an axis, and the length of the other axis
pcalc073 Writing an equation of an ellipse given the foci and the major axis length
pcalc097 Graphing a system of nonlinear inequalities: Problem type 2
pcalc480 Word problem involving an ellipse
pcalc735 Graphing a hyperbola given its equation in standard form
pcalc075 Graphing a hyperbola centered at the origin: \(Ax^2 - By^2 - C = 0\)
pcalc076 Graphing a hyperbola given its equation in general form
pcalc481 Finding the center, vertices, foci, and asymptotes of a hyperbola
pcalc077 Finding the foci of a hyperbola given its equation in general form
pcalc078 Writing an equation of a hyperbola given the foci and the vertices
pcalc482 Writing an equation of a hyperbola given the foci and the asymptotes: Basic
pcalc079 Writing an equation of a hyperbola given the foci and the asymptotes: Advanced
pcalc736 Classifying conics given their equations
pcalc58 Completing a table and choosing a graph given a pair of parametric equations
pcalc539 Writing the equation of a line and sketching its graph given its parametric equations
pcalc540 Writing the equation of a parabola and sketching its graph given its parametric equations
pcalc541 Writing the equation of a circle or ellipse and sketching its graph given its parametric equations
pcalc542 Graphing a pair of parametric equations with a restricted domain: Line or parabola
pcalc563 Graphing a pair of parametric equations with a restricted domain: Circle
pcalc565 Graphing a pair of parametric equations with a restricted domain: Ellipse
pcalc545 Word problem involving parametric equations for projectile motion: Problem type 1
pcalc576 Word problem involving parametric equations for projectile motion: Problem type 2

Sequences, Series, and Probability

alg644 Finding the first terms of an arithmetic sequence using an explicit rule
alg645 Finding the first terms of a geometric sequence using an explicit rule
pcalc08 Finding the first terms of a sequence using an explicit rule with multiple occurrences of \(n\)
alge906 Finding the next terms of an arithmetic sequence with integers
alg908 Finding the first terms of a sequence using a recursive rule
alg979 Identifying arithmetic sequences and finding the common difference
alg981 Finding a specified term of an arithmetic sequence given the first terms
pcalc585 Finding a specified term of an arithmetic sequence given the common difference and first term
pcalc715 Finding a specified term of an arithmetic sequence given two terms of the sequence
alg909 Writing an explicit rule for an arithmetic sequence
alg910 Writing a recursive rule for an arithmetic sequence
pcalc718 Sum of the first \(n\) terms of an arithmetic sequence
alg907 Finding the next terms of a geometric sequence with signed numbers
alg98 Identifying arithmetic and geometric sequences
alg980 Finding geometric sequences and finding the common ratio
alg984 Finding a specified term of a geometric sequence given the first terms
pcalc586 Finding a specified term of a geometric sequence given the common ratio and first term
pcalc717 Finding a specified term of a geometric sequence given two terms of the sequence
pcalc713 Arithmetic and geometric sequences: Identifying and writing an explicit rule
alg911 Writing recursive rules for arithmetic and geometric sequences
pcalc719 Sum of the first \(n\) terms of a geometric sequence
pcalc720 Sum of an infinite geometric series
alg965 Identifying linear, quadratic, and exponential functions given ordered pairs
pcalc582 Factorial expressions
mstat41 Interpreting a tree diagram
mstat49 Introduction to the counting principle
mstat5 Counting principle
mstat7 Computing permutations and combinations
pcalc809 Introduction to permutations and combinations
pcalc810 Permutations and combinations: Problem type 1
pcalc598 Permutations and combinations: Problem type 2
pcalc599 Permutations and combinations: Problem type 3
pcalc87 Binomial formula
mstat059 Determining a sample space and outcomes for a simple event
mstat100 Determining a sample space and outcomes for a compound event
mstat010 Probability of an event
mstat46 Experimental and theoretical probability
stat106 Outcomes and event probability
mstat116 Probabilities of a permutation and a combination
mstat011 Area as probability
stat850 Probability of independent events
stat851 Probability of dependent events
stat117 Probabilities of draws with replacement
stat118 Probabilities of draws without replacement
mstat042 Interpreting a Venn diagram of 2 sets
mstat043 Interpreting a Venn diagram of 3 sets
stat119 Venn diagrams: Two events
stat101 Venn diagrams: Word problems
stat112 Probabilities involving two dice
mstat115 Determining outcomes for compound events and complements of events
mstat109 Using a Venn diagram to understand the addition rule for probability
mstat108 Outcomes and event probability: Addition rule
stat114 Probability of intersection or union: Word problems
mstat104 Identifying independent events given values of probabilities
stat115 Independent events: Basic
stat120 Probability of union: Basic
mstat110 Using a Venn diagram to understand the multiplication rule for probability
mstat107 Outcomes and event probability: Conditional probability
mstat105 Computing conditional probability using a two-way frequency table
mstat106 Computing conditional probability to make an inference using a two-way frequency table
stat116 Conditional probability: Basic
stat109 Intersection and conditional probability
stat174 Binomial problems: Basic
stat155 Binomial problems: Advanced
mstat114 Using a random number table to make a fair decision

Limits and Continuity

pcalc901 Estimating a limit numerically
pcalc902 Finding limits from a graph
pcalc905 Finding a limit by using the limit laws: Problem type 1
pcalc904 Finding limits for a piecewise-defined function
pcalc906 Finding a limit by using the limit laws: Problem type 2
pcalc907 Finding a limit by using the limit laws: Problem type 3
pcalc911 Squeeze Theorem
pcalc903 Determining points of discontinuity from a graph
pcalc914 Determining a parameter to make a function continuous
pcalc915 Infinite limits and graphs
pcalc910 Limits at infinity and graphs
pcalc908 Limits at infinity and rational functions
pcalc909 Infinite limits and rational functions
pcalc913 Finding a limit of a trigonometric function by using continuity
pcalc912 Finding a limit by using special trigonometric limits

B.16 PreCalculus

Algebra and Geometry Review

arith687 Fractional position on a number line
arith605 Plotting rational numbers on a number line
arith691 Ordering integers
arith602 Estimating a square root
APPENDIX B. SYLLABI IN ALEKS

arith712 Ordering real numbers
alg001 Identifying numbers as integers or non-integers
alg002 Identifying numbers as rational or irrational
arith116 Signed fraction addition or subtraction: Basic
arith864 Signed fraction subtraction involving double negation
arith106 Signed fraction addition or subtraction: Advanced
arith811 Addition and subtraction of 3 fractions involving signs
arith822 Signed fraction multiplication: Basic
arith105 Signed fraction multiplication: Advanced
arith814 Signed fraction division
arith104 Operations with absolute value: Problem type 2
alg694 Computing the distance between two integers on a number line
arith702 Exponents and integers: Problem type 1
arith703 Exponents and integers: Problem type 2
arith704 Exponents and signed fractions
arith718 Order of operations with integers
arith600 Order of operations with integers and exponents
alg005 Evaluating a linear expression: Integer multiplication with addition or subtraction
alg808 Evaluating a linear expression: Signed fraction multiplication with addition or subtraction
mstat065 Converting between temperatures in Fahrenheit and Celsius
alg187 Properties of addition
alg188 Properties of real numbers
alg604 Distributive property: Integer coefficients
alg608 Using distribution and combining like terms to simplify: Univariate
alg667 Identifying properties used to simplify an algebraic expression
alg609 Using distribution with double negation and combining like terms to simplify: Multivariate
alg821 Understanding the product rule of exponents
alg024 Introduction to the product rule of exponents
alg311 Product rule with positive exponents: Univariate
alg630 Product rule with positive exponents: Multivariate
arith029 Ordering numbers with positive exponents
alg826 Understanding the power rules of exponents
alg306 Introduction to the power of a power rule of exponents
alg305 Introduction to the power of a product rule of exponents
alg307 Power rules with positive exponents: Multivariate products
alg308 Power rules with positive exponents: Multivariate quotients
alg756 Power and product rules with positive exponents
alg451 Simplifying a ratio of multivariate monomials: Basic
alg827 Introduction to the quotient rule of exponents
alg452 Simplifying a ratio of univariate monomials
alg453 Quotient of expressions involving exponents
alg453 Simplifying a ratio of multivariate monomials: Advanced
alg927 Power and quotient rules with positive exponents
alg790 Evaluating expressions with exponents of zero
arith729 Evaluating an expression with a negative exponent: Whole number base
arith042 Evaluating an expression with a negative exponent: Positive fraction base
arith043 Evaluating an expression with a negative exponent: Negative integer base
arith024 Ordering numbers with negative exponents
alg791 Rewriting an algebraic expression without a negative exponent
alg961 Introduction to the product rule with negative exponents
alg028 Product rule with negative exponents
alg755 Quotient rule with negative exponents: Problem type 1
alg926 Quotient rule with negative exponents: Problem type 2
alg025 Power of a power rule with negative exponents
alg799 Power rules with negative exponents
alg928 Power and quotient rules with negative exponents: Problem type 1
alg929 Power and quotient rules with negative exponents: Problem type 2
alg757 Power, product, and quotient rules with negative exponents
arith036 Scientific notation with positive exponent
arith037 Scientific notation with negative exponent
scinot012 Converting between scientific notation and standard form in a real-world situation
<table>
<thead>
<tr>
<th>Topic</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.16. PRECALCULUS</td>
<td></td>
</tr>
<tr>
<td>scinot008 Multiplying numbers written in scientific notation: Basic</td>
<td></td>
</tr>
<tr>
<td>scinot009 Multiplying numbers written in scientific notation: Advanced</td>
<td></td>
</tr>
<tr>
<td>scinot019 Multiplying numbers written in decimal form or scientific notation in a real-world situation</td>
<td></td>
</tr>
<tr>
<td>scinot010 Dividing numbers written in scientific notation: Basic</td>
<td></td>
</tr>
<tr>
<td>scinot011 Dividing numbers written in scientific notation: Advanced</td>
<td></td>
</tr>
<tr>
<td>scinot013 Finding the scale factor between numbers given in scientific notation in a real-world situation</td>
<td></td>
</tr>
<tr>
<td>alge758 Degree and leading coefficient of a univariate polynomial</td>
<td></td>
</tr>
<tr>
<td>alge603 Degree of a multivariate polynomial</td>
<td></td>
</tr>
<tr>
<td>alge798 Simplifying a sum or difference of two univariate polynomials</td>
<td></td>
</tr>
<tr>
<td>alge029 Simplifying a sum or difference of three univariate polynomials</td>
<td></td>
</tr>
<tr>
<td>alge932 Simplifying a sum or difference of multivariate polynomials</td>
<td></td>
</tr>
<tr>
<td>alge735 Multiplying a univariate polynomial by a monomial with a positive coefficient</td>
<td></td>
</tr>
<tr>
<td>alge972 Multiplying a univariate polynomial by a monomial with a negative coefficient</td>
<td></td>
</tr>
<tr>
<td>alge835 Multiplying a multivariate polynomial by a monomial</td>
<td></td>
</tr>
<tr>
<td>alge033 Multiplying binomials with leading coefficients of 1</td>
<td></td>
</tr>
<tr>
<td>alge983 Multiplying binomials with leading coefficients greater than 1</td>
<td></td>
</tr>
<tr>
<td>alge765 Multiplying binomials in two variables</td>
<td></td>
</tr>
<tr>
<td>alge764 Multiplying conjugate binomials: Univariate</td>
<td></td>
</tr>
<tr>
<td>alge081 Multiplying conjugate binomials: Multivariate</td>
<td></td>
</tr>
<tr>
<td>alge032 Squaring a binomial: Univariate</td>
<td></td>
</tr>
<tr>
<td>alge068 Squaring a binomial: Multivariate</td>
<td></td>
</tr>
<tr>
<td>alge973 Multiplying binomials with negative coefficients</td>
<td></td>
</tr>
<tr>
<td>alge935 Multiplication involving binomials and trinomials in one variable</td>
<td></td>
</tr>
<tr>
<td>alge180 Multiplication involving binomials and trinomials in two variables</td>
<td></td>
</tr>
<tr>
<td>arith034 Prime numbers</td>
<td></td>
</tr>
<tr>
<td>arith035 Prime factorization</td>
<td></td>
</tr>
<tr>
<td>arith033 Greatest common factor of 2 numbers</td>
<td></td>
</tr>
<tr>
<td>alge605 Factoring a linear binomial</td>
<td></td>
</tr>
<tr>
<td>alge736 Introduction to the GCF of two monomials</td>
<td></td>
</tr>
<tr>
<td>alge930 Greatest common factor of three univariate monomials</td>
<td></td>
</tr>
<tr>
<td>alge037 Greatest common factor of two multivariate monomials</td>
<td></td>
</tr>
<tr>
<td>alge738 Factoring out a monomial from a polynomial: Univariate</td>
<td></td>
</tr>
<tr>
<td>alge739 Factoring out a monomial from a polynomial: Multivariate</td>
<td></td>
</tr>
<tr>
<td>alge949 Factoring out a binomial from a polynomial: GCF factoring, basic</td>
<td></td>
</tr>
<tr>
<td>alge923 Factoring a univariate polynomial by grouping: Problem type 1</td>
<td></td>
</tr>
<tr>
<td>alge950 Factoring a univariate polynomial by grouping: Problem type 2</td>
<td></td>
</tr>
<tr>
<td>alge951 Factoring a multivariate polynomial by grouping: Problem type 1</td>
<td></td>
</tr>
<tr>
<td>alge952 Factoring a multivariate polynomial by grouping: Problem type 2</td>
<td></td>
</tr>
<tr>
<td>alge039 Factoring a quadratic with leading coefficient 1</td>
<td></td>
</tr>
<tr>
<td>alge942 Factoring a quadratic in two variables with leading coefficient 1</td>
<td></td>
</tr>
<tr>
<td>alge936 Factoring out a constant before factoring a quadratic</td>
<td></td>
</tr>
<tr>
<td>alge939 Factoring a quadratic with leading coefficient greater than 1: Problem type 1</td>
<td></td>
</tr>
<tr>
<td>alge940 Factoring a quadratic with leading coefficient greater than 1: Problem type 2</td>
<td></td>
</tr>
<tr>
<td>alge941 Factoring a quadratic with leading coefficient greater than 1: Problem type 3</td>
<td></td>
</tr>
<tr>
<td>alge978 Factoring a quadratic by the ac-method</td>
<td></td>
</tr>
<tr>
<td>alge265 Factoring a quadratic in two variables with leading coefficient greater than 1</td>
<td></td>
</tr>
<tr>
<td>alge937 Factoring a quadratic with a negative leading coefficient</td>
<td></td>
</tr>
<tr>
<td>alge944 Factoring a perfect square trinomial with leading coefficient 1</td>
<td></td>
</tr>
<tr>
<td>alge945 Factoring a perfect square trinomial with leading coefficient greater than 1</td>
<td></td>
</tr>
<tr>
<td>alge946 Factoring a perfect square trinomial in two variables</td>
<td></td>
</tr>
<tr>
<td>alge290 Factoring a difference of squares in one variable: Basic</td>
<td></td>
</tr>
<tr>
<td>alge947 Factoring a difference of squares in one variable: Advanced</td>
<td></td>
</tr>
<tr>
<td>alge829 Factoring a difference of squares in two variables</td>
<td></td>
</tr>
<tr>
<td>alge948 Factoring a polynomial involving a GCF and a difference of squares: Univariate</td>
<td></td>
</tr>
<tr>
<td>alge833 Factoring a polynomial involving a GCF and a difference of squares: Multivariate</td>
<td></td>
</tr>
<tr>
<td>alge041 Factoring a product of a quadratic trinomial and a monomial</td>
<td></td>
</tr>
<tr>
<td>alge042 Factoring with repeated use of the difference of squares formula</td>
<td></td>
</tr>
<tr>
<td>alge044 Factoring a sum or difference of two cubes</td>
<td></td>
</tr>
<tr>
<td>pcalc577 Factoring out binomials from a polynomial: GCF factoring, advanced</td>
<td></td>
</tr>
<tr>
<td>pcalc578 Using substitution to factor polynomials</td>
<td></td>
</tr>
<tr>
<td>alg049 Restriction on a variable in a denominator: Linear</td>
<td></td>
</tr>
<tr>
<td>alge454 Simplifying a ratio of factored polynomials: Linear factors</td>
<td></td>
</tr>
</tbody>
</table>
alge455 Simplifying a ratio of factored polynomials: Factors with exponents
alge456 Simplifying a ratio of polynomials using GCF factoring
alge457 Simplifying a ratio of linear polynomials: 1, -1, and no simplification
alge458 Simplifying a ratio of polynomials by factoring a quadratic with leading coefficient 1
alge710 Simplifying a ratio of polynomials: Problem type 1
alge682 Simplifying a ratio of polynomials: Problem type 2
alge459 Simplifying a ratio of polynomials: Problem type 3
alge634 Simplifying a ratio of multivariate polynomials
alge053 Multiplying rational expressions involving multivariate monomials
alge460 Multiplying rational expressions made up of linear expressions
alge620 Multiplying rational expressions involving quadratics with leading coefficients of 1
alge461 Multiplying rational expressions involving quadratics with leading coefficients greater than 1
alge462 Multiplying rational expressions involving multivariate quadratics
alge054 Dividing rational expressions involving multivariate monomials
alge463 Dividing rational expressions involving linear expressions
alge766 Dividing rational expressions involving quadratics with leading coefficients of 1
alge464 Dividing rational expressions involving quadratics with leading coefficients greater than 1
alge465 Dividing rational expressions involving multivariate quadratics
alge466 Multiplication and division of 3 rational expressions
arith070 Least common multiple of 2 numbers
arith804 Least common multiple of 3 numbers
alge737 Introduction to the LCM of two monomials
alge055 Least common multiple of two monomials
alge427 Finding the LCD of rational expressions with linear denominators: Relatively prime
alge428 Finding the LCD of rational expressions with linear denominators: Common factors
alge429 Finding the LCD of rational expressions with quadratic denominators
alge430 Writing equivalent rational expressions with monomial denominators
alge431 Writing equivalent rational expressions with polynomial denominators
alge304 Writing equivalent rational expressions involving opposite factors
alge432 Introduction to adding fractions with variables and common denominators
alge433 Adding rational expressions with common denominators and monomial numerators
alge056 Adding rational expressions with common denominators and binomial numerators
alge434 Adding rational expressions with common denominators and GCF factoring
alge435 Adding rational expressions with common denominators and quadratic factoring
alge436 Adding rational expressions with different denominators and a single occurrence of a variable
alge437 Adding rational expressions with denominators ax and bx: Basic
alge438 Adding rational expressions with denominators ax and bx: Advanced
alge439 Adding rational expressions with denominators axn and bxm
alge440 Adding rational expressions with multivariate monomial denominators: Basic
alge226 Adding rational expressions with multivariate monomial denominators: Advanced
alge441 Adding rational expressions with linear denominators without common factors: Basic
alge442 Adding rational expressions with linear denominators without common factors: Advanced
alge443 Adding rational expressions with linear denominators with common factors: Basic
alge444 Adding rational expressions with linear denominators with common factors: Advanced
alge445 Adding rational expressions with denominators ax-b and b-ax
alge661 Adding rational expressions involving different quadratic denominators
alge446 Adding 3 rational expressions with different quadratic denominators
arith695 Complex fraction without variables: Problem type 1
arith696 Complex fraction without variables: Problem type 2
alge470 Complex fraction involving univariate monomials
alge058 Complex fraction involving multivariate monomials
alge471 Complex fraction: GCF factoring
alge472 Complex fraction: Quadratic factoring
alge473 Complex fraction made of sums involving rational expressions: Problem type 1
alge474 Complex fraction made of sums involving rational expressions: Problem type 2
alge475 Complex fraction made of sums involving rational expressions: Problem type 3
alge476 Complex fraction made of sums involving rational expressions: Problem type 4
alge477 Complex fraction made of sums involving rational expressions: Problem type 5
alge478 Complex fraction made of sums involving rational expressions: Problem type 6
alge479 Complex fraction made of sums involving rational expressions: Multivariate
alge480 Complex fraction with negative exponents: Problem type 1
alge481 Complex fraction with negative exponents: Problem type 2
B.16. PRECALCULUS

alge162 Complex fraction that contains a complex fraction
alge413 Finding all square roots of a number
arith601 Square root of a rational perfect square
arith760 Square roots of perfect squares with signs
arith761 Square roots of integers raised to even exponents
alge415 Introduction to simplifying a radical expression with an even exponent
alge264 Square root of a perfect square monomial
alge603 Introduction to solving an absolute value equation
alge537 Using absolute value to simplify square roots of perfect square monomials
arith094 Cube root of an integer
alge549 Finding nth roots of perfect nth powers with signs
arith768 Finding the nth root of a perfect nth power fraction
alge550 Finding the nth root of a perfect nth power monomial
alge538 Using absolute value to simplify higher radical expressions
alge812 Converting between radical form and exponent form
alge560 Rational exponents: Unit fraction exponents and whole number bases
alge561 Rational exponents: Unit fraction exponents and bases involving signs
alge530 Rational exponents: Non-unit fraction exponent with a whole number base
alge520 Introduction to simplifying a higher radical expression
alge558 Rational exponents: Product rule
alge559 Rational exponents: Quotient rule
alge773 Rational exponents: Products and quotients with negative exponents
alge562 Rational exponents: Power of a power rule
alge249 Rational exponents: Powers of powers with negative exponents
arith762 Simplifying the square root of a whole number less than 100
alge556 Simplifying the square root of a whole number greater than 100
alge080 Simplifying a radical expression with an even exponent
alge520 Introduction to simplifying a radical expression with an odd exponent
alge521 Simplifying a radical expression with an odd exponent
alge275 Simplifying a radical expression with two variables
alge273 Simplifying a higher root of a whole number
alge551 Introduction to simplifying a higher radical expression
alge552 Simplifying a higher radical expression: Univariate
alge811 Simplifying a higher radical expression: Multivariate
arith767 Introduction to square root addition or subtraction
arith032 Square root addition or subtraction
arith764 Introduction to square root multiplication
arith765 Square root multiplication: Basic
arith039 Square root multiplication: Advanced
arith530 Square root addition or subtraction with three terms
alge531 Introduction to simplifying a sum or difference of radical expressions: Univariate
alge532 Simplifying a sum or difference of radical expressions: Univariate
alge084 Simplifying a sum or difference of radical expressions: Multivariate
alge554 Simplifying a sum or difference of higher roots
alge555 Simplifying a sum or difference of higher radical expressions
arith764 Introduction to square root multiplication
arith765 Square root multiplication: Basic
arith039 Square root multiplication: Advanced
alge522 Introduction to simplifying a product of radical expressions: Univariate
alge523 Simplifying a product of radical expressions: Univariate
alge640 Simplifying a product of radical expressions: Multivariate
alge082 Simplifying a product of radical expressions: Multivariate, fractional expressions
alge556 Introduction to simplifying a product of higher roots
alge557 Simplifying a product of higher radical expressions
alge525 Introduction to simplifying a product involving square roots using the distributive property
alge526 Simplifying a product involving square roots using the distributive property: Basic
alge276 Simplifying a product involving square roots using the distributive property: Advanced
alge774 Special products of radical expressions: Conjugates and squaring
arith984 Classifying sums and products as rational or irrational
arith686 Simplifying a quotient of square roots
alge530 Simplifying a quotient involving a sum or difference with a square root
alge527 Rationalizing a denominator: Quotient involving square roots
alge528 Rationalizing a denominator: Square root of a fraction
alge529 Rationalizing a denominator: Quotient involving a monomial
alge534 Rationalizing a denominator using conjugates: Integer numerator
alge535 Rationalizing a denominator using conjugates: Square root in numerator
alge536 Rationalizing a denominator using conjugates: Variable in denominator
alge564 Rationalizing a denominator: Quotient involving a higher radical
alge775 Rationalizing a denominator: Quotient involving higher radicals and monomials
alge563 Simplifying products or quotients of higher radicals with different indices: Univariate
alge776 Simplifying products or quotients of higher radicals with different indices: Multivariate
geom340 Area of a piecewise rectangular figure
geom142 Word problem involving the area between two rectangles
geom801 Area of a triangle
geom922 Area of a parallelogram
geom923 Area of a trapezoid
geom016 Circumference of a circle
geom301 Perimeter involving rectangles and circles
geom802 Circumference and area of a circle
geom477 Circumference and area of a circle: Exact answers in terms of pi
geom302 Area involving rectangles and circles
geom636 Word problem involving the area between two concentric circles
geom214 Area involving inscribed figures
geom311 Volume of a rectangular prism
geom990 Volume of a triangular prism
geom933 Volume of a pyramid
geom935 Volume of a cylinder
geom92 Word problem involving the rate of filling or emptying a cylinder
geom922 Volume of a cone
geom86 Volume of a cone: Exact answers in terms of pi
geom841 Volume of a sphere
geom301 Surface area of a cube or a rectangular prism
geom991 Surface area of a triangular prism
geom621 Surface area of a cylinder
geom934 Surface area of a cylinder: Exact answers in terms of pi
geom842 Surface area of a sphere
alge407 Introduction to the Pythagorean Theorem
geom944 Pythagorean Theorem
alge408 Word problem involving the Pythagorean Theorem

Equations and Inequalities

alge836 Additive property of equality with signed fractions
alge012 Multiplicative property of equality with signed fractions
alge837 Solving a multi-step equation given in fractional form
alge986 Identifying properties used to solve a linear equation
alge011 Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
alge013 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
alge209 Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions
alge420 Solving a linear equation with several occurrences of the variable: Fractional forms with monomial numerators
alge208 Solving a two-step equation with signed fractions
alge061 Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
alge179 Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators
alge742 Solving equations with zero, one, or infinitely many solutions
alge840 Solving a proportion of the form \((x+a)/b = c/d\)
alge511 Solving for a variable in terms of other variables using addition or subtraction: Basic
alge512 Solving for a variable in terms of other variables using addition or subtraction: Advanced
alge513 Solving for a variable in terms of other variables using multiplication or division: Basic
alge514 Solving for a variable in terms of other variables using multiplication or division: Advanced
B.16. PRECALCULUS

alge517 Solving for a variable in terms of other variables using addition or subtraction with division
alge518 Solving for a variable inside parentheses in terms of other variables
alge507 Solving for a variable in terms of other variables in a linear equation with fractions
alge016 Translating a sentence into a one-step equation
alge841 Translating a sentence into a multi-step equation
alge014 Solving a word problem with two unknowns using a linear equation
alge173 Solving a decimal word problem using a linear equation of the form $Ax + B = C$
alge219 Solving a decimal word problem using a linear equation with the variable on both sides
alge704 Solving a fraction word problem using a linear equation with the variable on both sides
alge792 Solving a word problem with three unknowns using a linear equation
alge842 Solving a word problem involving consecutive integers
alge730 Writing a multi-step equation for a real-world situation
alge794 Solving a value mixture problem using a linear equation
alge823 Solving a one-step word problem using the formula $d = rt$
alge796 Solving a distance, rate, time problem using a linear equation
geom817 Finding a side length given the perimeter and side lengths with variables
geom143 Finding the perimeter or area of a rectangle given one of these values
geom838 Circumference ratios
geom530 Solving equations involving vertical angles
geom628 Finding angle measures of a triangle given angles with variables
stat803 Finding the value for a new score that will yield a given mean
arith852 Finding the multiplier to give a final amount after a percentage increase or decrease
arith847 Finding the sale price given the original price and percent discount
arith848 Finding the total cost including tax or markup
arith831 Finding the original price given the sale price and percent discount
arith854 Computing a percent mixture
alge795 Solving a percent mixture problem using a linear equation
arith232 Finding simple interest without a calculator
arith514 Converting a repeating decimal to a fraction
alge864 Solving an absolute value equation: Problem type 1
alge865 Solving an absolute value equation: Problem type 2
alge866 Solving an absolute value equation: Problem type 3
alge867 Solving an absolute value equation: Problem type 4
alge167 Solving an absolute value equation of the form $-ax+b=-cx+d$
alge845 Translating a sentence into a one-step inequality
alge846 Translating a sentence into a multi-step inequality
alge748 Writing an inequality for a real-world situation
alge017 Graphing a linear inequality on the number line
alge822 Writing an inequality given a graph on the number line
alge186 Translating a sentence into a compound inequality
alge166 Graphing a compound inequality on the number line
alge847 Writing a compound inequality given a graph on the number line
set001 Set builder notation
set004 Set builder and interval notation
set002 Union and intersection of finite sets
set005 Union and intersection of intervals
alge844 Identifying solutions to a two-step linear inequality in one variable
alge852 Additive property of inequality with signed fractions
alge964 Multiplicative property of inequality with signed fractions
alge855 Solving a two-step linear inequality: Problem type 1
alge856 Solving a two-step linear inequality: Problem type 2
alge857 Solving a two-step linear inequality with a fractional coefficient
alge977 Solving a linear inequality with multiple occurrences of the variable: Problem type 1
alge858 Solving a linear inequality with multiple occurrences of the variable: Problem type 2
alge859 Solving a linear inequality with multiple occurrences of the variable: Problem type 3
alge860 Solving inequalities with no solution or all real numbers as solutions
alge746 Solving a compound linear inequality: Graph solution, basic
alge747 Solving a compound linear inequality: Interval notation
alge749 Solving a decimal word problem using a two-step linear inequality
alge750 Solving a decimal word problem using a linear inequality with the variable on both sides
alge868 Solving an absolute value inequality: Problem type 1
alge943 Writing an absolute value inequality given a graph on the number line
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>alge869</td>
<td>Solving an absolute value inequality: Problem type 2</td>
</tr>
<tr>
<td>alge870</td>
<td>Solving an absolute value inequality: Problem type 3</td>
</tr>
<tr>
<td>alge871</td>
<td>Solving an absolute value inequality: Problem type 4</td>
</tr>
<tr>
<td>alge872</td>
<td>Solving an absolute value inequality: Problem type 5</td>
</tr>
<tr>
<td>alge271</td>
<td>Solving a proportion of the form $a/(x+b) = c/x$</td>
</tr>
<tr>
<td>alge060</td>
<td>Solving a rational equation that simplifies to linear: Denominator x</td>
</tr>
<tr>
<td>alge205</td>
<td>Solving a rational equation that simplifies to linear: Denominator $x+a$</td>
</tr>
<tr>
<td>alge709</td>
<td>Solving a rational equation that simplifies to linear: Denominators $a, x,$ or $ax$</td>
</tr>
<tr>
<td>alge421</td>
<td>Solving a rational equation that simplifies to linear: Denominators $ax$ and $bx$</td>
</tr>
<tr>
<td>alge422</td>
<td>Solving a rational equation that simplifies to linear: Like binomial denominators</td>
</tr>
<tr>
<td>alge206</td>
<td>Solving a rational equation that simplifies to linear: Unlike binomial denominators</td>
</tr>
<tr>
<td>alge508</td>
<td>Solving for a variable in terms of other variables in a rational equation: Problem type 1</td>
</tr>
<tr>
<td>alge509</td>
<td>Solving for a variable in terms of other variables in a rational equation: Problem type 2</td>
</tr>
<tr>
<td>alge510</td>
<td>Solving for a variable in terms of other variables in a rational equation: Problem type 3</td>
</tr>
<tr>
<td>arith610</td>
<td>Word problem on proportions: Problem type 1</td>
</tr>
<tr>
<td>arith611</td>
<td>Word problem on proportions: Problem type 2</td>
</tr>
<tr>
<td>geom037</td>
<td>Similar polygons</td>
</tr>
<tr>
<td>geom038</td>
<td>Similar right triangles</td>
</tr>
<tr>
<td>geom337</td>
<td>Indirect measurement</td>
</tr>
<tr>
<td>geom133</td>
<td>Ratio of volumes</td>
</tr>
<tr>
<td>arith612</td>
<td>Word problem involving multiple rates</td>
</tr>
<tr>
<td>alge770</td>
<td>Solving a work problem using a rational equation</td>
</tr>
<tr>
<td>alge450</td>
<td>Solving a distance, rate, time problem using a rational equation</td>
</tr>
<tr>
<td>alge059</td>
<td>Ordering fractions with variables</td>
</tr>
<tr>
<td>alge778</td>
<td>Using $i$ to rewrite square roots of negative numbers</td>
</tr>
<tr>
<td>alge779</td>
<td>Simplifying a product and quotient involving square roots of negative numbers</td>
</tr>
<tr>
<td>pcalc048</td>
<td>Adding or subtracting complex numbers</td>
</tr>
<tr>
<td>pcalc049</td>
<td>Multiplying complex numbers</td>
</tr>
<tr>
<td>pcalc050</td>
<td>Dividing complex numbers</td>
</tr>
<tr>
<td>pcalc053</td>
<td>Simplifying a power of $i$</td>
</tr>
<tr>
<td>alge681</td>
<td>Solving an equation written in factored form</td>
</tr>
<tr>
<td>alge956</td>
<td>Finding the roots of a quadratic equation of the form $ax^2 + bx = 0$</td>
</tr>
<tr>
<td>alge045</td>
<td>Finding the roots of a quadratic equation with leading coefficient $1$</td>
</tr>
<tr>
<td>alge048</td>
<td>Finding the roots of a quadratic equation with leading coefficient greater than $1$</td>
</tr>
<tr>
<td>alge211</td>
<td>Solving a quadratic equation needing simplification</td>
</tr>
<tr>
<td>alge046</td>
<td>Roots of a product of polynomials</td>
</tr>
<tr>
<td>alge163</td>
<td>Writing a quadratic equation given the roots and the leading coefficient</td>
</tr>
<tr>
<td>alge703</td>
<td>Solving a word problem using a quadratic equation with rational roots</td>
</tr>
<tr>
<td>alge713</td>
<td>Using the Pythagorean Theorem and a quadratic equation to find side lengths of a right triangle</td>
</tr>
<tr>
<td>alge962</td>
<td>Solving an equation of the form $x^2 = a$ using the square root property</td>
</tr>
<tr>
<td>alge092</td>
<td>Solving a quadratic equation using the square root property: Exact answers, basic</td>
</tr>
<tr>
<td>alge227</td>
<td>Solving a quadratic equation using the square root property: Exact answers, advanced</td>
</tr>
<tr>
<td>alge094</td>
<td>Completing the square</td>
</tr>
<tr>
<td>alge780</td>
<td>Solving a quadratic equation by completing the square: Exact answers</td>
</tr>
<tr>
<td>alge095</td>
<td>Applying the quadratic formula: Exact answers</td>
</tr>
<tr>
<td>alge963</td>
<td>Applying the quadratic formula: Decimal answers</td>
</tr>
<tr>
<td>pcalc051</td>
<td>Solving a quadratic equation with complex roots</td>
</tr>
<tr>
<td>alge214</td>
<td>Discriminant of a quadratic equation</td>
</tr>
<tr>
<td>alge193</td>
<td>Discriminant of a quadratic equation with parameter</td>
</tr>
<tr>
<td>alge824</td>
<td>Solving a word problem using a quadratic equation with irrational roots</td>
</tr>
<tr>
<td>alge093</td>
<td>Solving an equation using the odd-root property: Problem type 1</td>
</tr>
<tr>
<td>alge228</td>
<td>Solving an equation using the odd-root property: Problem type 2</td>
</tr>
<tr>
<td>alge467</td>
<td>Restriction on a variable in a denominator: Quadratic</td>
</tr>
<tr>
<td>alge423</td>
<td>Solving a rational equation that simplifies to linear: Factorable quadratic denominator</td>
</tr>
<tr>
<td>alge424</td>
<td>Solving a rational equation that simplifies to quadratic: Proportional form, basic</td>
</tr>
<tr>
<td>alge425</td>
<td>Solving a rational equation that simplifies to quadratic: Denominator $x$</td>
</tr>
<tr>
<td>alge212</td>
<td>Solving a rational equation that simplifies to quadratic: Binomial denominators, constant numerators</td>
</tr>
<tr>
<td>alge062</td>
<td>Solving a rational equation that simplifies to quadratic: Binomial denominators and numerators</td>
</tr>
<tr>
<td>alge426</td>
<td>Solving a rational equation that simplifies to quadratic: Factorable quadratic denominator</td>
</tr>
<tr>
<td>alge047</td>
<td>Solving a rational equation that simplifies to quadratic: Proportional form, advanced</td>
</tr>
<tr>
<td>alge490</td>
<td>Introduction to solving a radical equation</td>
</tr>
<tr>
<td>alge089</td>
<td>Solving a radical equation that simplifies to a linear equation: One radical, basic</td>
</tr>
</tbody>
</table>
B.16. PRECALCULUS

alge402 Solving a radical equation that simplifies to a linear equation: One radical, advanced
alge900 Solving a radical equation that simplifies to a linear equation: Two radicals
alge403 Solving a radical equation that simplifies to a quadratic equation: One radical, basic
alge404 Solving a radical equation that simplifies to a quadratic equation: One radical, advanced
alge411 Solving a radical equation with a quadratic expression under the radical
alge405 Solving a radical equation with two radicals that simplifies to \( \sqrt{x} = a \)
alge182 Solving a radical equation that simplifies to a quadratic equation: Two radicals
alge412 Algebraic symbol manipulation with radicals
alge542 Word problem involving radical equations: Basic
alge410 Solving an equation with a root index greater than 2: Problem type 1
alge417 Solving an equation with a root index greater than 2: Problem type 2
alge416 Solving an equation with exponent \( \frac{1}{a} \): Problem type 1
alge418 Solving an equation with exponent \( \frac{1}{a} \): Problem type 2
alge230 Solving an equation with positive rational exponent
alge231 Solving an equation with negative rational exponent
alge781 Solving an equation that can be written in quadratic form: Problem type 1
alge782 Solving an equation that can be written in quadratic form: Problem type 2

Graphs and Functions

alge064 Reading a point in the coordinate plane
alge067 Plotting a point in the coordinate plane
arith405 Naming the quadrant or axis of a point given its coordinates
arith406 Naming the quadrant or axis of a point given the signs of its coordinates
geom437 Finding the area of a triangle or parallelogram in the coordinate plane
alge850 Table for a linear equation
alge132 Distance between two points in the plane: Exact answers
alge324 Distance between two points in the plane: Decimal answers
geom323 Identifying scalene, isosceles, and equilateral triangles given coordinates of their vertices
alge191 Midpoint of a line segment in the plane
alge414 Finding an endpoint of a line segment given the other endpoint and the midpoint
alge873 Identifying solutions to a linear equation in two variables
alge066 Finding a solution to a linear equation in two variables
alge877 Graphing a linear equation of the form \( y = mx \)
alge878 Graphing a line given its equation in slope-intercept form: Integer slope
alge879 Graphing a line given its equation in slope-intercept form: Fractional slope
alge880 Graphing a line given its equation in standard form
alge198 Graphing a vertical or horizontal line
alge884 Finding \( x \)- and \( y \)-intercepts given the graph of a line on a grid
alge924 Finding \( x \)- and \( y \)-intercepts of a line given the equation: Basic
alge210 Finding \( x \)- and \( y \)-intercepts of a line given the equation: Advanced
alge197 Graphing a line given its \( x \)- and \( y \)-intercepts
alge881 Graphing a line by first finding its \( x \)- and \( y \)-intercepts
pcalc750 Finding intercepts of a nonlinear function given its graph
pcalc678 Finding \( x \)- and \( y \)-intercepts of the graph of a nonlinear equation
alge913 Graphing an absolute value equation of the form \( y = A - |x| \)
alge954 Graphing a parabola of the form \( y = ax^2 \)
alge955 Graphing a parabola of the form \( y = ax^2 + c \)
alge262 Graphing a cubic function of the form \( y = ax^3 \)
pcalc616 Determining if graphs have symmetry with respect to the \( x \)-axis, \( y \)-axis, or origin
pcalc679 Testing an equation for symmetry about the axes and origin
alge875 Classifying slopes given graphs of lines
alge886 Finding slope given the graph of a line on a grid
alge887 Finding slope given two points on the line
alge885 Finding the slope of horizontal and vertical lines
alge888 Finding the coordinate that yields a given slope
alge299 Graphing a line given its slope and \( y \)-intercept
alge196 Graphing a line through a given point with a given slope
alge876 Identifying linear equations: Advanced
APPENDIX B. SYLLABI IN ALEKS

alge874 Identifying linear functions given ordered pairs
alge891 Rewriting a linear equation in the form $Ax + By = C$
alge889 Finding the slope and y-intercept of a line given its equation in the form $y = mx + b$
alge890 Finding the slope and y-intercept of a line given its equation in the form $Ax+By=C$
alge258 Writing an equation of a line given its slope and y-intercept
alge892 Writing an equation and graphing a line given its slope and y-intercept
alge314 Finding the slope, y-intercept, and equation for a linear function given a table of values
alge893 Writing an equation in slope-intercept form given the slope and a point
alge318 Finding the slope and a point on a line given its equation in point-slope form
alge883 Graphing a line given its equation in point-slope form
alge894 Writing an equation in point-slope form given the slope and a point
alge313 Writing an equation in standard form given the slope and a point
alge070 Writing an equation of a line given the y-intercept and another point
alge072 Writing the equation of the line through two given points
alge073 Writing the equations of vertical and horizontal lines through a given point
alge322 Comparing linear functions to the parent function $y=x$
gem806 Finding slopes of lines parallel and perpendicular to a line given in slope-intercept form
gem807 Finding slopes of lines parallel and perpendicular to a line given in the form $Ax + By = C$
alge895 Identifying parallel and perpendicular lines from equations
gem808 Writing equations of lines parallel and perpendicular to a line given a point through a point
gem462 Identifying parallel and perpendicular lines from coordinates
gem322 Identifying coordinates that give right triangles
alge897 Writing and evaluating a function that models a real-world situation: Advanced
alge654 Graphing ordered pairs and writing an equation from a table of values in context
alge701 Writing an equation and drawing its graph to model a real-world situation: Advanced
alge817 Finding the initial amount and rate of change given a table for a linear function
alge992 Combining functions to write a new function that models a real-world situation
alge987 Comparing properties of linear functions given in different forms
alge989 Interpreting the parameters of a linear function that models a real-world situation
alge805 Application problem with a linear function: Finding a coordinate given the slope and a point
alge806 Application problem with a linear function: Finding a coordinate given two points
alge991 Solving a linear equation by graphing
mstat094 Constructing a scatter plot
mstat023 Scatter plots and correlation
mstat068 Predictions from the line of best fit
mstat067 Approximating the equation of a line of best fit and making predictions
mstat069 Computing residuals
mstat070 Interpreting residual plots
mstat093 Classifying linear and nonlinear relationships from scatter plots
mstat071 Linear relationship and the correlation coefficient
mstat096 Identifying outliers and clustering in scatter plots
mstat095 Finding outliers in a data set
alge914 Identifying solutions to a system of linear equations
alge725 Graphically solving a system of linear equations
palc820 Using a graphing calculator to solve a system of linear equations: Basic
palc821 Using a graphing calculator to solve a system of linear equations: Advanced
alge317 Writing a system of linear equations given its graph
alge751 Solving a system of linear equations using substitution
alge915 Solving a system of linear equations using elimination with addition
alge076 Solving a system of linear equations using elimination with multiplication and addition
gem496 Identifying the center and radius to graph a circle given its equation in standard form
gem497 Identifying the center and radius to graph a circle given its equation in general form: Basic
gem668 Identifying the center and radius to graph a circle given its equation in general form: Advanced
gem499 Writing the equation of a circle centered at the origin given its radius or a point on the circle
gem495 Writing an equation of a circle and identifying points that lie on the circle
gem498 Writing an equation of a circle given its center and radius or diameter
gem493 Deriving the equation of a circle using the Pythagorean Theorem
palc065 Writing an equation of a circle given its center and radius or diameter
palc066 Writing an equation of a circle given the endpoints of a diameter
fun032 Identifying functions from relations
fun010 Vertical line test
fun001 Table for a linear function
pcalc760 Evaluating functions: Linear and quadratic or cubic
alge468 Evaluating a rational function: Problem type 1
alge469 Evaluating a rational function: Problem type 2
alge539 Table for a square root function
alge546 Evaluating a cube root function
pcalc82 Evaluating functions: Absolute value, rational, radical
fun030 Evaluating a piecewise-defined function
fun033 Variable expressions as inputs of functions: Problem type 1
pcalc571 Variable expressions as inputs of functions: Problem type 2
pcalc411 Variable expressions as inputs of functions: Problem type 3
fun016 Domain and range from ordered pairs
alge715 Domain of a rational function: Excluded values
pcalc412 Domain of a rational function: Interval notation
alge540 Domain of a square root function: Basic
pcalc763 Domain of a square root function: Advanced
alge547 Domains of higher root functions
pcalc754 Finding the domain of a fractional function involving radicals
pcalc924 Determining whether an equation defines a function: Basic
pcalc757 Determining whether an equation defines a function: Advanced
alge294 Finding outputs of a one-step function that models a real-world situation: Function notation
alge295 Finding outputs of a two-step function with decimals that models a real-world situation: Function no-
tation
alge296 Finding inputs and outputs of a two-step function that models a real-world situation: Function notation
alge990 Domain and range of a linear function that models a real-world situation
pcalc471 Rewriting a multivariate function as a univariate function given a relationship between its variables
pcalc753 Finding a difference quotient for a linear or quadratic function
pcalc414 Finding a difference quotient for a rational function
fun026 Finding an output of a function from its graph
pcalc761 Finding inputs and outputs of a function from its graph
fun007 Domain and range from the graph of a discrete relation
alge312 Finding domain and range from a linear graph in context
fun024 Domain and range from the graph of a continuous function
pcalc751 Finding where a function is increasing, decreasing, or constant given the graph
pcalc752 Finding local maxima and minima of a function given the graph
pcalc439 Finding the absolute maximum and minimum of a function given the graph
pcalc417 Finding values and intervals where the graph of a function is zero, positive, or negative
mstat018 Choosing a graph to fit a narrative: Basic
mstat051 Choosing a graph to fit a narrative: Advanced
alge86 Graphing an integer function and finding its range for a given domain
alge570 Graphing a function of the form f(x) = ax + b: Integer slope
alge571 Graphing a function of the form f(x) = ax + b: Fractional slope
alge900 Graphing an absolute value equation in the plane: Basic
alge168 Graphing an absolute value equation in the plane: Advanced
alge572 Graphing a function of the form f(x) = ax^2
alge573 Graphing a function of the form f(x) = ax^2 + c
alge293 Graphing a parabola of the form y = (x-h)^2 + k
alge543 Graphing a square root function: Problem type 1
alge544 Graphing a square root function: Problem type 2
alge545 Graphing a square root function: Problem type 3
alge548 Graphing a cube root function
pcalc443 Matching parent graphs with their equations
fun031 Graphing a piecewise-defined function: Problem type 1
pcalc444 Graphing a piecewise-defined function: Problem type 2
pcalc568 Graphing a piecewise-defined function: Problem type 3
pcalc114 Even and odd functions: Problem type 1
pcalc340 Even and odd functions: Problem type 2
pcalc768 Finding the average rate of change of a function
APPENDIX B. SYLLABI IN ALEKS

alge998 Finding the average rate of change of a function given its graph
pcalc442 Word problem involving average rate of change
pcalc441 Writing the equation of a secant line
pcalc467 Translating the graph of a parabola: One step
pcalc465 Translating the graph of a parabola: Two steps
alge723 How the leading coefficient affects the shape of a parabola
pcalc468 Translating the graph of an absolute value function: One step
alge899 Translating the graph of an absolute value function: Two steps
alge901 How the leading coefficient affects the graph of an absolute value function
alge185 Writing an equation for a function after a vertical translation
pcalc469 Translating the graph of a function: One step
pcalc770 Translating the graph of a function: Two steps
pcalc569 Transforming the graph of a function by reflecting over an axis
pcalc470 Transforming the graph of a function by shrinking or stretching
pcalc570 Transforming the graph of a function using more than one transformation
pcalc466 Transforming the graph of a quadratic, cubic, square root, or absolute value function
fun020 Writing an equation for a function after a vertical and horizontal translation
fun019 Sum, difference, and product of two functions
alge786 Quotient of two functions: Basic
pcalc413 Quotient of two functions: Advanced
pcalc756 Combining functions: Advanced
alge716 Introduction to the composition of two functions
fun022 Composition of two functions: Basic
pcalc484 Composition of a function with itself
pcalc776 Expressing a function as a composition of two functions
fun021 Composition of two functions: Domain and range
alge129 Composition of two functions: Advanced
pcalc483 Composition of two functions: Rational
pcalc485 Word problem involving composition of two functions
fun011 Horizontal line test
pcalc777 Determining whether two functions are inverses of each other
fun012 Inverse functions: Linear, discrete
pcalc573 Inverse functions: Quadratic, square root
pcalc572 Inverse functions: Cubic, cube root
alge130 Inverse functions: Rational
pcalc486 Graphing the inverse of a function given its graph
pcalc487 Finding, evaluating, and interpreting an inverse function for a given linear relationship

Polynomial and Rational Functions

alge974 Finding the vertex, x-intercepts, and axis of symmetry from the graph of a parabola
alge569 Graphing a parabola of the form \( y = x^2 + bx + c \)
pcalc574 Graphing a parabola of the form \( y = a(x-h)^2 + k \)
pcalc746 Graphing a parabola of the form \( y = ax^2 + bx + c \): Integer coefficients
pcalc747 Graphing a parabola of the form \( y = ax^2 + bx + c \): Rational coefficients
alge323 Finding the zeros of a quadratic function given its equation
pcalc714 Using a graphing calculator to find the zeros of a quadratic function
alge320 Writing a quadratic function given its zeros
alge277 Finding the \( x \)-intercept(s) and the vertex of a parabola
pcalc783 Using a graphing calculator to find the \( x \)-intercept(s) and vertex of a quadratic function
alge319 Rewriting a quadratic function in standard form
pcalc550 Rewriting a quadratic function to find its vertex and sketch its graph
pcalc775 Finding the maximum or minimum of a quadratic function
alge785 Word problem involving the maximum or minimum of a quadratic function
pcalc551 Word problem involving optimizing area by using a quadratic function
pcalc415 Domain and range from the graph of a quadratic function
pcalc762 Range of a quadratic function
pcalc488 Writing the equation of a quadratic function given its graph
alge957 Solving a quadratic equation by graphing
alge996 Comparing properties of quadratic functions given in different forms
alge702 Classifying the graph of a function
mstat102 Choosing a quadratic model and using it to make a prediction
pcalc546 Identifying polynomial functions
pcalc764 Finding zeros of a polynomial function written in factored form
pcalc547 Finding zeros and their multiplicities given a polynomial function written in factored form
pcalc766 Finding a polynomial of a given degree with given zeros: Real zeros
pcalc765 Finding x- and y-intercepts given a polynomial function
pcalc782 Determining the end behavior of the graph of a polynomial function
pcalc548 Determining end behavior and intercepts to graph a polynomial function
pcalc783 Matching graphs with polynomial functions
pcalc738 Inferring properties of a polynomial function from its graph
pcalc794 Using a graphing calculator to find local extrema of a polynomial function
pcalc115 Using a graphing calculator to solve a word problem involving a local extremum of a polynomial function
alge759 Dividing a polynomial by a monomial: Univariate
alge760 Dividing a polynomial by a monomial: Multivariate
alge761 Polynomial long division: Problem type 1
alge762 Polynomial long division: Problem type 2
alge763 Polynomial long division: Problem type 3
pcalc117 Synthetic division
pcalc786 Using the remainder theorem to evaluate a polynomial
pcalc787 The Factor Theorem
pcalc118 Remainder theorem: Advanced
alge985 Closure properties of integers and polynomials
pcalc741 Using a given zero to write a polynomial as a product of linear factors: Real zeros
pcalc758 Finding all possible rational zeros using the rational zeros theorem: Problem type 1
pcalc759 Finding all possible rational zeros using the rational zeros theorem: Problem type 2
pcalc788 Descartes’ Rule of Signs
pcalc743 Using the rational zeros theorem to find all zeros of a polynomial: Rational zeros
pcalc744 Using the rational zeros theorem to find all zeros of a polynomial: Irrational zeros
pcalc795 Using a graphing calculator to find zeros of a polynomial function
pcalc704 Using a graphing calculator to solve a word problem involving a polynomial of degree 3
pcalc785 Multiplying expressions involving complex conjugates
pcalc767 Finding a polynomial of a given degree with given zeros: Complex zeros
pcalc742 Using a given zero to write a polynomial as a product of linear factors: Complex zeros
pcalc745 Using the rational zeros theorem to find all zeros of a polynomial: Complex zeros
pcalc703 Using the conjugate zeros theorem to find all zeros of a polynomial
pcalc705 Linear factors theorem and conjugate zeros theorem
pcalc552 Finding the intercepts, asymptotes, domain, and range from the graph of a rational function
pcalc917 Finding the asymptotes of a rational function: Constant over linear
pcalc918 Finding the asymptotes of a rational function: Linear over linear
pcalc790 Finding horizontal and vertical asymptotes of a rational function: Quadratic numerator or denominator
pcalc562 Finding the asymptotes of a rational function: Quadratic over linear
alge515 Graphing a rational function: Constant over linear
alge516 Graphing a rational function: Linear over linear
pcalc553 Transforming the graph of a rational function
pcalc109 Graphing a rational function: Quadratic over linear
pcalc792 Graphing rational functions with holes
pcalc791 Matching graphs with rational functions: Two vertical asymptotes
pcalc557 Graphing a rational function with more than one vertical asymptote
pcalc706 Writing the equation of a rational function given its graph
pcalc556 Using a graphing calculator to solve a word problem involving a local extremum of a rational function
alge784 Solving a quadratic inequality written in factored form
alge771 Solving a quadratic inequality
pcalc558 Solving a polynomial inequality: Problem type 1
pcalc560 Solving a polynomial inequality: Problem type 2
pcalc561 Solving a polynomial inequality: Problem type 3
pcalc559 Solving a polynomial inequality: Problem type 4
alge783 Solving a rational inequality: Problem type 1
pcalc677 Solving a rational inequality: Problem type 2
alge982 Identifying direct variation equations
alge938 Identifying direct variation from ordered pairs and writing equations
APPENDIX B. SYLLABI IN ALEKS

alge904 Writing a direct variation equation
alge175 Word problem on direct variation
alge828 Interpreting direct variation from a graph
alge905 Writing an inverse variation equation
alge903 Identifying direct and inverse variation equations
alge902 Identifying direct and inverse variation from ordered pairs and writing equations
alge176 Word problem on inverse variation
alge220 Word problem on inverse proportions
pcalc681 Writing an equation that models variation
alge772 Word problem on combined variation

Exponential and Logarithmic Functions

alge971 Table for an exponential function
pcalc488 Graphing an exponential function: \( f(x)=bx \)
pcalc489 Graphing an exponential function: \( f(x) = a(b)^x \)
pcalc567 Graphing an exponential function: \( f(x)=b-x \) or \( f(x)=-bax \)
pcalc922 Translating the graph of an exponential function
alge321 Finding domain and range from the graph of an exponential function
pcalc797 The graph, domain, and range of an exponential function
pcalc490 Transforming the graph of a natural exponential function
pcalc103 Graphing an exponential function and its asymptote: \( f(x) = a(e)^x + b \)
pcalc491 Using a calculator to evaluate exponential expressions
alge820 Evaluating an exponential function that models a real-world situation
pcalc555 Using a calculator to evaluate exponential expressions involving base e
pcalc919 Evaluating an exponential function with base e that models a real-world situation
arith853 Introduction to compound interest
arith910 Calculating and comparing simple interest and compound interest
alge717 Finding a final amount in a word problem on exponential growth or decay
alge741 Finding the final amount in a word problem on compound interest
alge966 Finding the initial amount and rate of change given an exponential function
alge967 Writing an exponential function rule given a table of ordered pairs
mstat103 Choosing an exponential model and using it to make a prediction
alge993 Comparing linear, polynomial, and exponential functions
pcalc492 Using a calculator to evaluate natural and common logarithmic expressions
pcalc493 Converting between logarithmic and exponential equations
pcalc494 Converting between natural logarithmic and exponential equations
pcalc495 Evaluating logarithmic expressions
alge233 Solving an equation of the form \( \log_b a = c \)
pcalc923 Translating the graph of a logarithmic function
alge788 Graphing a logarithmic function: Basic
pcalc800 The graph, domain, and range of a logarithmic function
pcalc801 Domain of a logarithmic function: Advanced
pcalc104 Graphing a logarithmic function: Advanced
pcalc708 Basic properties of logarithms
pcalc511 Using properties of logarithms to evaluate expressions
pcalc779 Expanding a logarithmic expression: Problem type 1
pcalc521 Expanding a logarithmic expression: Problem type 2
pcalc522 Expanding a logarithmic expression: Problem type 3
alge787 Writing an expression as a single logarithm
pcalc612 Change of base for logarithms: Problem type 1
pcalc613 Change of base for logarithms: Problem type 2
pcalc513 Solving a multi-step equation involving a single logarithm: Problem type 1
pcalc510 Solving a multi-step equation involving a single logarithm: Problem type 2
pcalc804 Solving a multi-step equation involving natural logarithms
alge113 Solving an equation involving logarithms on both sides: Problem type 1
pcalc905 Solving an equation involving logarithms on both sides: Problem type 2
alge301 Solving an exponential equation by finding common bases: Linear exponents
alge482 Solving an exponential equation by finding common bases: Linear and quadratic exponents
pcalc920 Solving an exponential equation by using logarithms: Decimal answers, basic
pcalc921 Solving an exponential equation by using natural logarithms: Decimal answers
pcalc523 Solving an exponential equation by using logarithms: Decimal answers, advanced
alge111 Solving an exponential equation by using logarithms: Exact answers in logarithmic form
alge182 Solving an exponential equation by using substitution and quadratic factoring
alge188 Finding the time to reach a limit in a word problem on exponential growth or decay
pcalc524 Finding the time in a word problem on compound interest
pcalc588 Finding the time given an exponential function with base \( e \) that models a real-world situation
pcalc527 Finding the final amount in a word problem on continuous compound interest
pcalc526 Finding the initial amount in a word problem on continuous exponential growth or decay
pcalc615 Finding the rate or time in a word problem on continuous exponential growth or decay
pcalc528 Finding half-life or doubling time
pcalc529 Writing and evaluating a function modeling continuous exponential growth or decay given doubling time or half-life
pcalc530 Writing and evaluating a function modeling continuous exponential growth or decay given two outputs

Trigonometric Functions

pcalc001 Converting degrees-minutes-seconds to decimal degrees
pcalc661 Converting a decimal degree to degrees-minutes-seconds
pcalc002 Converting between degree and radian measure: Problem type 1
pcalc621 Converting between degree and radian measure: Problem type 2
pcalc005 Sketching an angle in standard position
pcalc622 Coterminal angles
pcalc005 Arc length and central angle measure
pcalc623 Area of a sector of a circle
pcalc624 Angular and linear speed
pcalc627 Finding coordinates on the unit circle for special angles
pcalc625 Finding a point on the unit circle given one coordinate
pcalc629 Trigonometric functions and special angles: Problem type 1
pcalc631 Trigonometric functions and special angles: Problem type 3
pcalc409 Evaluating expressions involving sine and cosine
pcalc627 Even and odd properties of trigonometric functions
pcalc609 Using a calculator to approximate sine, cosine, and tangent values
pcalc408 Using a calculator to approximate secant, cosecant, and cotangent values
pcalc410 Evaluating a sinusoidal function that models a real-world situation
geom306 Special right triangles: Exact answers
pcalc409 Sine, cosine, and tangent ratios: Numbers for side lengths
pcalc409 Sine, cosine, and tangent ratios: Variables for side lengths
pcalc409 Using the Pythagorean Theorem to find a trigonometric ratio
pcalc408 Finding trigonometric ratios given a right triangle
geom317 Understanding trigonometric ratios through similar right triangles
geom316 Relationship between the sines and cosines of complementary angles
geom318 Using similar right triangles to find trigonometric ratios
pcalc407 Using a trigonometric ratio to find a side length in a right triangle
pcalc610 Using trigonometry to find a length in a word problem with one right triangle
pcalc608 Using a trigonometric ratio to find an angle measure in a right triangle
pcalc611 Using trigonometry to find angles of elevation or depression in a word problem
pcalc642 Solving a right triangle
pcalc642 Using trigonometry to find a length in a word problem with two right triangles
pcalc642 Reference angles: Problem type 1
pcalc642 Reference angles: Problem type 2
pcalc671 Determining the location of a terminal point given the signs of trigonometric values
pcalc611 Finding values of trigonometric functions given information about an angle: Problem type 1
pcalc612 Finding values of trigonometric functions given information about an angle: Problem type 2
pcalc613 Finding values of trigonometric functions given information about an angle: Problem type 3
pcalc426 Finding values of trigonometric functions given information about an angle: Problem type 4
PCALC445 Sketching the graph of $y = a\sin(x)$ or $y = a\cos(x)$
PCALC446 Sketching the graph of $y = \sin(bx)$ or $y = \cos(bx)$
PCALC447 Sketching the graph of $y = \sin(x) + d$ or $y = \cos(x) + d$
PCALC448 Sketching the graph of $y = a\sin(x+c)$ or $y = a\cos(x+c)$
PCALC106 Sketching the graph of $y = a\sin(bx)$ or $y = a\cos(bx)$
PCALC014 Sketching the graph of $y = a\sin(bx+c)$ or $y = a\cos(bx+c)$
PCALC438 Sketching the graph of $y = a\sin(bx) + d$ or $y = a\cos(bx) + d$
PCALC634 Amplitude, period, and phase shift of sine and cosine functions
PCALC635 Writing the equation of a sine or cosine function given its graph: Problem type 1
PCALC636 Writing the equation of a sine or cosine function given its graph: Problem type 2
PCALC640 Word problem involving a sine or cosine function: Problem type 1
PCALC641 Word problem involving a sine or cosine function: Problem type 2
PCALC474 Sketching a graph of a damped sine or cosine function
PCALC428 Domains and ranges of trigonometric functions
PCALC637 Matching graphs and equations for secant, cosecant, tangent, and cotangent functions
PCALC017 Sketching the graph of a secant or cosecant function: Problem type 1
PCALC638 Sketching the graph of a secant or cosecant function: Problem type 2
PCALC105 Sketching the graph of a tangent or cotangent function: Problem type 1
PCALC015 Sketching the graph of a tangent or cotangent function: Problem type 2
PCALC016 Values of inverse trigonometric functions
PCALC018 Composition of a trigonometric function with its inverse trigonometric function: Problem type 1
PCALC419 Composition of a trigonometric function with its inverse trigonometric function: Problem type 2
PCALC420 Composition of a trigonometric function with the inverse of another trigonometric function: Problem type 1
PCALC421 Composition of a trigonometric function with the inverse of another trigonometric function: Problem type 2
PCALC034 Proving trigonometric identities: Problem type 1
PCALC404 Proving trigonometric identities: Problem type 1
PCALC405 Proving trigonometric identities: Problem type 2
PCALC429 Proving trigonometric identities: Problem type 4
PCALC406 Proving trigonometric identities using odd and even properties
PCALC424 Sum and difference identities: Problem type 1
PCALC463 Sum and difference identities: Problem type 2
PCALC464 Sum and difference identities: Problem type 3
PCALC430 Sum and difference identities: Problem type 4
PCALC431 Proving trigonometric identities using sum and difference properties: Problem type 1
PCALC432 Proving trigonometric identities using sum and difference properties: Problem type 2
PCALC430 Double-angle identities: Problem type 1
PCALC467 Double-angle identities: Problem type 2
PCALC434 Double-angle identities: Problem type 3
PCALC437 Power-reducing identities
PCALC662 Half-angle identities: Problem type 1
PCALC665 Half-angle identities: Problem type 2
PCALC124 Product-to-sum and sum-to-product identities: Problem type 1
PCALC674 Product-to-sum and sum-to-product identities: Problem type 2
PCALC492 Proving trigonometric identities using double-angle properties
PCALC436 Proving trigonometric identities using sum-to-product formulas
Additional Topics in Trigonometry

pcalc631 Solving a triangle with the law of sines: Problem type 1
pcalc632 Solving a triangle with the law of sines: Problem type 2
pcalc644 Solving a word problem using the law of sines
geom320 Proving the law of sines
pcalc633 Solving a triangle with the law of cosines
geom409 Proving the law of cosines
pcalc645 Solving a word problem using the law of cosines
geom439 Using trigonometry to find the area of a right triangle
pcalc646 Finding the area of a triangle using trigonometry
geom319 Expressing the area of a triangle in terms of the sine of one of its angles
pcalc647 Heron’s formula
vector028 Writing a position vector in ai+bj form given its graph
vector014 Writing a vector in ai+bj form given its initial and terminal points
vector013 Writing a vector in component form given its initial and terminal points
vector015 Magnitude of a vector given in ai+bj form
pcalc606 Magnitude of a vector given in component form
vector016 Vector addition and scalar multiplication: ai+bj form
vector017 Linear combination of vectors: ai+bj form
geom856 Vector addition and scalar multiplication: Component form
vector008 Linear combination of vectors: Component form
pcalc729 Unit vectors
pcalc739 Multiplication of a vector by a scalar: Geometric approach
geom857 Vector addition: Geometric approach
vector007 Vector subtraction: Geometric approach
vector002 Finding the magnitude and direction of a vector given its graph
vector005 Finding the components of a vector given its graph
vector019 Finding the direction angle of a vector given in ai+bj form
vector018 Writing a vector given its magnitude and direction angle
vector020 Writing a vector to represent a force pushing or pulling an object
vector021 Finding the magnitude and direction angle of the resultant force of two vectors
vector011 Finding magnitudes of forces related to a sum of three vectors
vector012 Finding magnitudes of forces related to an object suspended by cables
APPENDIX B. SYLLABI IN ALEKS

vector023 Dot product of vectors given in ai+bj form
vector009 Dot product of vectors given in component form
pcalc730 Finding the angle between two vectors given in component form
vector024 Classifying vector relationships by finding the angle between two vectors given in ai + bj form
vector010 Using the dot product to find perpendicular vectors
vector006 Finding the component of a vector along another vector
vector025 Decomposing a vector into two orthogonal vectors
vector026 Finding the amount of work done given a force vector and a distance
vector027 Finding magnitudes of forces related to an object on a ramp
pcalc49 Plotting points in polar coordinates
pcalc50 Multiple representations of polar coordinates
pcalc056 Converting rectangular coordinates to polar coordinates: Special angles
pcalc45 Converting rectangular coordinates to polar coordinates: Decimal answers
pcalc057 Converting polar coordinates to rectangular coordinates
pcalc058 Converting an equation written in rectangular form to one written in polar form
pcalc452 Converting an equation written in polar form to one written in rectangular form: Problem type 1
pcalc453 Converting an equation written in polar form to one written in rectangular form: Problem type 2
pcalc454 Graphing a polar equation: Basic
pcalc455 Graphing a polar equation: Circle
pcalc456 Graphing a polar equation: Limacon
pcalc457 Graphing a polar equation: Rose
pcalc458 Graphing a polar equation: Lemniscate
pcalc459 Matching polar equations with their graphs
pcalc460 Identifying symmetries of graphs given their polar equations
pcalc461 Plotting complex numbers
pcalc462 Writing a complex number in standard form given its trigonometric form
pcalc472 Writing a complex number in trigonometric form: Special angles
pcalc052 Writing a complex number in trigonometric form: Decimal answers
pcalc463 Multiplying and dividing complex numbers in trigonometric form
pcalc464 De Moivre’s Theorem: Answers in trigonometric form
pcalc054 De Moivre’s theorem: Answers in standard form
pcalc807 Finding the nth roots of a number: Problem type 1
pcalc808 Finding the nth roots of a number: Problem type 2

Systems of Equations and Matrices

alge075 Classifying systems of linear equations from graphs
alge916 Solving a system of linear equations with fractional coefficients
alge917 Solving a system of linear equations with decimal coefficients
alge752 Solving a 2x2 system of linear equations that is inconsistent or consistent dependent
alge077 Creating an inconsistent system of linear equations
alge988 Identifying the operations used to create equivalent systems of equations
pcalc099 Consistency and independence of a system of linear equations
alge263 Interpreting the graphs of two functions
alge078 Solving a word problem involving a sum and another basic relationship using a system of linear equations
alge919 Solving a word problem using a system of linear equations of the form Ax + By = C
alge918 Solving a word problem using a system of linear equations of the form y = mx + b
alge184 Solving a value mixture problem using a system of linear equations
alge192 Solving a percent mixture problem using a system of linear equations
alge224 Solving a distance, rate, time problem using a system of linear equations
alge172 Solving a tax rate or interest rate problem using a system of linear equations
pcalc496 Introduction to solving a 3x3 system of linear equations
alge753 Solving a 3x3 system of linear equations: Problem type 1
pcalc497 Solving a 3x3 system of linear equations: Problem type 2
pcalc498 Solving a 3x3 system of linear equations that is inconsistent or consistent dependent
alge793 Solving a word problem using a 3x3 system of linear equations: Problem type 1
pcalc549 Solving a word problem using a 3x3 system of linear equations: Problem type 2
pcalc637 Scalar multiplication of a matrix
pcalc038 Addition or subtraction of matrices
pcalc740 Linear combination of matrices
B.16. PRECALCULUS

pcalc507 Squaring and multiplying 2x2 matrices
pcalc039 Multiplication of matrices: Basic
pcalc710 Multiplication of matrices: Advanced
pcalc503 Word problem involving multiplication of matrices
pcalc504 Finding the inverse of a 2x2 matrix
pcalc505 Finding the inverse of a 3x3 matrix
pcalc042 Finding the determinant of a 2x2 matrix
pcalc043 Finding the determinant of a 3x3 matrix
pcalc712 Gauss-Jordan elimination with a 2x2 matrix
pcalc500 Writing solutions to 3x3 systems of linear equations from augmented matrices
pcalc499 Completing Gauss-Jordan elimination with a 3x3 matrix
pcalc502 Finding the inverse of a matrix to solve a 2x2 system of linear equations
pcalc711 Using the inverse of a matrix to solve a 3x3 system of linear equations
pcalc046 Solving a system of linear equations given its augmented matrix
pcalc504 Using Cramer’s rule to solve a 2x2 system of linear equations
pcalc047 Using Cramer’s rule to solve a 3x3 system of linear equations
pcalc531 Introduction to partial fraction decomposition with distinct linear factors
pcalc812 Partial fraction decomposition with distinct linear factors
pcalc813 Partial fraction decomposition with repeated linear factors
pcalc814 Partial fraction decomposition with an irreducible quadratic factor
pcalc533 Partial fraction decomposition with repeated, irreducible quadratic factors
alge994 Graphically solving a system of linear and quadratic equations
pcalc716 Using a graphing calculator to solve a system of linear and quadratic equations: Basic
pcalc796 Using a graphing calculator to solve a system of equations
pcalc806 Using a graphing calculator to solve an exponential or logarithmic equation
alge995 Solving a system of linear and quadratic equations
pcalc098 Solving a system of nonlinear equations: Problem type 1
pcalc534 Solving a system of nonlinear equations: Problem type 2
pcalc535 Solving a word problem involving geometry using a system of nonlinear equations
alge912 Identifying solutions to a linear inequality in two variables
alge225 Graphing a linear inequality in the plane: Vertical or horizontal line
alge720 Graphing a linear inequality in the plane: Slope-intercept form
alge618 Graphing a linear inequality in the plane: Standard form
alge315 Writing an inequality given its graph in the plane: Horizontal or vertical boundary line
alge316 Writing an inequality given its graph in the plane: Slanted boundary line
pcalc748 Graphing a quadratic inequality: Problem type 1
pcalc749 Graphing a quadratic inequality: Problem type 2
pcalc536 Graphing an inequality involving a circle
alge079 Graphing a system of two linear inequalities: Basic
alge921 Graphing a system of two linear inequalities: Advanced
alge922 Graphing a system of three linear inequalities
pcalc537 Graphing a system of nonlinear inequalities: Problem type 1
alge720 Writing a multi-step inequality for a real-world situation
pcalc538 Solving a word problem using a system of linear inequalities: Problem type 1
pcalc539 Solving a word problem using a system of linear inequalities: Problem type 2
pcalc095 Linear programming
pcalc094 Solving a word problem using linear programming

Conic Sections

pcalc566 Graphing a parabola of the form y^2 = ax or x^2 = ay
pcalc575 Graphing a parabola of the form x=a(y-k)^2+h or y=a(x-h)^2+k
pcalc067 Graphing a parabola of the form ay^2 + by + cx + d = 0 or ax^2 + bx + cy + d = 0
pcalc068 Writing an equation of a parabola given the vertex and the focus
pcalc475 Writing an equation of a parabola given the focus and the directrix
geom491 Deriving the equation of a parabola given its focus and directrix
pcalc476 Finding the vertex, focus, directrix, and axis of symmetry of a parabola
pcalc069 Finding the focus of a parabola of the form ay^2 + by + cx + d = 0 or ax^2 + bx + cy + d = 0
pcalc477 Writing an equation of a parabola given its graph
Sequences, Series, and Probability

alge644 Finding the first terms of an arithmetic sequence using an explicit rule
alge645 Finding the first terms of a geometric sequence using an explicit rule
pcalc080 Finding the first terms of a sequence using an explicit rule with multiple occurrences of n
alge906 Finding the next terms of an arithmetic sequence with integers
alge908 Finding the first terms of a sequence using a recursive rule
alge979 Identifying arithmetic sequences and finding the common difference
alge981 Finding a specified term of an arithmetic sequence given the first term
alge984 Finding a specified term of an arithmetic sequence given the first terms
pcalc086 Finding a specified term of a geometric sequence given the common ratio and first term
pcalc087 Finding a specified term of a geometric sequence given two terms of the sequence
alge909 Writing an explicit rule for an arithmetic sequence
alge910 Writing a recursive rule for an arithmetic sequence
pcalc718 Sum of the first n terms of an arithmetic sequence
alge907 Finding the next terms of a geometric sequence with signed numbers
alge981 Identifying arithmetic and geometric sequences
alge980 Identifying geometric sequences and finding the common ratio
alge984 Finding a specified term of a geometric sequence given the first terms
pcalc086 Finding a specified term of a geometric sequence given the common ratio and first term
pcalc087 Finding a specified term of a geometric sequence given two terms of the sequence
alge909 Arithmetic and geometric sequences: Identifying and writing an explicit rule
alge911 Writing recursive rules for arithmetic and geometric sequences
alge912 Sum of the first n terms of a geometric sequence
alge965 Identifying linear, quadratic, and exponential functions given ordered pairs
pcalc082 Factorial expressions
mstat041 Interpreting a tree diagram
mstat040 Introduction to the counting principle
mstat015 Counting principle
mstat017 Computing permutations and combinations
pcalc809 Introduction to permutations and combinations
pcalc810 Permutations and combinations: Problem type 1
pcalc808 Permutations and combinations: Problem type 2
pcalc090 Permutations and combinations: Problem type 3
pcalc087 Binomial formula
mstat099 Determining a sample space and outcomes for a simple event
mstat100 Determining a sample space and outcomes for a compound event
mstat010 Probability of an event
mstat046 Experimental and theoretical probability
stat106 Outcomes and event probability
mstat116 Probabilities of a permutation and a combination
mstat011 Area as probability
stat850 Probability of independent events
stat851 Probability of dependent events
stat117 Probabilities of draws with replacement
stat118 Probabilities of draws without replacement
mstat042 Interpreting a Venn diagram of 2 sets
mstat043 Interpreting a Venn diagram of 3 sets
stat119 Venn diagrams: Two events
stat101 Venn diagrams: Word problems
stat112 Probabilities involving two dice
mstat115 Determining outcomes for compound events and complements of events
mstat109 Using a Venn diagram to understand the addition rule for probability
mstat108 Outcomes and event probability: Addition rule
stat114 Probability of intersection or union: Word problems
mstat104 Identifying independent events given values of probabilities
stat115 Independent events: Basic
stat120 Probability of union: Basic
mstat110 Using a Venn diagram to understand the multiplication rule for probability
mstat107 Outcomes and event probability: Conditional probability
mstat105 Computing conditional probability using a two-way frequency table
mstat106 Computing conditional probability to make an inference using a two-way frequency table
stat116 Conditional probability: Basic
stat109 Intersection and conditional probability
stat174 Binomial problems: Basic
stat115 Binomial problems: Advanced
mstat114 Using a random number table to make a fair decision

Limits and Continuity

pcalc901 Estimating a limit numerically
pcalc902 Finding limits from a graph
pcalc905 Finding a limit by using the limit laws: Problem type 1
pcalc904 Finding limits for a piecewise-defined function
pcalc906 Finding a limit by using the limit laws: Problem type 2
pcalc907 Finding a limit by using the limit laws: Problem type 3
pcalc911 Squeeze Theorem
pcalc903 Determining points of discontinuity from a graph
pcalc914 Determining a parameter to make a function continuous
pcalc915 Infinite limits and graphs
pcalc910 Limits at infinity and graphs
pcalc908 Limits at infinity and rational functions
pcalc909 Infinite limits and rational functions
pcalc913 Finding a limit of a trigonometric function by using continuity
pcalc912 Finding a limit by using special trigonometric limits
B.17 STEM PreCalculus

Algebra and Geometry Review

arith687 Fractional position on a number line
arith695 Plotting rational numbers on a number line
arith691 Ordering integers
arith602 Estimating a square root
arith712 Ordering real numbers
alge001 Identifying numbers as integers or non-integers
alge002 Identifying numbers as rational or irrational
arith116 Signed fraction addition or subtraction: Basic
arith864 Signed fraction subtraction involving double negation
arith106 Signed fraction addition or subtraction: Advanced
arith811 Addition and subtraction of 3 fractions involving signs
arith822 Signed fraction multiplication: Basic
arith105 Signed fraction multiplication: Advanced
arith814 Signed fraction division
arith104 Operations with absolute value: Problem type 2
alge702 Exponents and integers: Problem type 1
alge703 Exponents and integers: Problem type 2
alge704 Exponents and signed fractions
arith118 Order of operations with integers
arith600 Order of operations with integers and exponents
alge005 Evaluating a linear expression: Integer multiplication with addition or subtraction
alge004 Evaluating a quadratic expression: Integers
alge808 Evaluating a linear expression: Signed fraction multiplication with addition or subtraction
mstat065 Converting between temperatures in Fahrenheit and Celsius
alge187 Properties of addition
alge188 Properties of real numbers
alge604 Distributive property: Integer coefficients
alge608 Using distribution and combining like terms to simplify: Univariate
alge607 Identifying properties used to simplify an algebraic expression
alge609 Using distribution with double negation and combining like terms to simplify: Multivariate
alge821 Understanding the product rule of exponents
alge024 Introduction to the product rule of exponents
alge311 Product rule with positive exponents: Univariate
alge030 Product rule with positive exponents: Multivariate
arith029 Ordering numbers with positive exponents
alge306 Introduction to the power of a power rule of exponents
alge305 Introduction to the power of a product rule of exponents
alge307 Power rules with positive exponents: Multivariate products
alge308 Power rules with positive exponents: Multivariate quotients
alge756 Power and product rules with positive exponents
alge451 Simplifying a ratio of multivariate monomials: Basic
alge827 Introduction to the quotient rule of exponents
alge452 Simplifying a ratio of univariate monomials
alge026 Quotient of expressions involving exponents
alge453 Simplifying a ratio of multivariate monomials: Advanced
alge927 Power and quotient rules with positive exponents
alge790 Evaluating expressions with exponents of zero
arith729 Evaluating an expression with a negative exponent: Whole number base
arith042 Evaluating an expression with a negative exponent: Positive fraction base
arith043 Evaluating an expression with a negative exponent: Negative integer base
arith024 Ordering numbers with negative exponents
alge791 Rewriting an algebraic expression without a negative exponent
alge961 Introduction to the product rule with negative exponents
alge028 Product rule with negative exponents
alge755 Quotient rule with negative exponents: Problem type 1
alge926 Quotient rule with negative exponents: Problem type 2
alge025 Power of a power rule with negative exponents
alge799 Power rules with negative exponents
alge928 Power and quotient rules with negative exponents: Problem type 2
alge757 Power, product, and quotient rules with negative exponents
arith036 Scientific notation with positive exponent
arith037 Scientific notation with negative exponent
scinot012 Converting between scientific notation and standard form in a real-world situation
scinot008 Multiplying numbers written in scientific notation: Basic
scinot009 Multiplying numbers written in scientific notation: Advanced
scinot019 Multiplying numbers written in decimal form or scientific notation in a real-world situation
scinot10 Dividing numbers written in scientific notation: Basic
scinot11 Dividing numbers written in scientific notation: Advanced
scinot13 Finding the scale factor between numbers given in scientific notation in a real-world situation
alge738 Degree and leading coefficient of a univariate polynomial
alge031 Degree of a multivariate polynomial
alge798 Simplifying a sum or difference of two univariate polynomials
alge029 Simplifying a sum or difference of three univariate polynomials
alge932 Simplifying a sum or difference of multivariate polynomials
alge735 Multiplying a univariate polynomial by a monomial with a positive coefficient
alge972 Multiplying a univariate polynomial by a monomial with a negative coefficient
alge835 Multiplying a multivariate polynomial by a monomial
alge033 Multiplying binomials with leading coefficients of 1
alge983 Multiplying binomials with leading coefficients greater than 1
alge765 Multiplying binomials in two variables
alge764 Multiplying conjugate binomials: Univariate
alge081 Multiplying conjugate binomials: Multivariate
alge032 Squaring a binomial: Univariate
alge068 Squaring a binomial: Multivariate
alge973 Multiplying binomials with negative coefficients
alge905 Multiplication involving binomials and trinomials in one variable
alge180 Multiplication involving binomials and trinomials in two variables
arith034 Prime numbers
arith035 Prime factorization
arith033 Greatest common factor of 2 numbers
alge605 Factoring a linear binomial
alge736 Introduction to the GCF of two monomials
alge930 Greatest common factor of three univariate monomials
alge037 Greatest common factor of two multivariate monomials
alge738 Factoring out a monomial from a polynomial: Univariate
alge739 Factoring out a monomial from a polynomial: Multivariate
alge949 Factoring out a binomial from a polynomial: GCF factoring, basic
alge942 Factoring a univariate polynomial by grouping: Problem type 1
alge950 Factoring a univariate polynomial by grouping: Problem type 2
alge951 Factoring a multivariate polynomial by grouping: Problem type 1
alge952 Factoring a multivariate polynomial by grouping: Problem type 2
alge039 Factoring a quadratic with leading coefficient 1
alge942 Factoring a quadratic in two variables with leading coefficient 1
alge906 Factoring out a constant before factoring a quadratic
alge939 Factoring a quadratic with leading coefficient greater than 1: Problem type 1
alge940 Factoring a quadratic with leading coefficient greater than 1: Problem type 2
alge941 Factoring a quadratic with leading coefficient greater than 1: Problem type 3
alge978 Factoring a quadratic by the ac-method
alge205 Factoring a quadratic in two variables with leading coefficient greater than 1
alge937 Factoring a quadratic with a negative leading coefficient
alge944 Factoring a perfect square trinomial with leading coefficient 1
alge945 Factoring a perfect square trinomial with leading coefficient greater than 1
alge946 Factoring a perfect square trinomial in two variables
alge215 Factoring a difference of squares in one variable: Basic
alge947 Factoring a difference of squares in one variable: Advanced
alge839 Factoring a difference of squares in two variables
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>alge041</td>
<td>Factoring a product of a quadratic trinomial and a monomial</td>
</tr>
<tr>
<td>alge042</td>
<td>Factoring with repeated use of the difference of squares formula</td>
</tr>
<tr>
<td>alge044</td>
<td>Factoring a sum or difference of two cubes</td>
</tr>
<tr>
<td>pcalc577</td>
<td>Factoring out binomials from a polynomial: GCF factoring, advanced</td>
</tr>
<tr>
<td>pcalc578</td>
<td>Using substitution to factor polynomials</td>
</tr>
<tr>
<td>alge049</td>
<td>Restriction on a variable in a denominator: Linear</td>
</tr>
<tr>
<td>alge454</td>
<td>Simplifying a ratio of factored polynomials: Linear factors</td>
</tr>
<tr>
<td>alge455</td>
<td>Simplifying a ratio of factored polynomials: Factors with exponents</td>
</tr>
<tr>
<td>alge456</td>
<td>Simplifying a ratio of polynomials using GCF factoring</td>
</tr>
<tr>
<td>alge457</td>
<td>Simplifying a ratio of linear polynomials: 1, -1, and no simplification</td>
</tr>
<tr>
<td>alge458</td>
<td>Simplifying a ratio of polynomials by factoring a quadratic with leading coefficient 1</td>
</tr>
<tr>
<td>alge710</td>
<td>Simplifying a ratio of polynomials: Problem type 1</td>
</tr>
<tr>
<td>alge682</td>
<td>Simplifying a ratio of polynomials: Problem type 2</td>
</tr>
<tr>
<td>alge459</td>
<td>Simplifying a ratio of polynomials: Problem type 3</td>
</tr>
<tr>
<td>alge604</td>
<td>Simplifying a ratio of multivariate polynomials</td>
</tr>
<tr>
<td>alge053</td>
<td>Multiplying rational expressions involving multivariate monomials</td>
</tr>
<tr>
<td>alge460</td>
<td>Multiplying rational expressions made up of linear expressions</td>
</tr>
<tr>
<td>alge620</td>
<td>Multiplying rational expressions involving quadratics with leading coefficients of 1</td>
</tr>
<tr>
<td>alge461</td>
<td>Multiplying rational expressions involving quadratics with leading coefficients greater than 1</td>
</tr>
<tr>
<td>alge462</td>
<td>Multiplying rational expressions involving multivariate quadratics</td>
</tr>
<tr>
<td>alge054</td>
<td>Dividing rational expressions involving multivariate monomials</td>
</tr>
<tr>
<td>alge463</td>
<td>Dividing rational expressions involving linear expressions</td>
</tr>
<tr>
<td>alge706</td>
<td>Dividing rational expressions involving quadratics with leading coefficients of 1</td>
</tr>
<tr>
<td>alge464</td>
<td>Dividing rational expressions involving quadratics with leading coefficients greater than 1</td>
</tr>
<tr>
<td>alge465</td>
<td>Dividing rational expressions involving multivariate quadratics</td>
</tr>
<tr>
<td>alge466</td>
<td>Multiplication and division of 3 rational expressions</td>
</tr>
<tr>
<td>arith070</td>
<td>Least common multiple of 2 numbers</td>
</tr>
<tr>
<td>arith804</td>
<td>Least common multiple of 3 numbers</td>
</tr>
<tr>
<td>alge737</td>
<td>Introduction to the LCM of two monomials</td>
</tr>
<tr>
<td>alge055</td>
<td>Least common multiple of two monomials</td>
</tr>
<tr>
<td>alge427</td>
<td>Finding the LCD of rational expressions with linear denominators: Relatively prime</td>
</tr>
<tr>
<td>alge428</td>
<td>Finding the LCD of rational expressions with linear denominators: Common factors</td>
</tr>
<tr>
<td>alge429</td>
<td>Finding the LCD of rational expressions with quadratic denominators</td>
</tr>
<tr>
<td>alge430</td>
<td>Writing equivalent rational expressions with monomial denominators</td>
</tr>
<tr>
<td>alge431</td>
<td>Writing equivalent rational expressions with polynomial denominators</td>
</tr>
<tr>
<td>alge304</td>
<td>Writing equivalent rational expressions involving opposite factors</td>
</tr>
<tr>
<td>alge432</td>
<td>Introduction to adding fractions with variables and common denominators</td>
</tr>
<tr>
<td>alge433</td>
<td>Adding rational expressions with common denominators and monomial numerators</td>
</tr>
<tr>
<td>alge056</td>
<td>Adding rational expressions with common denominators and binomial numerators</td>
</tr>
<tr>
<td>alge434</td>
<td>Adding rational expressions with common denominators and GCF factoring</td>
</tr>
<tr>
<td>alge435</td>
<td>Adding rational expressions with common denominators and quadratic factoring</td>
</tr>
<tr>
<td>alge436</td>
<td>Adding rational expressions with different denominators and a single occurrence of a variable</td>
</tr>
<tr>
<td>alge437</td>
<td>Adding rational expressions with denominators ax and bx: Basic</td>
</tr>
<tr>
<td>alge438</td>
<td>Adding rational expressions with denominators ax and bx: Advanced</td>
</tr>
<tr>
<td>alge439</td>
<td>Adding rational expressions with denominators axn and bxm</td>
</tr>
<tr>
<td>alge440</td>
<td>Adding rational expressions with multivariate monomial denominators: Basic</td>
</tr>
<tr>
<td>alge226</td>
<td>Adding rational expressions with multivariate monomial denominators: Advanced</td>
</tr>
<tr>
<td>alge441</td>
<td>Adding rational expressions with linear denominators without common factors: Basic</td>
</tr>
<tr>
<td>alge442</td>
<td>Adding rational expressions with linear denominators without common factors: Advanced</td>
</tr>
<tr>
<td>alge443</td>
<td>Adding rational expressions with linear denominators with common factors: Basic</td>
</tr>
<tr>
<td>alge444</td>
<td>Adding rational expressions with linear denominators with common factors: Advanced</td>
</tr>
<tr>
<td>alge445</td>
<td>Adding rational expressions with denominators ax-b and b-ax</td>
</tr>
<tr>
<td>alge661</td>
<td>Adding rational expressions involving different quadratic denominators</td>
</tr>
<tr>
<td>alge446</td>
<td>Adding 3 rational expressions with different quadratic denominators</td>
</tr>
<tr>
<td>arith695</td>
<td>Complex fraction without variables: Problem type 1</td>
</tr>
<tr>
<td>arith696</td>
<td>Complex fraction without variables: Problem type 2</td>
</tr>
<tr>
<td>alge470</td>
<td>Complex fraction involving univariate monomials</td>
</tr>
<tr>
<td>alge058</td>
<td>Complex fraction involving multivariate monomials</td>
</tr>
<tr>
<td>alge471</td>
<td>Complex fraction: GCF factoring</td>
</tr>
<tr>
<td>alge472</td>
<td>Complex fraction: Quadratic factoring</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
</tr>
<tr>
<td>--------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>alge473</td>
<td>Complex fraction made of sums involving rational expressions: Problem type 1</td>
</tr>
<tr>
<td>alge474</td>
<td>Complex fraction made of sums involving rational expressions: Problem type 2</td>
</tr>
<tr>
<td>alge475</td>
<td>Complex fraction made of sums involving rational expressions: Problem type 3</td>
</tr>
<tr>
<td>alge476</td>
<td>Complex fraction made of sums involving rational expressions: Problem type 4</td>
</tr>
<tr>
<td>alge477</td>
<td>Complex fraction made of sums involving rational expressions: Problem type 5</td>
</tr>
<tr>
<td>alge478</td>
<td>Complex fraction made of sums involving rational expressions: Problem type 6</td>
</tr>
<tr>
<td>alge479</td>
<td>Complex fraction made of sums involving rational expressions: Multivariate</td>
</tr>
<tr>
<td>alge480</td>
<td>Complex fraction with negative exponents: Problem type 1</td>
</tr>
<tr>
<td>alge481</td>
<td>Complex fraction with negative exponents: Problem type 2</td>
</tr>
<tr>
<td>alge162</td>
<td>Complex fraction that contains a complex fraction</td>
</tr>
<tr>
<td>arith601</td>
<td>Finding all square roots of a number</td>
</tr>
<tr>
<td>arith760</td>
<td>Square roots of perfect squares with signs</td>
</tr>
<tr>
<td>alge415</td>
<td>Finding the nth root of a perfect nth power monomial</td>
</tr>
<tr>
<td>alge264</td>
<td>Square root of a perfect square monomial</td>
</tr>
<tr>
<td>alge416</td>
<td>Introduction to solving an absolute value equation</td>
</tr>
<tr>
<td>alge537</td>
<td>Using absolute value to simplify square roots of perfect square monomials</td>
</tr>
<tr>
<td>arith604</td>
<td>Cube root of an integer</td>
</tr>
<tr>
<td>alge549</td>
<td>Finding nth roots of perfect nth powers with signs</td>
</tr>
<tr>
<td>arith768</td>
<td>Finding the nth root of a perfect nth power monomial</td>
</tr>
<tr>
<td>alge550</td>
<td>Finding the nth root of a perfect nth power monomial</td>
</tr>
<tr>
<td>alge538</td>
<td>Using absolute value to simplify higher radical expressions</td>
</tr>
<tr>
<td>alge812</td>
<td>Converting between radical form and exponent form</td>
</tr>
<tr>
<td>alge560</td>
<td>Rational exponents: Unit fraction exponents and whole number bases</td>
</tr>
<tr>
<td>alge561</td>
<td>Rational exponents: Unit fraction exponents and bases involving signs</td>
</tr>
<tr>
<td>alge250</td>
<td>Rational exponents: Non-unit fraction exponent with a whole number base</td>
</tr>
<tr>
<td>alge251</td>
<td>Rational exponents: Negative exponents and fractional bases</td>
</tr>
<tr>
<td>alge558</td>
<td>Rational exponents: Product rule</td>
</tr>
<tr>
<td>alge559</td>
<td>Rational exponents: Quotient rule</td>
</tr>
<tr>
<td>alge773</td>
<td>Rational exponents: Products and quotients with negative exponents</td>
</tr>
<tr>
<td>alge562</td>
<td>Rational exponents: Power of a power rule</td>
</tr>
<tr>
<td>alge249</td>
<td>Rational exponents: Powers of powers with negative exponents</td>
</tr>
<tr>
<td>arith603</td>
<td>Simplifying the square root of a whole number less than 100</td>
</tr>
<tr>
<td>arith762</td>
<td>Simplifying the square root of a whole number greater than 100</td>
</tr>
<tr>
<td>alge550</td>
<td>Simplifying a radical expression with an even exponent</td>
</tr>
<tr>
<td>alge520</td>
<td>Introduction to simplifying a radical expression with an odd exponent</td>
</tr>
<tr>
<td>alge521</td>
<td>Simplifying a radical expression with an odd exponent</td>
</tr>
<tr>
<td>alge275</td>
<td>Simplifying a radical expression with two variables</td>
</tr>
<tr>
<td>alge273</td>
<td>Simplifying a higher root of a whole number</td>
</tr>
<tr>
<td>alge551</td>
<td>Introduction to simplifying a higher radical expression</td>
</tr>
<tr>
<td>alge552</td>
<td>Simplifying a higher radical expression: Univariate</td>
</tr>
<tr>
<td>alge811</td>
<td>Simplifying a higher radical expression: Multivariate</td>
</tr>
<tr>
<td>arith767</td>
<td>Introduction to square root addition or subtraction</td>
</tr>
<tr>
<td>arith632</td>
<td>Square root addition or subtraction</td>
</tr>
<tr>
<td>alge533</td>
<td>Square root addition or subtraction with three terms</td>
</tr>
<tr>
<td>alge531</td>
<td>Introduction to simplifying a sum or difference of radical expressions: Univariate</td>
</tr>
<tr>
<td>alge532</td>
<td>Simplifying a sum or difference of radical expressions: Univariate</td>
</tr>
<tr>
<td>alge084</td>
<td>Simplifying a sum or difference of radical expressions: Multivariate</td>
</tr>
<tr>
<td>alge554</td>
<td>Simplifying a sum or difference of higher roots</td>
</tr>
<tr>
<td>alge555</td>
<td>Simplifying a sum or difference of higher radical expressions</td>
</tr>
<tr>
<td>arith764</td>
<td>Introduction to square root multiplication</td>
</tr>
<tr>
<td>arith765</td>
<td>Square root multiplication: Basic</td>
</tr>
<tr>
<td>arith039</td>
<td>Square root multiplication: Advanced</td>
</tr>
<tr>
<td>alge522</td>
<td>Introduction to simplifying a product of radical expressions: Univariate</td>
</tr>
<tr>
<td>alge523</td>
<td>Simplifying a product of radical expressions: Univariate</td>
</tr>
<tr>
<td>alge640</td>
<td>Simplifying a product of radical expressions: Multivariate</td>
</tr>
<tr>
<td>alge082</td>
<td>Simplifying a product of radical expressions: Multivariate, fractional expressions</td>
</tr>
<tr>
<td>alge556</td>
<td>Introduction to simplifying a product of higher roots</td>
</tr>
<tr>
<td>alge557</td>
<td>Simplifying a product of higher radical expressions</td>
</tr>
<tr>
<td>alge525</td>
<td>Introduction to simplifying a product involving square roots using the distributive property</td>
</tr>
<tr>
<td>alge526</td>
<td>Simplifying a product involving square roots using the distributive property: Basic</td>
</tr>
</tbody>
</table>
APPENDIX B. SYLLABI IN ALEKS

alge276 Simplifying a product involving square roots using the distributive property: Advanced
alge774 Special products of radical expressions: Conjugates and squaring
alge984 Classifying sums and products as rational or irrational
arith766 Simplifying a quotient of square roots
alge530 Simplifying a quotient involving a sum or difference with a square root
alge527 Rationalizing a denominator: Quotient involving square roots
alge528 Rationalizing a denominator: Square root of a fraction
alge529 Rationalizing a denominator: Quotient involving a monomial
alge534 Rationalizing a denominator using conjugates: Integer numerator
alge535 Rationalizing a denominator using conjugates: Square root in numerator
alge536 Rationalizing a denominator using conjugates: Variable in denominator
alge564 Rationalizing a denominator: Quotient involving a higher radical
alge775 Rationalizing a denominator: Quotient involving higher radicals and monomials
alge563 Simplifying products or quotients of higher radicals with different indices: Univariate
alge776 Simplifying products or quotients of higher radicals with different indices: Multivariate
geom340 Area of a piecewise rectangular figure
geom142 Word problem involving the area between two rectangles
geom801 Area of a triangle
geom922 Area of a parallelogram
geom923 Area of a trapezoid
geom016 Circumference of a circle
geom301 Perimeter involving rectangles and circles
geom802 Circumference and area of a circle
geom477 Circumference and area of a circle: Exact answers in terms of pi
geom302 Area involving rectangles and circles
geom836 Word problem involving the area between two concentric circles
geom214 Area involving inscribed figures
geom311 Volume of a rectangular prism
geom909 Volume of a triangular prism
geom033 Volume of a pyramid
geom835 Volume of a cylinder
geom892 Word problem involving the rate of filling or emptying a cylinder
geom922 Volume of a cone
geom986 Volume of a cone: Exact answers in terms of pi
geom841 Volume of a sphere
geom831 Surface area of a cube or a rectangular prism
geom91 Surface area of a triangular prism
geom621 Surface area of a cylinder
geom834 Surface area of a cylinder: Exact answers in terms of pi
geom842 Surface area of a sphere
alge407 Introduction to the Pythagorean Theorem
geom044 Pythagorean Theorem
alge408 Word problem involving the Pythagorean Theorem

Equations and Inequalities

alge836 Additive property of equality with signed fractions
alge012 Multiplicative property of equality with signed fractions
alge837 Solving a multi-step equation given in fractional form
alge986 Identifying properties used to solve a linear equation
alge011 Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
alge013 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
alge209 Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions
alge420 Solving a linear equation with several occurrences of the variable: Fractional forms with monomial numerators
alge208 Solving a two-step equation with signed fractions
alge061 Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional
coefficients

alge179 Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators
alge742 Solving equations with zero, one, or infinitely many solutions
alge840 Solving a proportion of the form \((x+a)/b = c/d\)
alge511 Solving for a variable in terms of other variables using addition or subtraction: Basic
alge512 Solving for a variable in terms of other variables using addition or subtraction: Advanced
alge513 Solving for a variable in terms of other variables using multiplication or division: Basic
alge514 Solving for a variable in terms of other variables using multiplication or division: Advanced
alge517 Solving for a variable in terms of other variables using addition or subtraction with division
alge518 Solving for a variable inside parentheses in terms of other variables
alge507 Solving for a variable in terms of other variables in a linear equation with fractions
alge016 Translating a sentence into a one-step equation
alge841 Translating a sentence into a multi-step equation
alge014 Solving a word problem with two unknowns using a linear equation
alge791 Solving a decimal word problem using a linear equation of the form \(Ax + B = C\)
alge219 Solving a decimal word problem using a linear equation with the variable on both sides
alge794 Solving a fraction word problem using a linear equation with the variable on both sides
alge792 Solving a word problem with three unknowns using a linear equation
alge842 Solving a word problem involving consecutive integers
alge730 Writing a multi-step equation for a real-world situation
alge791 Solving a value mixture problem using a linear equation
alge823 Solving a one-step word problem using the formula \(d = rt\)
alge796 Solving a distance, rate, time problem using a linear equation
geom817 Finding a side length given the perimeter and side lengths with variables
geom143 Finding the perimeter or area of a rectangle given one of these values
geom838 Circumference ratios
geom530 Solving equations involving vertical angles
geom628 Finding angle measures of a triangle given angles with variables
stat803 Finding the value for a new score that will yield a given mean
arith852 Finding the multiplier to give a final amount after a percentage increase or decrease
arith847 Finding the sale price given the original price and percent discount
arith848 Finding the total cost including tax or markup
arith831 Finding the original price given the sale price and percent discount
arith854 Computing a percent mixture
alge795 Solving a percent mixture problem using a linear equation
arith232 Finding simple interest without a calculator
arith854 Converting a repeating decimal to a fraction
alge864 Solving an absolute value equation: Problem type 1
alge865 Solving an absolute value equation: Problem type 2
alge866 Solving an absolute value equation: Problem type 3
alge867 Solving an absolute value equation: Problem type 4
alge167 Solving an absolute value equation of the form \(-ax+b = cx+d\)
alge845 Translating a sentence into a one-step inequality
alge846 Translating a sentence into a multi-step inequality
alge748 Writing an inequality for a real-world situation
alge017 Graphing a linear inequality on the number line
alge822 Writing an inequality given a graph on the number line
alge186 Translating a sentence into a compound inequality
alge166 Graphing a compound inequality on the number line
alge847 Writing a compound inequality given a graph on the number line
set001 Set builder notation
set004 Set builder and interval notation
set002 Union and intersection of finite sets
set005 Union and intersection of intervals
alge844 Identifying solutions to a two-step linear inequality in one variable
alge852 Additive property of inequality with signed fractions
alge964 Multiplicative property of inequality with signed fractions
alge855 Solving a two-step linear inequality: Problem type 1
alge856 Solving a two-step linear inequality: Problem type 2
alge857 Solving a two-step linear inequality with a fractional coefficient
alge977 Solving a linear inequality with multiple occurrences of the variable: Problem type 1
APPENDIX B. SYLLABI IN ALEKS

alge858 Solving a linear inequality with multiple occurrences of the variable: Problem type 2
alge859 Solving a linear inequality with multiple occurrences of the variable: Problem type 3
alge860 Solving inequalities with no solution or all real numbers as solutions
alge746 Solving a compound linear inequality: Graph solution, basic
alge747 Solving a compound linear inequality: Interval notation
alge749 Solving a decimal word problem using a two-step linear inequality
alge750 Solving a decimal word problem using a linear inequality with the variable on both sides
alge868 Solving an absolute value inequality: Problem type 1
alge943 Writing an absolute value inequality given a graph on the number line
alge869 Solving an absolute value inequality: Problem type 2
alge870 Solving an absolute value inequality: Problem type 3
alge871 Solving an absolute value inequality: Problem type 4
alge872 Solving an absolute value inequality: Problem type 5
alge271 Solving a proportion of the form \( \frac{a}{x+b} = \frac{c}{x} \)
alge060 Solving a rational equation that simplifies to linear: Denominator x
alge205 Solving a rational equation that simplifies to linear: Denominator x+a
alge769 Solving a rational equation that simplifies to linear: Denominators a, x, or ax
alge421 Solving a rational equation that simplifies to linear: Denominators ax and bx
alge422 Solving a rational equation that simplifies to linear: Like binomial denominators
alge206 Solving a rational equation that simplifies to linear: Unlike binomial denominators
alge508 Solving for a variable in terms of other variables in a rational equation: Problem type 1
alge509 Solving for a variable in terms of other variables in a rational equation: Problem type 2
alge510 Solving for a variable in terms of other variables in a rational equation: Problem type 3
arith610 Word problem on proportions: Problem type 1
arith611 Word problem on proportions: Problem type 2
geom037 Similar polygons
geom038 Similar right triangles
geom337 Indirect measurement
geom133 Ratio of volumes
arith612 Word problem involving multiple rates
alge770 Solving a work problem using a rational equation
alge450 Solving a distance, rate, time problem using a rational equation
alge059 Ordering fractions with variables
alge778 Using i to rewrite square roots of negative numbers
alge779 Simplifying a product and quotient involving square roots of negative numbers
pcalc048 Adding or subtracting complex numbers
pcalc049 Multiplying complex numbers
pcalc050 Dividing complex numbers
pcalc053 Simplifying a power of i
alge681 Solving an equation written in factored form
alge956 Finding the roots of a quadratic equation of the form \( ax^2 + bx = 0 \)
alge045 Finding the roots of a quadratic equation with leading coefficient 1
alge048 Finding the roots of a quadratic equation with leading coefficient greater than 1
alge211 Solving a quadratic equation needing simplification
alge046 Roots of a product of polynomials
alge163 Writing a quadratic equation given the roots and the leading coefficient
alge703 Solving a word problem using a quadratic equation with rational roots
alge713 Using the Pythagorean Theorem and a quadratic equation to find side lengths of a right triangle
alge962 Solving an equation of the form \( x^2 = a \) using the square root property
alge092 Solving a quadratic equation using the square root property: Exact answers, basic
alge227 Solving a quadratic equation using the square root property: Exact answers, advanced
alge094 Completing the square
alge780 Solving a quadratic equation by completing the square: Exact answers
alge095 Applying the quadratic formula: Exact answers
alge963 Applying the quadratic formula: Decimal answers
pcalc051 Solving a quadratic equation with complex roots
alge214 Discriminant of a quadratic equation
alge193 Discriminant of a quadratic equation with parameter
alge524 Solving a word problem using a quadratic equation with irrational roots
alge693 Solving an equation using the odd-root property: Problem type 1
alge228 Solving an equation using the odd-root property: Problem type 2
alge467 Restriction on a variable in a denominator: Quadratic
Graphs and Functions

- alge064 Reading a point in the coordinate plane
- alge067 Plotting a point in the coordinate plane
- arith405 Naming the quadrant or axis of a point given its coordinates
- arith406 Naming the quadrant or axis of a point given the signs of its coordinates
- geom437 Finding the area of a triangle or parallelogram in the coordinate plane
- alge850 Table for a linear equation
- alge132 Distance between two points in the plane: Exact answers
- alge324 Distance between two points in the plane: Decimal answers
- geom323 Identifying scalene, isosceles, and equilateral triangles given coordinates of their vertices
- alge191 Midpoint of a line segment in the plane
- alge194 Finding an endpoint of a line segment given the other endpoint and the midpoint
- alge873 Identifying solutions to a linear equation in two variables
- alge066 Finding a solution to a linear equation in two variables
- alge877 Graphing a linear equation of the form y = mx
- alge878 Graphing a line given its equation in slope-intercept form: Integer slope
- alge879 Graphing a line given its equation in slope-intercept form: Fractional slope
- alge880 Graphing a line given its equation in standard form
- alge198 Graphing a vertical or horizontal line
- alge884 Finding x- and y-intercepts given the graph of a line on a grid
- alge924 Finding x- and y-intercepts of a line given the equation: Basic
- alge210 Finding x- and y-intercepts of a line given the equation: Advanced
- alge197 Graphing a line given its x- and y-intercepts
- alge881 Graphing a line by first finding its x- and y-intercepts
- pcalc750 Finding intercepts of a nonlinear function given its graph
- pcalc678 Finding x- and y-intercepts of the graph of a nonlinear equation
- alge913 Graphing an absolute value equation of the form y = A – x –
- alge954 Graphing a parabola of the form y = ax²
- alge955 Graphing a parabola of the form y = ax² + c
- alge262 Graphing a cubic function of the form y = ax³
- pcalc416 Determining if graphs have symmetry with respect to the x-axis, y-axis, or origin
pcalc679 Testing an equation for symmetry about the axes and origin
alge875 Classifying slopes given graphs of lines
alge886 Finding slope given the graph of a line on a grid
alge887 Finding slope given two points on the line
alge885 Finding the slope of horizontal and vertical lines
alge888 Finding the coordinate that yields a given slope
alge259 Graphing a line given its slope and y-intercept
alge196 Graphing a line through a given point with a given slope
alge876 Identifying linear equations: Advanced
alge884 Identifying linear functions given ordered pairs
alge891 Rewriting a linear equation in the form Ax + By = C
alge889 Finding the slope and y-intercept of a line given its equation in the form y = mx + b
alge890 Finding the slope and y-intercept of a line given its equation in the form Ax+By=C
alge882 Graphing a line by first finding its slope and y-intercept
alge258 Writing an equation of a line given its slope and y-intercept
alge892 Writing an equation and graphing a line given its slope and y-intercept
alge314 Finding the slope, y-intercept, and equation for a linear function given a table of values
alge893 Writing an equation in slope-intercept form given the slope and a point
alge318 Finding the slope and a point on a line given its equation in point-slope form
alge883 Graphing a line given its equation in point-slope form
alge894 Writing an equation in point-slope form given the slope and a point
alge313 Writing an equation in standard form given the slope and a point
alge070 Writing an equation of a line given the y-intercept and another point
alge072 Writing the equation of the line through two given points
alge073 Writing the equations of vertical and horizontal lines through a given point
alge322 Comparing linear functions to the parent function y=x
geom806 Finding slopes of lines parallel and perpendicular to a line given in slope-intercept form
geom807 Finding slopes of lines parallel and perpendicular to a line given in the form Ax + By = C
alge895 Identifying parallel and perpendicular lines from equations
geom808 Writing equations of lines parallel and perpendicular to a given line through a point
geom462 Identifying parallel and perpendicular lines from coordinates
geom322 Identifying coordinates that give right triangles
alge897 Writing and evaluating a function that models a real-world situation: Advanced
alge654 Graphing ordered pairs and writing an equation from a table of values in context
alge701 Writing an equation and drawing its graph to model a real-world situation: Advanced
alge817 Finding the initial amount and rate of change given a table for a linear function
alge818 Finding the initial amount and rate of change given a graph of a linear function
alge992 Combining functions to write a new function that models a real-world situation
alge987 Comparing properties of linear functions given in different forms
alge989 Interpreting the parameters of a linear function that models a real-world situation
alge805 Application problem with a linear function: Finding a coordinate given the slope and a point
alge806 Application problem with a linear function: Finding a coordinate given two points
alge991 Solving a linear equation by graphing
mstat094 Constructing a scatter plot
mstat030 Sketching the line of best fit
mstat023 Scatter plots and correlation
mstat068 Predictions from the line of best fit
mstat067 Approximating the equation of a line of best fit and making predictions
mstat069 Computing residuals
mstat070 Interpreting residual plots
mstat093 Classifying linear and nonlinear relationships from scatter plots
mstat071 Linear relationship and the correlation coefficient
mstat096 Identifying outliers and clustering in scatter plots
mstat095 Finding outliers in a data set
alge914 Identifying solutions to a system of linear equations
alge725 Graphically solving a system of linear equations
pcalc820 Using a graphing calculator to solve a system of linear equations: Basic
pcalc821 Using a graphing calculator to solve a system of linear equations: Advanced
alge317 Writing a system of linear equations given its graph
alge751 Solving a system of linear equations using substitution
alge915 Solving a system of linear equations using elimination with addition
alge076 Solving a system of linear equations using elimination with multiplication and addition
B.17. STEM PRECALCULUS

geom496 Identifying the center and radius to graph a circle given its equation in standard form
geom497 Identifying the center and radius to graph a circle given its equation in general form: Basic
geom668 Identifying the center and radius to graph a circle given its equation in general form: Advanced
geom499 Writing the equation of a circle centered at the origin given its radius or a point on the circle
geom495 Writing an equation of a circle and identifying points that lie on the circle
geom498 Writing an equation of a circle given its center and radius or diameter
geom493 Deriving the equation of a circle using the Pythagorean Theorem
pcalc065 Writing an equation of a circle given its center and a point on the circle
pcalc066 Writing an equation of a circle given the endpoints of a diameter
fun032 Identifying functions from relations
fun001 Table for a linear function
pcalc760 Evaluating functions: Linear and quadratic or cubic
alge468 Evaluating a rational function: Problem type 1
alge469 Evaluating a rational function: Problem type 2
alge516 Evaluating a square root function
pcalc682 Evaluating functions: Absolute value, rational, radical
fun030 Evaluating a piecewise-defined function
fun033 Variable expressions as inputs of functions: Problem type 1
pcalc571 Variable expressions as inputs of functions: Problem type 2
pcalc411 Variable expressions as inputs of functions: Problem type 3
fun016 Domain and range from ordered pairs
alge715 Domain of a rational function: Excluded values
pcalc412 Domain of a rational function: Interval notation
alge549 Domain of a square root function: Basic
pcalc763 Domain of a square root function: Advanced
alge547 Domains of higher root functions
pcalc754 Finding the domain of a fractional function involving radicals
pcalc924 Determining whether an equation defines a function: Basic
pcalc757 Determining whether an equation defines a function: Advanced
alge294 Finding outputs of a one-step function that models a real-world situation: Function notation
alge295 Finding outputs of a two-step function with decimals that models a real-world situation: Function notation
alge296 Finding inputs and outputs of a two-step function that models a real-world situation: Function notation
alge590 Domain and range of a linear function that models a real-world situation
pcalc471 Rewriting a multivariate function as a univariate function given a relationship between its variables
pcalc753 Finding a difference quotient for a linear or quadratic function
pcalc414 Finding a difference quotient for a rational function
fun026 Finding an output of a function from its graph
pcalc761 Finding inputs and outputs of a function from its graph
fun007 Domain and range from the graph of a discrete relation
alge312 Finding domain and range from a linear graph in context
fun024 Domain and range from the graph of a continuous function
fun025 Domain and range from the graph of a piecewise function
alge999 Finding where a function is increasing, decreasing, or constant given the graph
pcalc751 Finding where a function is increasing, decreasing, or constant given the graph: Interval notation
pcalc752 Finding local maxima and minima of a function given the graph
pcalc439 Finding the absolute maximum and minimum of a function given the graph
pcalc471 Finding values and intervals where the graph of a function is zero, positive, or negative
mstat051 Choosing a graph to fit a narrative: Advanced
alge896 Graphing an integer function and finding its range for a given domain
alge570 Graphing a function of the form \( f(x) = ax + b \): Integer slope
alge571 Graphing a function of the form \( f(x) = ax + b \): Fractional slope
alge900 Graphing an absolute value equation in the plane: Basic
alge168 Graphing an absolute value equation in the plane: Advanced
alge572 Graphing a function of the form \( f(x) = ax \)
alge573 Graphing a function of the form \( f(x) = ax^2 + c \)
alge253 Graphing a parabola of the form \( y = (x-h)^2 + k \)
alge543 Graphing a square root function: Problem type 1
alge544 Graphing a square root function: Problem type 2
alge545 Graphing a square root function: Problem type 3
alge548 Graphing a cube root function
pcalc443 Matching parent graphs with their equations
fun031 Graphing a piecewise-defined function: Problem type 1
pcalc444 Graphing a piecewise-defined function: Problem type 2
pcalc568 Graphing a piecewise-defined function: Problem type 3
pcalc114 Even and odd functions: Problem type 1
pcalc440 Even and odd functions: Problem type 2
pcalc768 Finding the average rate of change of a function
alge998 Finding the average rate of change of a function given its graph
pcalc442 Word problem involving average rate of change
pcalc441 Writing the equation of a secant line
pcalc467 Translating the graph of a parabola: One step
pcalc465 Translating the graph of a parabola: Two steps
alge723 How the leading coefficient affects the shape of a parabola
pcalc468 Translating the graph of an absolute value function: One step
alge899 Translating the graph of an absolute value function: Two steps
alge901 How the leading coefficient affects the graph of an absolute value function
alge185 Writing an equation for a function after a vertical translation
pcalc469 Translating the graph of a function: One step
pcalc770 Translating the graph of a function: Two steps
pcalc566 Translating the graph of a function by reflecting over an axis
pcalc470 Transforming the graph of a function by shrinking or stretching
pcalc570 Transforming the graph of a function using more than one transformation
pcalc466 Transforming the graph of a quadratic, cubic, square root, or absolute value function
fun020 Writing an equation for a function after a vertical and horizontal translation
fun019 Sum, difference, and product of two functions
alge786 Quotient of two functions: Basic
pcalc413 Quotient of two functions: Advanced
pcalc756 Combining functions: Advanced
alge716 Introduction to the composition of two functions
fun022 Composition of two functions: Basic
pcalc484 Composition of a function with itself
pcalc776 Expressing a function as a composition of two functions
fun021 Composition of two functions: Domain and range
alge129 Composition of two functions: Advanced
pcalc483 Composition of two rational functions
pcalc485 Word problem involving composition of two functions
fun011 Horizontal line test
pcalc777 Determining whether two functions are inverses of each other
fun012 Inverse functions: Linear, discrete
pcalc573 Inverse functions: Quadratic, square root
pcalc572 Inverse functions: Cubic, cube root
alge130 Inverse functions: Rational
pcalc486 Graphing the inverse of a function given its graph
pcalc487 Finding, evaluating, and interpreting an inverse function for a given linear relationship

Polynomial and Rational Functions

alge974 Finding the vertex, x-intercepts, and axis of symmetry from the graph of a parabola
alge569 Graphing a parabola of the form \( y = x^2 + bx + c \)
pcalc574 Graphing a parabola of the form \( y = a(x-h)^2 + k \)
pcalc746 Graphing a parabola of the form \( y = ax^2 + bx + c \): Integer coefficients
pcalc747 Graphing a parabola of the form \( y = ax^2 + bx + c \): Rational coefficients
alge323 Finding the zeros of a quadratic function given its equation
pcalc714 Using a graphing calculator to find the zeros of a quadratic function
alge320 Writing a quadratic function given its zeros
alge277 Finding the x-intercept(s) and vertex of a quadratic function
pcalc793 Using a graphing calculator to find the x-intercept(s) and vertex of a quadratic function
alge319 Rewriting a quadratic function in standard form
Rewriting a quadratic function to find its vertex and sketch its graph
Finding the maximum or minimum of a quadratic function
Word problem involving the maximum or minimum of a quadratic function
Domain and range from the graph of a quadratic function
Range of a quadratic function
Writing the equation of a quadratic function given its graph
Solving a quadratic equation by graphing
Comparing properties of quadratic functions given in different forms
Classifying the graph of a function
Choosing a quadratic model and using it to make a prediction
Identifying polynomial functions
Finding zeros of a polynomial function written in factored form
Finding zeros and their multiplicities given a polynomial function written in factored form
Finding a polynomial of a given degree with given zeros: Real zeros
Finding x- and y-intercepts given a polynomial function
Determining the end behavior of the graph of a polynomial function
Determining end behavior and intercepts to graph a polynomial function
Matching graphs with polynomial functions
Inferring properties of a polynomial function from its graph
Using a graphing calculator to find local extrema of a polynomial function
Using a graphing calculator to solve a word problem involving a local extremum of a polynomial function
Dividing a polynomial by a monomial: Univariate
Dividing a polynomial by a monomial: Multivariate
Polynomial long division: Problem type 1
Polynomial long division: Problem type 2
Polynomial long division: Problem type 3
Synthetic division
Using the remainder theorem to evaluate a polynomial
The Factor Theorem
Remainder theorem: Advanced
Closure properties of integers and polynomials
Using a given zero to write a polynomial as a product of linear factors: Real zeros
Finding all possible rational zeros using the rational zeros theorem: Problem type 1
Finding all possible rational zeros using the rational zeros theorem: Problem type 2
Descartes’ Rule of Signs
Using the rational zeros theorem to find all zeros of a polynomial: Rational zeros
Using the rational zeros theorem to find all zeros of a polynomial: Irrational zeros
Using a graphing calculator to find zeros of a polynomial function
Using a graphing calculator to solve a word problem involving a polynomial of degree 3
Multiplying expressions involving complex conjugates
Finding a polynomial of a given degree with given zeros: Complex zeros
Using a given zero to write a polynomial as a product of linear factors: Complex zeros
Using the rational zeros theorem to find all zeros of a polynomial: Complex zeros
Using the conjugate zeros theorem to find all zeros of a polynomial
Linear factors theorem and conjugate zeros theorem
Finding the intercepts, asymptotes, domain, and range from the graph of a rational function
Finding the asymptotes of a rational function: Constant over linear
Finding the asymptotes of a rational function: Linear over linear
Finding horizontal and vertical asymptotes of a rational function: Quadratic numerator or denominator
Finding the asymptotes of a rational function: Quadratic over linear
Graphing a rational function: Constant over linear
Graphing a rational function: Linear over linear
Transforming the graph of a rational function
Graphing a rational function: Quadratic over linear
Graphing rational functions with holes
Matching graphs with rational functions: Two vertical asymptotes
Graphing a rational function with more than one vertical asymptote
Writing the equation of a rational function given its graph
Using a graphing calculator to solve a word problem involving a local extremum of a rational function
Solving a quadratic inequality written in factored form
alge771 Solving a quadratic inequality
pcalc558 Solving a polynomial inequality: Problem type 1
pcalc560 Solving a polynomial inequality: Problem type 2
pcalc561 Solving a polynomial inequality: Problem type 3
pcalc559 Solving a polynomial inequality: Problem type 4
alge783 Solving a rational inequality: Problem type 1
pcalc677 Solving a rational inequality: Problem type 2
alge982 Identifying direct variation equations
alge908 Identifying direct variation from ordered pairs and writing equations
alge904 Writing a direct variation equation
alge175 Word problem on direct variation
alge828 Interpreting direct variation from a graph
alge905 Writing an inverse variation equation
alge903 Identifying direct and inverse variation equations
alge902 Identifying direct and inverse variation from ordered pairs and writing equations
alge176 Word problem on inverse variation
alge220 Word problem on inverse proportions
pcalc681 Writing an equation that models variation
alge772 Word problem on combined variation

Exponential and Logarithmic Functions

alge971 Table for an exponential function
pcalc488 Graphing an exponential function: \( f(x) = bx \)
pcalc489 Graphing an exponential function: \( f(x) = a(b)x \)
pcalc567 Graphing an exponential function: \( f(x) = b-x \) or \( f(x) = -bax \)
pcalc922 Translating the graph of an exponential function
alge321 Finding domain and range from the graph of an exponential function
pcalc797 The graph, domain, and range of an exponential function
pcalc490 Transforming the graph of a natural exponential function
pcalc103 Graphing an exponential function and its asymptote: \( f(x) = a(e)x - b + c \)
alge820 Evaluating an exponential function that models a real-world situation
pcalc555 Using a calculator to evaluate exponential expressions involving base e
pcalc919 Evaluating an exponential function with base e that models a real-world situation
arith853 Introduction to compound interest
arith910 Calculating and comparing simple interest and compound interest
alge177 Finding a final amount in a word problem on exponential growth or decay
alge741 Finding the final amount in a word problem on compound interest
alge966 Finding the initial amount and rate of change given an exponential function
alge968 Writing an equation that models exponential growth or decay
alge967 Writing an exponential function rule given a table of ordered pairs
mstat103 Choosing an exponential model and using it to make a prediction
alge993 Comparing linear, polynomial, and exponential functions
pcalc492 Using a calculator to evaluate natural and common logarithmic expressions
pcalc493 Converting between logarithmic and exponential equations
pcalc494 Converting between natural logarithmic and exponential equations
pcalc495 Evaluating logarithmic expressions
alge233 Solving an equation of the form \( \log a = c \)
pcalc708 Graphing a logarithmic function: Basic
pcalc800 The graph, domain, and range of a logarithmic function
pcalc801 Domain of a logarithmic function: Advanced
pcalc104 Graphing a logarithmic function: Advanced
pcalc708 Basic properties of logarithms
pcalc511 Using properties of logarithms to evaluate expressions
pcalc779 Expanding a logarithmic expression: Problem type 1
pcalc521 Expanding a logarithmic expression: Problem type 2
pcalc522 Expanding a logarithmic expression: Problem type 3
alge787 Writing an expression as a single logarithm
B.17. STEM PRECALCULUS

Trigonometric Functions

pcalc001 Converting degrees-minutes-seconds to decimal degrees
pcalc002 Converting between degree and radian measure: Problem type 1
pcalc005 Arc length and central angle measure
pcalc006 Sketching an angle in standard position
pcalc008 Finding trigonometric ratios given a right triangle
geom316 Relationship between the sines and cosines of complementary angles
geom317 Understanding trigonometric ratios through similar right triangles
geom318 Using similar right triangles to find trigonometric ratios
pcalc047 Even and odd properties of trigonometric functions
pcalc061 Converting a decimal degree to degrees-minutes-seconds
pcalc062 Coterminal angles
pcalc063 Area of a sector of a circle
pcalc064 Angular and linear speed
pcalc065 Finding coordinates on the unit circle for special angles
pcalc070 Evaluating expressions involving sine and cosine
pcalc097 Finding a point on the unit circle given one coordinate
pcalc098 Evaluating a sinusoidal function that models a real-world situation
geom506 Special right triangles: Exact answers
pcalc099 Sine, cosine, and tangent ratios: Numbers for side lengths
pcalc100 Sine, cosine, and tangent ratios: Variables for side lengths
pcalc101 Using the Pythagorean Theorem to find a trigonometric ratio
pcalc102 Finding trigonometric ratios given a right triangle
pcalc103 Finding a multi-step equation involving a single logarithm: Problem type 1
pcalc104 Finding a multi-step equation involving a single logarithm: Problem type 2
pcalc105 Using a calculator to approximate sine, cosine, and tangent values
pcalc106 Using a calculator to approximate cosecant, secant, and cotangent values
pcalc107 Using trigonometry to find a length in a word problem with one right triangle
APPENDIX B. SYLLABUS IN ALEKS

Trigonometric Identities and Equations

pcalc648 Simplifying trigonometric expressions
pcalc666 Using cofunction identities
pcalc110 Verifying a trigonometric identity
pcalc034 Proving trigonometric identities: Problem type 1
pcalc404 Proving trigonometric identities: Problem type 2
pcalc405 Proving trigonometric identities: Problem type 3
pcalc429 Proving trigonometric identities: Problem type 4
pcalc406 Proving trigonometric identities using odd and even properties
pcalc029 Sum and difference identities: Problem type 1
pcalc663 Sum and difference identities: Problem type 2
pcalc664 Sum and difference identities: Problem type 3
pcalc430 Sum and difference identities: Problem type 4
pcalc431 Proving trigonometric identities using sum and difference properties: Problem type 1
pcalc432 Proving trigonometric identities using sum and difference properties: Problem type 2
pcalc030 Double-angle identities: Problem type 1
Additional Topics in Trigonometry

pcalc031 Solving a triangle with the law of sines: Problem type 1
pcalc032 Solving a triangle with the law of sines: Problem type 2
pcalc044 Solving a word problem using the law of sines
geom320 Proving the law of sines
pcalc033 Solving a triangle with the law of cosines
geom409 Proving the law of cosines
pcalc045 Solving a word problem using the law of cosines
geom439 Using trigonometry to find the area of a right triangle
pcalc046 Finding the area of a triangle using trigonometry
geom319 Expressing the area of a triangle in terms of the sine of one of its angles
pcalc047 Heron’s formula
vector028 Writing a position vector in ai+bj form given its graph
vector014 Writing a vector in ai+bj form given its initial and terminal points
vector013 Writing a vector in component form given its initial and terminal points
vector015 Magnitude of a vector given in ai+bj form
pcalc060 Magnitude of a vector given in component form
vector016 Vector addition and scalar multiplication: ai+bj form
vector017 Linear combination of vectors: ai+bj form
geom856 Vector addition and scalar multiplication: Component form
vector008 Linear combination of vectors: Component form
pcalc729 Unit vectors
pcalc739 Multiplication of a vector by a scalar: Geometric approach
geom857 Vector addition: Geometric approach
APPENDIX B. SYLLABI IN ALEKS

vector007 Vector subtraction: Geometric approach
vector002 Finding the magnitude and direction of a vector given its graph
vector005 Finding the components of a vector given its graph
vector019 Finding the direction angle of a vector given in ai+bj form
vector018 Writing a vector given its magnitude and direction angle
vector020 Writing a vector to represent a force pushing or pulling an object
vector021 Finding the magnitude and direction angle of the resultant force of two vectors
vector011 Finding magnitudes of forces related to a sum of three vectors
vector012 Finding magnitudes of forces related to an object suspended by cables
vector023 Dot product of vectors given in ai+bj form
vector009 Dot product of vectors given in component form
pcalc730 Finding the angle between two vectors given in component form
vector024 Classifying vector relationships by finding the angle between two vectors given in ai + bj form
vector010 Using the dot product to find perpendicular vectors
vector006 Finding the component of a vector along another vector
vector025 Decomposing a vector into two orthogonal vectors
vector026 Finding the amount of work done given a force vector and a distance
vector027 Finding magnitudes of forces related to an object on a ramp
pcalc449 Plotting points in polar coordinates
pcalc50 Multiple representations of polar coordinates
pcalc56 Converting rectangular coordinates to polar coordinates: Special angles
pcalc51 Converting rectangular coordinates to polar coordinates: Decimal answers
pcalc57 Converting polar coordinates to rectangular coordinates
pcalc55 Converting an equation written in rectangular form to one written in polar form
pcalc52 Converting an equation written in polar form to one written in rectangular form: Problem type 1
pcalc53 Converting an equation written in polar form to one written in rectangular form: Problem type 2
pcalc44 Graphing a polar equation: Basic
pcalc55 Graphing a polar equation: Circle
pcalc56 Graphing a polar equation: Limacon
pcalc57 Graphing a polar equation: Rose
pcalc58 Graphing a polar equation: Lemniscate
pcalc49 Matching polar equations with their graphs
pcalc460 Identifying symmetries of graphs given their polar equations
pcalc461 Plotting complex numbers
pcalc462 Writing a complex number in standard form given its trigonometric form
pcalc472 Writing a complex number in trigonometric form: Special angles
pcalc452 Writing a complex number in trigonometric form: Decimal answers
pcalc463 Multiplying and dividing complex numbers in trigonometric form
pcalc464 De Moivre’s Theorem: Answers in trigonometric form
pcalc454 De Moivre’s theorem: Answers in standard form
pcalc487 Finding the nth roots of a number: Problem type 1
pcalc488 Finding the nth roots of a number: Problem type 2

Systems of Equations and Matrices

alge075 Classifying systems of linear equations from graphs
alge916 Solving a system of linear equations with fractional coefficients
alge917 Solving a system of linear equations with decimal coefficients
alge752 Solving a 2x2 system of linear equations that is inconsistent or consistent dependent
alge077 Creating an inconsistent system of linear equations
alge988 Identifying the operations used to create equivalent systems of equations
pcalc099 Consistency and independence of a system of linear equations
alge263 Interpreting the graphs of two functions
alge078 Solving a word problem involving a sum and another basic relationship using a system of linear equations
alge919 Solving a word problem using a system of linear equations of the form Ax + By = C
alge918 Solving a word problem using a system of linear equations of the form y = mx + b
alge184 Solving a value mixture problem using a system of linear equations
alge192 Solving a percent mixture problem using a system of linear equations
alge224 Solving a distance, rate, time problem using a system of linear equations
alge172 Solving a tax rate or interest rate problem using a system of linear equations
B.17. STEM PRECALCULUS

pcalc496 Introduction to solving a 3x3 system of linear equations
alg753 Solving a 3x3 system of linear equations: Problem type 1
pcalc497 Solving a 3x3 system of linear equations: Problem type 2
pcalc498 Solving a 3x3 system of linear equations that is inconsistent or consistent dependent
alg793 Solving a word problem using a 3x3 system of linear equations: Problem type 1
pcalc549 Solving a word problem using a 3x3 system of linear equations: Problem type 2
pcalc037 Scalar multiplication of a matrix
pcalc038 Addition or subtraction of matrices
pcalc740 Linear combination of matrices
pcalc507 Squaring and multiplying 2x2 matrices
pcalc039 Multiplication of matrices: Basic
pcalc710 Multiplication of matrices: Advanced
pcalc503 Word problem involving multiplication of matrices
pcalc504 Finding the inverse of a 2x2 matrix
pcalc505 Finding the inverse of a 3x3 matrix
pcalc504 Finding the determinant of a 2x2 matrix
pcalc503 Finding the determinant of a 3x3 matrix
pcalc564 Completing Gauss-Jordan elimination with a 2x2 matrix
pcalc712 Gauss-Jordan elimination with a 2x2 matrix
pcalc500 Writing solutions to 3x3 systems of linear equations from augmented matrices
pcalc499 Completing Gauss-Jordan elimination with a 3x3 matrix
pcalc046 Solving a system of linear equations given its augmented matrix
pcalc502 Finding the inverse of a matrix to solve a 2x2 system of linear equations
pcalc711 Using the inverse of a matrix to solve a 3x3 system of linear equations
pcalc045 Using Cramer’s rule to solve a 2x2 system of linear equations
pcalc044 Using Cramer’s rule to solve a 3x3 system of linear equations
pcalc531 Introduction to partial fraction decomposition with distinct linear factors
pcalc812 Partial fraction decomposition with distinct linear factors
pcalc813 Partial fraction decomposition with repeated linear factors
pcalc814 Partial fraction decomposition with an irreducible quadratic factor
pcalc533 Partial fraction decomposition with repeated, irreducible quadratic factors
alg994 Graphically solving a system of linear and quadratic equations
pcalc716 Using a graphing calculator to solve a system of linear and quadratic equations: Basic
pcalc796 Using a graphing calculator to solve a system of equations
pcalc806 Using a graphing calculator to solve an exponential or logarithmic equation
alg995 Solving a system of linear and quadratic equations
pcalc098 Solving a system of nonlinear equations: Problem type 1
pcalc534 Solving a system of nonlinear equations: Problem type 2
pcalc535 Solving a word problem involving geometry using a system of nonlinear equations
alg912 Identifying solutions to a linear inequality in two variables
alg925 Graphing a linear inequality in the plane: Vertical or horizontal line
alg720 Graphing a linear inequality in the plane: Slope-intercept form
alg918 Graphing a linear inequality in the plane: Standard form
alg315 Writing an inequality given its graph in the plane: Horizontal or vertical boundary line
alg316 Writing an inequality given its graph in the plane: Slanted boundary line
pcalc748 Graphing a quadratic inequality: Problem type 1
pcalc749 Graphing a quadratic inequality: Problem type 2
pcalc536 Graphing an inequality involving a circle
alg079 Graphing a system of two linear inequalities: Basic
alg921 Graphing a system of two linear inequalities: Advanced
alg922 Graphing a system of three linear inequalities
pcalc596 Graphing a system of nonlinear inequalities: Problem type 1
alg729 Writing a multi-step inequality for a real-world situation
pcalc093 Solving a word problem using a system of linear inequalities: Problem type 1
pcalc537 Solving a word problem using a system of linear inequalities: Problem type 2
pcalc095 Linear programming
pcalc094 Solving a word problem using linear programming

Conic Sections

pcalc566 Graphing a parabola of the form y2 = ax or x2 = ay
APPENDIX B. SYLLABI IN ALEKS

pcalc575 Graphing a parabola of the form \( x = a(y-k)^2 + h \) or \( y = a(x-h)^2 + k \)
pcalc067 Graphing a parabola of the form \( ay^2 + by + cx + d = 0 \) or \( ax^2 + bx + cy + d = 0 \)
pcalc068 Writing an equation of a parabola given the vertex and the focus
pcalc475 Writing an equation of a parabola given the focus and the directrix
geom494 Deriving the equation of a parabola given its focus and directrix
pcalc476 Finding the vertex, focus, directrix, and axis of symmetry of a parabola
pcalc069 Finding the focus of a parabola of the form \( ay^2 + by + cx + d = 0 \) or \( ax^2 + bx + cy + d = 0 \)
pcalc477 Writing an equation of a parabola given its graph
pcalc734 Graphing an ellipse given its equation in standard form
pcalc070 Graphing an ellipse centered at the origin: \( Ax^2 + By^2 = C \)
pcalc071 Graphing an ellipse given its equation in general form
pcalc479 Finding the center, vertices, and foci of an ellipse
pcalc072 Finding the foci of an ellipse given its equation in general form
pcalc074 Writing an equation of an ellipse given the center, an endpoint of an axis, and the length of the other axis
pcalc073 Writing an equation of an ellipse given the foci and the major axis length
pcalc097 Graphing a system of nonlinear inequalities: Problem type 2
pcalc480 Word problem involving an ellipse
pcalc735 Graphing a hyperbola given its equation in standard form
pcalc075 Graphing a hyperbola centered at the origin: \( Ax^2 - By^2 = C \)
pcalc076 Graphing a hyperbola given its equation in general form
pcalc481 Finding the center, vertices, foci, and asymptotes of a hyperbola
pcalc077 Finding the foci of a hyperbola given its equation in general form
pcalc078 Writing an equation of a hyperbola given the foci and the vertices
pcalc382 Writing an equation of a hyperbola given the foci and the asymptotes: Basic
pcalc079 Writing an equation of a hyperbola given the foci and the asymptotes: Advanced
pcalc736 Classifying conics given their equations
pcalc538 Completing a table and choosing a graph given a pair of parametric equations
pcalc539 Writing the equation of a line and sketching its graph given its parametric equations
pcalc540 Writing the equation of a parabola and sketching its graph given its parametric equations
pcalc541 Writing the equation of a circle or ellipse and sketching its graph given its parametric equations
pcalc542 Graphing a pair of parametric equations with a restricted domain: Line or parabola
pcalc563 Graphing a pair of parametric equations with a restricted domain: Circle
pcalc565 Graphing a pair of parametric equations with a restricted domain: Ellipse
pcalc544 Completing pairs of parametric equations
pcalc545 Word problem involving parametric equations for projectile motion: Problem type 1
pcalc576 Word problem involving parametric equations for projectile motion: Problem type 2

Sequences, Series, and Probability

alge644 Finding the first terms of an arithmetic sequence using an explicit rule
alge645 Finding the first terms of a geometric sequence using an explicit rule
pcalc080 Finding the first terms of a sequence using an explicit rule with multiple occurrences of \( n \)
alge906 Finding the next terms of an arithmetic sequence with integers
alge908 Finding the first terms of a sequence using a recursive rule
alge979 Identifying arithmetic sequences and finding the common difference
alge931 Finding a specified term of an arithmetic sequence given the first terms
pcalc085 Finding a specified term of an arithmetic sequence given the common difference and first term
pcalc715 Finding a specified term of an arithmetic sequence given two terms of the sequence
alge909 Writing an explicit rule for an arithmetic sequence
alge910 Writing a recursive rule for an arithmetic sequence
pcalc718 Sum of the first \( n \) terms of an arithmetic sequence
alge907 Finding the next terms of a geometric sequence with signed numbers
alge981 Identifying arithmetic and geometric sequences
alge980 Identifying geometric sequences and finding the common ratio
alge934 Finding a specified term of a geometric sequence given the first terms
pcalc716 Finding a specified term of a geometric sequence given the common ratio and first term
pcalc717 Finding a specified term of a geometric sequence given two terms of the sequence
pcalc713 Arithmetic and geometric sequences: Identifying and writing an explicit rule
alge911 Writing recursive rules for arithmetic and geometric sequences
pcalc719 Sum of the first n terms of a geometric sequence
pcalc720 Sum of an infinite geometric series
alge965 Identifying linear, quadratic, and exponential functions given ordered pairs
pcalc082 Factorial expressions
mstat041 Interpreting a tree diagram
mstat040 Introduction to the counting principle
mstat015 Counting principle
mstat017 Computing permutations and combinations
pcalc809 Introduction to permutations and combinations
pcalc810 Permutations and combinations: Problem type 1
pcalc808 Permutations and combinations: Problem type 2
pcalc809 Permutations and combinations: Problem type 3
pcalc087 Binomial formula
mstat099 Determining a sample space and outcomes for a simple event
mstat100 Determining a sample space and outcomes for a compound event
mstat010 Probability of an event
mstat046 Experimental and theoretical probability
stat106 Outcomes and event probability
mstat116 Probabilities of a permutation and a combination
mstat011 Area as probability
stat850 Probability of independent events
stat851 Probability of dependent events
stat117 Probabilities of draws with replacement
stat118 Probabilities of draws without replacement
mstat042 Interpreting a Venn diagram of 2 sets
mstat043 Interpreting a Venn diagram of 3 sets
stat119 Venn diagrams: Two events
stat101 Venn diagrams: Word problems
stat112 Probabilities involving two dice
mstat115 Determining outcomes for compound events and complements of events
mstat109 Using a Venn diagram to understand the addition rule for probability
mstat108 Outcomes and event probability: Addition rule
stat114 Probability of intersection or union: Word problems
mstat104 Identifying independent events given values of probabilities
stat115 Independent events: Basic
stat120 Probability of union: Basic
mstat110 Using a Venn diagram to understand the multiplication rule for probability
mstat107 Outcomes and event probability: Conditional probability
mstat105 Computing conditional probability using a two-way frequency table
mstat106 Computing conditional probability to make an inference using a two-way frequency table
stat116 Conditional probability: Basic
stat109 Intersection and conditional probability
stat174 Binomial problems: Basic
stat155 Binomial problems: Advanced
mstat114 Using a random number table to make a fair decision

Limits and Continuity

pcalc901 Estimating a limit numerically
pcalc902 Finding limits from a graph
pcalc905 Finding a limit by using the limit laws: Problem type 1
pcalc904 Finding limits for a piecewise-defined function
pcalc906 Finding a limit by using the limit laws: Problem type 2
pcalc907 Finding a limit by using the limit laws: Problem type 3
pcalc911 Squeeze Theorem
pcalc903 Determining points of discontinuity from a graph
pcalc914 Determining a parameter to make a function continuous
pcalc915 Infinite limits and graphs
pcalc910 Limits at infinity and graphs
APPENDIX B. SYLLABI IN ALEKS

pcalc908 Limits at infinity and rational functions
pcalc909 Infinite limits and rational functions
pcalc913 Finding a limit of a trigonometric function by using continuity
pcalc912 Finding a limit by using special trigonometric limits

B.18 Trigonometry

Algebra and Geometry Review

arith687 Fractional position on a number line
arith605 Plotting rational numbers on a number line
arith691 Ordering integers
arith602 Estimating a square root
arith712 Ordering real numbers
alg001 Identifying numbers as integers or non-integers
alg002 Identifying numbers as rational or irrational
arith116 Signed fraction addition or subtraction: Basic
arith864 Signed fraction subtraction involving double negation
arith106 Signed fraction addition or subtraction: Advanced
arith811 Addition and subtraction of 3 fractions involving signs
arith822 Signed fraction multiplication: Basic
arith105 Signed fraction multiplication: Advanced
arith814 Signed fraction division
arith104 Operations with absolute value: Problem type 2
alg694 Computing the distance between two integers on a number line
arith702 Exponents and integers: Problem type 1
arith703 Exponents and integers: Problem type 2
arith704 Exponents and signed fractions
arith118 Order of operations with integers
arith600 Order of operations with integers and exponents
alg005 Evaluating a linear expression: Integer multiplication with addition or subtraction
alg004 Evaluating a quadratic expression: Integers
alg808 Evaluating a linear expression: Signed fraction multiplication with addition or subtraction
mstat065 Converting between temperatures in Fahrenheit and Celsius
alg187 Properties of addition
alg188 Properties of real numbers
alg604 Distributive property: Integer coefficients
alg608 Using distribution and combining like terms to simplify: Univariate
alg607 Identifying properties used to simplify an algebraic expression
alg609 Using distribution with double negation and combining like terms to simplify: Multivariate
alg821 Understanding the product rule of exponents
alg024 Introduction to the product rule of exponents
alg311 Product rule with positive exponents: Univariate
alg030 Product rule with positive exponents: Multivariate
alg826 Understanding the power rules of exponents
alg306 Introduction to the power of a power rule of exponents
alg305 Introduction to the power of a product rule of exponents
alg307 Power rules with positive exponents: Multivariate products
alg308 Power rules with positive exponents: Multivariate quotients
alg756 Power and product rules with positive exponents
alg451 Simplifying a ratio of multivariate monomials: Basic
alg827 Introduction to the quotient rule of exponents
alg452 Simplifying a ratio of univariate monomials
alg026 Quotient of expressions involving exponents
alg453 Simplifying a ratio of multivariate monomials: Advanced
alg927 Power and quotient rules with positive exponents
alg790 Evaluating expressions with exponents of zero
arith729 Evaluating an expression with a negative exponent: Whole number base
B.18. TRIGONOMETRY

arith042 Evaluating an expression with a negative exponent: Positive fraction base
arith043 Evaluating an expression with a negative exponent: Negative integer base
alge791 Rewriting an algebraic expression without a negative exponent
alge961 Introduction to the product rule with negative exponents
alge028 Product rule with negative exponents
alge755 Quotient rule with negative exponents: Problem type 1
alge926 Quotient rule with negative exponents: Problem type 2
alge025 Power of a power rule with negative exponents
alge799 Power rules with negative exponents
alge928 Power and quotient rules with negative exponents: Problem type 1
alge929 Power and quotient rules with negative exponents: Problem type 2
alge757 Power, product, and quotient rules with negative exponents
arith036 Scientific notation with positive exponent
arith037 Scientific notation with negative exponent
scinot012 Converting between scientific notation and standard form in a real-world situation
scinot008 Multiplying numbers written in scientific notation: Basic
scinot009 Multiplying numbers written in scientific notation: Advanced
scinot010 Dividing numbers written in scientific notation: Basic
scinot011 Dividing numbers written in scientific notation: Advanced
scinot013 Finding the scale factor between numbers given in scientific notation in a real-world situation
alge758 Degree and leading coefficient of a univariate polynomial
alge031 Degree of a multivariate polynomial
alge798 Simplifying a sum or difference of two univariate polynomials
alge029 Simplifying a sum or difference of three univariate polynomials
alge932 Simplifying a sum or difference of multivariate polynomials
alge754 Multiplying a univariate polynomial by a monomial with a positive coefficient
alge972 Multiplying a univariate polynomial by a monomial with a negative coefficient
alge835 Multiplying a multivariate polynomial by a monomial
alge035 Multiplying binomials with leading coefficients of 1
alge983 Multiplying binomials with leading coefficients greater than 1
alge765 Multiplying binomials in two variables
alge764 Multiplying conjugate binomials: Univariate
alge981 Multiplying conjugate binomials: Multivariate
alge032 Squaring a binomial: Univariate
alge068 Squaring a binomial: Multivariate
alge973 Multiplying binomials with negative coefficients
alge935 Multiplication involving binomials and trinomials in one variable
alge180 Multiplication involving binomials and trinomials in two variables
arith034 Prime numbers
arith035 Prime factorization
arith033 Greatest common factor of 2 numbers
alge605 Factoring a linear binomial
alge736 Introduction to the GCF of two monomials
alge930 Greatest common factor of three univariate monomials
alge037 Greatest common factor of two multivariate monomials
alge738 Factoring out a monomial from a polynomial: Univariate
alge739 Factoring out a monomial from a polynomial: Multivariate
alge949 Factoring out a binomial from a polynomial: GCF factoring, basic
alge923 Factoring a univariate polynomial by grouping: Problem type 1
alge950 Factoring a univariate polynomial by grouping: Problem type 2
alge951 Factoring a multivariate polynomial by grouping: Problem type 1
alge952 Factoring a multivariate polynomial by grouping: Problem type 2
alge039 Factoring a quadratic with leading coefficient 1
alge942 Factoring a quadratic in two variables with leading coefficient 1
alge936 Factoring out a constant before factoring a quadratic
alge939 Factoring a quadratic with leading coefficient greater than 1: Problem type 1
alge940 Factoring a quadratic with leading coefficient greater than 1: Problem type 2
alge941 Factoring a quadratic with leading coefficient greater than 1: Problem type 3
alge978 Factoring a quadratic by the ac-method
alge265 Factoring a quadratic in two variables with leading coefficient greater than 1
alge937 Factoring a quadratic with a negative leading coefficient
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>alge944</td>
<td>Factoring a perfect square trinomial with leading coefficient 1</td>
</tr>
<tr>
<td>alge945</td>
<td>Factoring a perfect square trinomial with leading coefficient greater than 1</td>
</tr>
<tr>
<td>alge946</td>
<td>Factoring a perfect square trinomial in two variables</td>
</tr>
<tr>
<td>alge290</td>
<td>Factoring a difference of squares in one variable: Basic</td>
</tr>
<tr>
<td>alge947</td>
<td>Factoring a difference of squares in one variable: Advanced</td>
</tr>
<tr>
<td>alge839</td>
<td>Factoring a difference of squares in two variables</td>
</tr>
<tr>
<td>alge948</td>
<td>Factoring a polynomial involving a GCF and a difference of squares: Univariate</td>
</tr>
<tr>
<td>alge833</td>
<td>Factoring a polynomial involving a GCF and a difference of squares: Multivariate</td>
</tr>
<tr>
<td>alge041</td>
<td>Factoring a product of a quadratic trinomial and a monomial</td>
</tr>
<tr>
<td>alge942</td>
<td>Factoring with repeated use of the difference of squares formula</td>
</tr>
<tr>
<td>alge944</td>
<td>Factoring a sum or difference of two cubes</td>
</tr>
<tr>
<td>pcalc577</td>
<td>Factoring out binomials from a polynomial: GCF factoring, advanced</td>
</tr>
<tr>
<td>alge049</td>
<td>Restriction on a variable in a denominator: Linear</td>
</tr>
<tr>
<td>alge454</td>
<td>Simplifying a ratio of factored polynomials: Linear factors</td>
</tr>
<tr>
<td>alge455</td>
<td>Simplifying a ratio of factored polynomials: Factors with exponents</td>
</tr>
<tr>
<td>alge456</td>
<td>Simplifying a ratio of polynomials using GCF factoring</td>
</tr>
<tr>
<td>alge457</td>
<td>Simplifying a ratio of linear polynomials: 1, -1, and no simplification</td>
</tr>
<tr>
<td>alge458</td>
<td>Simplifying a ratio of polynomials by factoring a quadratic with leading coefficient 1</td>
</tr>
<tr>
<td>alge710</td>
<td>Simplifying a ratio of polynomials: Problem type 1</td>
</tr>
<tr>
<td>alge682</td>
<td>Simplifying a ratio of polynomials: Problem type 2</td>
</tr>
<tr>
<td>alge459</td>
<td>Simplifying a ratio of polynomials: Problem type 3</td>
</tr>
<tr>
<td>alge034</td>
<td>Simplifying a ratio of multivariate polynomials</td>
</tr>
<tr>
<td>alge053</td>
<td>Multiplying rational expressions involving multivariate monomials</td>
</tr>
<tr>
<td>alge460</td>
<td>Multiplying rational expressions made up of linear expressions</td>
</tr>
<tr>
<td>alge620</td>
<td>Multiplying rational expressions involving quadratics with leading coefficients of 1</td>
</tr>
<tr>
<td>alge461</td>
<td>Multiplying rational expressions involving quadratics with leading coefficients greater than 1</td>
</tr>
<tr>
<td>alge462</td>
<td>Multiplying rational expressions involving multivariate quadratics</td>
</tr>
<tr>
<td>alge054</td>
<td>Dividing rational expressions involving multivariate monomials</td>
</tr>
<tr>
<td>alge463</td>
<td>Dividing rational expressions involving linear expressions</td>
</tr>
<tr>
<td>alge766</td>
<td>Dividing rational expressions involving quadratics with leading coefficients of 1</td>
</tr>
<tr>
<td>alge464</td>
<td>Dividing rational expressions involving quadratics with leading coefficients greater than 1</td>
</tr>
<tr>
<td>alge456</td>
<td>Dividing rational expressions involving multivariate quadratics</td>
</tr>
<tr>
<td>arith804</td>
<td>Multiplication and division of 3 rational expressions</td>
</tr>
<tr>
<td>arith804</td>
<td>Least common multiple of 3 numbers</td>
</tr>
<tr>
<td>alge737</td>
<td>Introduction to the LCM of two monomials</td>
</tr>
<tr>
<td>alge055</td>
<td>Least common multiple of two monomials</td>
</tr>
<tr>
<td>alge427</td>
<td>Finding the LCD of rational expressions with linear denominators: Relatively prime</td>
</tr>
<tr>
<td>alge428</td>
<td>Finding the LCD of rational expressions with linear denominators: Common factors</td>
</tr>
<tr>
<td>alge429</td>
<td>Finding the LCD of rational expressions with quadratic denominators</td>
</tr>
<tr>
<td>alge430</td>
<td>Writing equivalent rational expressions with monomial denominators</td>
</tr>
<tr>
<td>alge431</td>
<td>Writing equivalent rational expressions with polynomial denominators</td>
</tr>
<tr>
<td>alge432</td>
<td>Writing equivalent rational expressions involving opposite factors</td>
</tr>
<tr>
<td>alge433</td>
<td>Introduction to adding fractions with variables and common denominators</td>
</tr>
<tr>
<td>alge056</td>
<td>Adding rational expressions with common denominators and monomial numerators</td>
</tr>
<tr>
<td>alge434</td>
<td>Adding rational expressions with common denominators and GCF factoring</td>
</tr>
<tr>
<td>alge435</td>
<td>Adding rational expressions with common denominators and quadratic factoring</td>
</tr>
<tr>
<td>alge436</td>
<td>Adding rational expressions with different denominators and a single occurrence of a variable</td>
</tr>
<tr>
<td>alge437</td>
<td>Adding rational expressions with denominators ax and bx: Basic</td>
</tr>
<tr>
<td>alge438</td>
<td>Adding rational expressions with denominators ax and bx: Advanced</td>
</tr>
<tr>
<td>alge439</td>
<td>Adding rational expressions with denominators axn and bxm</td>
</tr>
<tr>
<td>alge440</td>
<td>Adding rational expressions with multivariate monomial denominators: Basic</td>
</tr>
<tr>
<td>alge226</td>
<td>Adding rational expressions with multivariate monomial denominators: Advanced</td>
</tr>
<tr>
<td>alge441</td>
<td>Adding rational expressions with linear denominators without common factors: Basic</td>
</tr>
<tr>
<td>alge442</td>
<td>Adding rational expressions with linear denominators without common factors: Advanced</td>
</tr>
<tr>
<td>alge443</td>
<td>Adding rational expressions with linear denominators with common factors: Basic</td>
</tr>
<tr>
<td>alge444</td>
<td>Adding rational expressions with linear denominators with common factors: Advanced</td>
</tr>
<tr>
<td>alge445</td>
<td>Adding rational expressions with denominators ax-b and b-ax</td>
</tr>
<tr>
<td>alge661</td>
<td>Adding rational expressions involving different quadratic denominators</td>
</tr>
<tr>
<td>alge446</td>
<td>Adding 3 rational expressions with different quadratic denominators</td>
</tr>
</tbody>
</table>
APPENDIX B. SYLLABI IN ALEKS

alge525 Introduction to simplifying a product involving square roots using the distributive property
alge526 Simplifying a product involving square roots using the distributive property: Basic
alge276 Simplifying a product involving square roots using the distributive property: Advanced
alge774 Special products of radical expressions: Conjugates and squaring
alge984 Classifying sums and products as rational or irrational
arith766 Simplifying a quotient of square roots
alge530 Simplifying a quotient involving a sum or difference with a square root
alge527 Rationalizing a denominator: Quotient involving square roots
alge528 Rationalizing a denominator: Square root of a fraction
alge529 Rationalizing a denominator: Quotient involving a monomial
alge534 Rationalizing a denominator using conjugates: Integer numerator
alge535 Rationalizing a denominator using conjugates: Square root in numerator
alge536 Rationalizing a denominator using conjugates: Variable in denominator
alge564 Rationalizing a denominator: Quotient involving a higher radical
alge775 Rationalizing a denominator: Quotient involving higher radicals and monomials
alge563 Simplifying products or quotients of higher radicals with different indices: Univariate
alge776 Simplifying products or quotients of higher radicals with different indices: Multivariate
geom340 Area of a piecewise rectangular figure
geom142 Word problem involving the area between two rectangles
geom801 Area of a triangle
geom022 Area of a parallelogram
geom023 Area of a trapezoid
geom016 Circumference of a circle
geom301 Perimeter involving rectangles and circles
geom802 Circumference and area of a circle
geom477 Circumference and area of a circle: Exact answers in terms of pi
geom302 Area involving rectangles and circles
geom036 Word problem involving the area between two concentric circles
geom214 Area involving inscribed figures
geom311 Volume of a rectangular prism
geom899 Volume of a triangular prism
geom833 Volume of a pyramid
geom835 Volume of a cylinder
geom892 Word problem involving the rate of filling or emptying a cylinder
geom822 Volume of a cone
geom886 Volume of a cone: Exact answers in terms of pi
geom841 Volume of a sphere
geom831 Surface area of a cube or a rectangular prism
geom891 Surface area of a triangular prism
geom621 Surface area of a cylinder
geom834 Surface area of a cylinder: Exact answers in terms of pi
geom842 Surface area of a sphere
alge407 Introduction to the Pythagorean Theorem
geom844 Pythagorean Theorem
alge408 Word problem involving the Pythagorean Theorem

equations and Inequalities

alge836 Additive property of equality with signed fractions
alge012 Multiplicative property of equality with signed fractions
alge837 Solving a multi-step equation given in fractional form
alge986 Identifying properties used to solve a linear equation
alge011 Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
alge013 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
alge209 Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions
alge420 Solving a linear equation with several occurrences of the variable: Fractional forms with monomial numerators
alg208 Solving a two-step equation with signed fractions
alg061 Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
alg179 Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators
alg742 Solving equations with zero, one, or infinitely many solutions
alg840 Solving a proportion of the form (x+a)/b = c/d
alg511 Solving for a variable in terms of other variables using addition or subtraction: Basic
alg512 Solving for a variable in terms of other variables using addition or subtraction: Advanced
alg513 Solving for a variable in terms of other variables using multiplication or division: Basic
alg514 Solving for a variable in terms of other variables using multiplication or division: Advanced
alg517 Solving for a variable in terms of other variables using addition or subtraction with division
alg518 Solving for a variable inside parentheses in terms of other variables
alg507 Solving for a variable in terms of other variables in a linear equation with fractions
alg016 Translating a sentence into a one-step equation
alg841 Translating a sentence into a multi-step equation
alg014 Solving a word problem with two unknowns using a linear equation
alg730 Writing a multi-step equation for a real-world situation
alg794 Solving a value mixture problem using a linear equation
alg823 Solving a one-step word problem using the formula d = rt
alg796 Solving a distance, rate, time problem using a linear equation
geom143 Finding the perimeter or area of a rectangle given one of these values
geom838 Circumference ratios
geom628 Finding angle measures of a triangle given angles with variables
arith852 Finding the multiplier to give a final amount after a percentage increase or decrease
arith847 Finding the sale price given the original price and percent discount
arith848 Finding the total cost including tax or markup
arith831 Finding the original price given the sale price and percent discount
arith854 Computing a percent mixture
arith825 Finding simple interest without a calculator
alg864 Solving an absolute value equation: Problem type 1
alg865 Solving an absolute value equation: Problem type 2
alg866 Solving an absolute value equation: Problem type 3
alg867 Solving an absolute value equation: Problem type 4
alg167 Solving an absolute value equation of the form |ax+b|=|cx+d|
alg845 Translating a sentence into a one-step inequality
alg846 Translating a sentence into a multi-step inequality
alg748 Writing an inequality for a real-world situation
alg017 Graphing a linear inequality on the number line
alg822 Writing an inequality given a graph on the number line
alg186 Translating a sentence into a compound inequality
alg166 Graphing a compound inequality on the number line
alg847 Writing a compound inequality given a graph on the number line
set001 Set builder notation
set004 Set builder and interval notation
set002 Union and intersection of finite sets
set005 Union and intersection of intervals
alg844 Identifying solutions to a two-step linear inequality in one variable
alg852 Additive property of inequality with signed fractions
alg964 Multiplicative property of inequality with signed fractions
alg855 Solving a two-step linear inequality: Problem type 1
alg856 Solving a two-step linear inequality: Problem type 2
alg857 Solving a two-step linear inequality with a fractional coefficient
alg977 Solving a linear inequality with multiple occurrences of the variable: Problem type 1
alg858 Solving a linear inequality with multiple occurrences of the variable: Problem type 2
alg859 Solving a linear inequality with multiple occurrences of the variable: Problem type 3
APPENDIX B. SYLLABI IN ALEKS

- alge860 Solving inequalities with no solution or all real numbers as solutions
- alge746 Solving a compound linear inequality: Graph solution, basic
- alge747 Solving a compound linear inequality: Interval notation
- alge749 Solving a decimal word problem using a two-step linear inequality
- alge750 Solving a decimal word problem using a linear inequality with the variable on both sides
- alge868 Solving an absolute value inequality: Problem type 1
- alge943 Writing an absolute value inequality given a graph on the number line
- alge869 Solving an absolute value inequality: Problem type 2
- alge870 Solving an absolute value inequality: Problem type 3
- alge871 Solving an absolute value inequality: Problem type 4
- alge872 Solving an absolute value inequality: Problem type 5
- alge271 Solving a proportion of the form $a/(x+b) = c/x$
- alge060 Solving a rational equation that simplifies to linear: Denominator $x$
- alge205 Solving a rational equation that simplifies to linear: Denominator $x+a$
- alge769 Solving a rational equation that simplifies to linear: Denominators $a$, $x$, or $ax$
- alge421 Solving a rational equation that simplifies to linear: Denominators $ax$ and $bx$
- alge422 Solving a rational equation that simplifies to linear: Like binomial denominators
- alge206 Solving a rational equation that simplifies to linear: Unlike binomial denominators
- alge508 Solving for a variable in terms of other variables in a rational equation: Problem type 1
- alge509 Solving for a variable in terms of other variables in a rational equation: Problem type 2
- alge510 Solving for a variable in terms of other variables in a rational equation: Problem type 3
- arith610 Word problem on proportions: Problem type 1
- arith611 Word problem on proportions: Problem type 2
- geom303 Similar polygons
- geom304 Similar right triangles
- geom305 Indirect measurement
- arith612 Word problem involving multiple rates
- alge770 Solving a work problem using a rational equation
- alge450 Solving a distance, rate, time problem using a rational equation
- alge778 Using $i$ to rewrite square roots of negative numbers
- alge779 Simplifying a product and quotient involving square roots of negative numbers
- pcalc048 Adding or subtracting complex numbers
- pcalc049 Multiplying complex numbers
- pcalc050 Dividing complex numbers
- pcalc053 Simplifying a power of $i$
- alge681 Solving an equation written in factored form
- alge956 Finding the roots of a quadratic equation of the form $ax^2 + bx = 0$
- alge045 Finding the roots of a quadratic equation with leading coefficient 1
- alge048 Finding the roots of a quadratic equation with leading coefficient greater than 1
- alge211 Solving a quadratic equation needing simplification
- alge046 Roots of a product of polynomials
- alge163 Writing a quadratic equation given the roots and the leading coefficient
- alge703 Solving a word problem using a quadratic equation with rational roots
- alge735 Solving the Pythagorean Theorem and a quadratic equation to find side lengths of a right triangle
- alge962 Solving an equation of the form $x^2 = a$ using the square root property
- alge092 Solving a quadratic equation using the square root property: Exact answers, basic
- alge227 Solving a quadratic equation using the square root property: Exact answers, advanced
- alge094 Completing the square
- alge780 Solving a quadratic equation by completing the square: Exact answers
- alge095 Applying the quadratic formula: Exact answers
- alge963 Applying the quadratic formula: Decimal answers
- pcalc051 Solving a quadratic equation with complex roots
- alge214 Discriminant of a quadratic equation
- alge193 Discriminant of a quadratic equation with parameter
- alge524 Solving a word problem using a quadratic equation with irrational roots
- alge093 Solving an equation using the odd-root property: Problem type 1
- alge228 Solving an equation using the odd-root property: Problem type 2
- alge784 Solving a quadratic inequality written in factored form
- alge771 Solving a quadratic inequality
- alge467 Restriction on a variable in a denominator: Quadratic
- alge423 Solving a rational equation that simplifies to linear: Factorable quadratic denominator
- alge424 Solving a rational equation that simplifies to quadratic: Proportional form, basic
alge425 Solving a rational equation that simplifies to quadratic: Denominator x 
alge212 Solving a rational equation that simplifies to quadratic: Binomial denominators, constant numerators 
alge062 Solving a rational equation that simplifies to quadratic: Binomial denominators and numerators 
alge426 Solving a rational equation that simplifies to quadratic: Factorable quadratic denominator 
alge047 Solving a rational equation that simplifies to quadratic: Proportional form, advanced 
alge400 Introduction to solving a radical equation 
alge047 Solving a radical equation that simplifies to a linear equation: One radical, basic 
alge402 Solving a radical equation that simplifies to a linear equation: One radical, advanced 
alge090 Solving a radical equation that simplifies to a linear equation: Two radicals 
alge403 Solving a radical equation that simplifies to a quadratic equation: One radical, basic 
alge404 Solving a radical equation that simplifies to a quadratic equation: One radical, advanced 
alge411 Solving a radical equation with a quadratic expression under the radical 
alge405 Solving a radical equation with two radicals that simplifies to sqrt(x) = a 
alge182 Solving a radical equation that simplifies to a quadratic equation: Two radicals 
alge412 Algebraic symbol manipulation with radicals 
alge542 Word problem involving radical equations: Basic 
alge409 Word problem involving radical equations: Advanced 
alge410 Solving an equation with a root index greater than 2: Problem type 1 
alge417 Solving an equation with a root index greater than 2: Problem type 2 
alge416 Solving an equation with exponent 1/a: Problem type 1 
alge418 Solving an equation with exponent 1/a: Problem type 2 
alge230 Solving an equation with positive rational exponent 
alge231 Solving an equation with negative rational exponent 
alge781 Solving an equation that can be written in quadratic form: Problem type 1 
alge782 Solving an equation that can be written in quadratic form: Problem type 2 

Graphs and Functions 
alge064 Reading a point in the coordinate plane 
alge067 Plotting a point in the coordinate plane 
arith405 Naming the quadrant or axis of a point given its coordinates 
arith406 Naming the quadrant or axis of a point given the signs of its coordinates 
geom437 Finding the area of a triangle or parallelogram in the coordinate plane 
alge850 Table for a linear equation 
alge132 Distance between two points in the plane: Exact answers 
alge324 Distance between two points in the plane: Decimal answers 
geom323 Identifying scalene, isosceles, and equilateral triangles given coordinates of their vertices 
alge191 Midpoint of a line segment in the plane 
alge414 Finding an endpoint of a line segment given the other endpoint and the midpoint 
alge873 Identifying solutions to a linear equation in two variables 
alge856 Finding a solution to a linear equation in two variables 
alge877 Graphing a linear equation of the form y = mx 
alge878 Graphing a line given its equation in slope-intercept form: Integer slope 
alge879 Graphing a line given its equation in slope-intercept form: Fractional slope 
alge880 Graphing a line given its equation in standard form 
alge198 Graphing a vertical or horizontal line 
alge884 Finding x- and y-intercepts given the graph of a line on a grid 
alge924 Finding x- and y-intercepts of a line given the equation: Basic 
alge210 Finding x- and y-intercepts of a line given the equation: Advanced 
alge197 Graphing a line given its x- and y-intercepts 
alge881 Graphing a line by first finding its x- and y-intercepts 
pcalc750 Finding intercepts of a nonlinear function given its graph 
pcalc678 Finding x- and y-intercepts of the graph of a nonlinear equation 
alge913 Graphing an absolute value equation of the form y = |x|— 
alge954 Graphing a parabola of the form y = ax2 
alge955 Graphing a parabola of the form y = ax2 + c 
alge262 Graphing a cubic function of the form y = ax3 
pcalc416 Determining if graphs have symmetry with respect to the x-axis, y-axis, or origin 
pcalc679 Testing an equation for symmetry about the axes and origin 
alge875 Classifying slopes given graphs of lines
alge886 Finding slope given the graph of a line on a grid
alge887 Finding slope given two points on the line
alge885 Finding the slope of horizontal and vertical lines
alge888 Finding the coordinate that yields a given slope
alge259 Graphing a line given its slope and y-intercept
alge196 Graphing a line through a given point with a given slope
alge876 Identifying linear equations: Advanced
alge874 Identifying linear functions given ordered pairs
alge891 Rewriting a linear equation in the form Ax + By = C
alge889 Finding the slope and y-intercept of a line given its equation in the form y = mx + b
alge890 Finding the slope and y-intercept of a line given its equation in the form Ax + By = C
alge882 Graphing a line by first finding its slope and y-intercept
alge258 Writing an equation of a line given its slope and y-intercept
alge892 Writing an equation and graphing a line given its slope and y-intercept
alge314 Finding the slope, y-intercept, and equation for a linear function given a table of values
alge893 Writing an equation in slope-intercept form given the slope and a point
alge818 Finding the slope and a point on a line given its equation in point-slope form
alge883 Graphing a line given its equation in point-slope form
alge894 Writing an equation in point-slope form given the slope and a point
alge313 Writing an equation in standard form given the slope and a point
alge070 Writing an equation of a line given the y-intercept and another point
alge072 Writing the equation of the line through two given points
alge073 Writing the equations of vertical and horizontal lines through a given point
alge322 Comparing linear functions to the parent function y=x
geom806 Finding slopes of lines parallel and perpendicular to a line given in slope-intercept form
geom807 Finding slopes of lines parallel and perpendicular to a line given in the form Ax + By = C
alge895 Identifying parallel and perpendicular lines from equations
geom808 Writing equations of lines parallel and perpendicular to a given line through a point
geom626 Identifying parallel and perpendicular lines from coordinates
geom322 Identifying coordinates that give right triangles
alge897 Writing and evaluating a function that models a real-world situation: Advanced
alge654 Graphing ordered pairs and writing an equation from a table of values in context
alge701 Writing an equation and drawing its graph to model a real-world situation: Advanced
alge817 Finding the initial amount and rate of change given a table for a linear function
alge818 Finding the initial amount and rate of change given a graph of a linear function
alge992 Combining functions to write a new function that models a real-world situation
alge987 Comparing properties of linear functions given in different forms
alge989 Interpreting the parameters of a linear function that models a real-world situation
alge805 Application problem with a linear function: Finding a coordinate given the slope and a point
alge806 Application problem with a linear function: Finding a coordinate given two points
alge914 Identifying solutions to a system of linear equations
alge725 Graphically solving a system of linear equations
pcalc820 Using a graphing calculator to solve a system of linear equations: Basic
pcalc821 Using a graphing calculator to solve a system of linear equations: Advanced
alge317 Writing a system of linear equations given its graph
alge751 Solving a system of linear equations using substitution
alge915 Solving a system of linear equations using elimination with addition
alge076 Solving a system of linear equations using elimination with multiplication and addition
alge078 Solving a word problem involving a sum and another basic relationship using a system of linear equations
geom496 Identifying the center and radius to graph a circle given its equation in standard form
geom497 Identifying the center and radius to graph a circle given its equation in general form: Basic
geom688 Identifying the center and radius to graph a circle given its equation in general form: Advanced
geom499 Writing the equation of a circle centered at the origin given its radius or a point on the circle
geom495 Writing an equation of a circle and identifying points that lie on the circle
geom498 Writing an equation of a circle given its center and radius or diameter
geom493 Deriving the equation of a circle using the Pythagorean Theorem
pcalc065 Writing an equation of a circle given its center and a point on the circle
pcalc066 Writing an equation of a circle given the endpoints of a diameter
fun032 Identifying functions from relations
fun010 Vertical line test
fun001 Table for a linear function
pcalc760 Evaluating functions: Linear and quadratic or cubic
APPENDIX B. SYLLABI IN ALEKS

pcalc441 Writing the equation of a secant line
pcalc467 Translating the graph of a parabola: One step
pcalc465 Translating the graph of a parabola: Two steps
alge723 How the leading coefficient affects the shape of a parabola
pcalc468 Translating the graph of a parabola: One step
alge899 How the leading coefficient affects the graph of an absolute value function
alge901 Writing an equation for a function after a vertical translation
pcalc770 Translating the graph of a function: Two steps
pcalc569 Transforming the graph of a function by reflecting over an axis
pcalc470 Transforming the graph of a function by shrinking or stretching
pcalc466 Translating the graph of a parabola, cubic, square root, or absolute value function
fun020 Writing an equation for a function after a vertical and horizontal translation
fun019 Sum, difference, and product of two functions
alge786 Quotient of two functions: Basic
pcalc413 Quotient of two functions: Advanced
pcalc756 Combining functions: Advanced
alge716 Introduction to the composition of two functions
fun022 Composition of two functions: Basic
pcalc484 Composition of a function with itself
pcalc776 Expressing a function as a composition of two functions
fun021 Composition of two functions: Domain and range
alge129 Composition of two functions: Advanced
pcalc483 Composition of two rational functions
pcalc485 Word problem involving composition of two functions
fun011 Horizontal line test
pcalc777 Determining whether two functions are inverses of each other
fun012 Inverse functions: Linear, discrete
pcalc572 Inverse functions: Quadratic, square root
pcalc572 Inverse functions: Cubic, cube root
alge130 Inverse functions: Rational
pcalc486 Graphing the inverse of a function given its graph
pcalc487 Finding, evaluating, and interpreting an inverse function for a given linear relationship
alge974 Finding the vertex, x-intercepts, and axis of symmetry from the graph of a parabola
alge569 Graphing a parabola of the form \( y = x^2 + bx + c \)
pcalc574 Graphing a parabola of the form \( y = a(x-h)^2 + k \)
pcalc746 Graphing a parabola of the form \( y = ax^2 + bx + c \): Integer coefficients
pcalc747 Graphing a parabola of the form \( y = ax^2 + bx + c \): Rational coefficients
alge323 Finding the zeros of a quadratic function given its equation
pcalc714 Using a graphing calculator to find the zeros of a quadratic function
alge320 Writing a quadratic function given its zeros
alge277 Finding the x-intercept(s) and the vertex of a parabola
pcalc793 Using a graphing calculator to find the x-intercept(s) and vertex of a quadratic function
alge319 Rewriting a quadratic function in standard form
pcalc550 Rewriting a quadratic function to find its vertex and sketch its graph
pcalc775 Finding the maximum or minimum of a quadratic function
alge785 Word problem involving the maximum or minimum of a quadratic function
pcalc551 Word problem involving optimizing area by using a quadratic function
pcalc415 Domain and range from the graph of a quadratic function
pcalc762 Range of a quadratic function
pcalc680 Writing the equation of a quadratic function given its graph
pcalc764 Finding zeros of a polynomial function written in factored form
pcalc765 Finding x- and y-intercepts given a polynomial function
pcalc794 Using a graphing calculator to find local extrema of a polynomial function
pcalc795 Using a graphing calculator to find zeros of a polynomial function

Trigonometric Functions

pcalc001 Converting degrees-minutes-seconds to decimal degrees
B.18. TRIGONOMETRY

pcalc661 Converting a decimal degree to degrees-minutes-seconds
pcalc002 Converting between degree and radian measure: Problem type 1
pcalc621 Converting between degree and radian measure: Problem type 2
pcalc006 Sketching an angle in standard position
pcalc622 Coterminal angles
pcalc005 Arc length and central angle measure
pcalc623 Area of a sector of a circle
pcalc624 Angular and linear speed
pcalc627 Finding coordinates on the unit circle for special angles
pcalc625 Finding a point on the unit circle given one coordinate
pcalc629 Trigonometric functions and special angles: Problem type 1
pcalc628 Finding trigonometric ratios from a point on the unit circle
pcalc630 Trigonometric functions and special angles: Problem type 2
pcalc631 Trigonometric functions and special angles: Problem type 3
pcalc632 Trigonometric functions and special angles: Problem type 4
pcalc011 Finding values of trigonometric functions given information about an angle: Problem type 1
pcalc012 Finding values of trigonometric functions given information about an angle: Problem type 2
pcalc013 Finding values of trigonometric functions given information about an angle: Problem type 3
pcalc014 Finding values of trigonometric functions given information about an angle: Problem type 4
pcalc409 Evaluating expressions involving sine and cosine
pcalc427 Even and odd properties of trigonometric functions
pcalc008 Finding trigonometric ratios given a right triangle
pcalc600 Sine, cosine, and tangent ratios: Variables for side lengths
pcalc606 Using the Pythagorean Theorem to find a trigonometric ratio
pcalc608 Finding trigonometric ratios given a right triangle
pcalc610 Using trigonometry to find a length in a word problem with one right triangle
pcalc611 Using trigonometry to find angles of elevation or depression in a word problem
pcalc642 Solving a right triangle
pcalc473 Using trigonometry to find a length in a word problem with two right triangles
pcalc426 Reference angles: Problem type 1
pcalc626 Reference angles: Problem type 2
pcalc671 Determining the location of a terminal point given the signs of trigonometric values
pcalc609 Sine, cosine, and tangent ratios: Numbers for side lengths
pcalc612 Using a calculator to approximate sine, cosine, and tangent values
pcalc408 Using a calculator to approximate cosecant, secant, and cotangent values
pcalc410 Evaluating a sinusoidal function that models a real-world situation
geom506 Special right triangles: Exact answers
pcalc607 Using a trigonometric ratio to find a side length in a right triangle
pcalc610 Using trigonometry to find a length in a word problem with one right triangle
pcalc611 Using trigonometry to find angles of elevation or depression in a word problem
pcalc642 Solving a right triangle
pcalc107 Sketching the graph of y=a*sin(x+c) or y=a*cos(x+c)
pcalc106 Sketching the graph of y=a*sin(bx) or y=a*cos(bx)
pcalc104 Sketching the graph of y=a*sin(bx+c) or y=a*cos(bx+c)
pcalc103 Sketching the graph of y=a*sin(bx)+d or y=a*cos(bx)+d
pcalc633 Amplitude and period of sine and cosine functions
pcalc634 Amplitude, period, and phase shift of sine and cosine functions
pcalc635 Writing the equation of a sine or cosine function given its graph: Problem type 1
pcalc640 Word problem involving a sine or cosine function: Problem type 1
pcalc641 Word problem involving a sine or cosine function: Problem type 2
pcalc474 Sketching a graph of a damped sine or cosine function
pcalc475 Domains and ranges of trigonometric functions
pcalc637 Matching graphs and equations for secant, cosecant, tangent, and cotangent functions

Trigonometric Graphs

pcalc445 Sketching the graph of y=a*sin(x) or y=a*cos(x)
pcalc446 Sketching the graph of y=sin(bx) or y=cos(bx)
pcalc447 Sketching the graph of y=sin(x)+d or y=cos(x)+d
pcalc448 Sketching the graph of y=sin(x+c) or y=cos(x+c)
pcalc107 Sketching the graph of y=a*sin(x+c) or y=a*cos(x+c)
pcalc106 Sketching the graph of y=a*sin(bx) or y=a*cos(bx)
pcalc104 Sketching the graph of y=a*sin(bx+c) or y=a*cos(bx+c)
pcalc103 Sketching the graph of y=a*sin(bx)+d or y=a*cos(bx)+d
pcalc633 Amplitude and period of sine and cosine functions
pcalc634 Amplitude, period, and phase shift of sine and cosine functions
pcalc635 Writing the equation of a sine or cosine function given its graph: Problem type 1
pcalc640 Word problem involving a sine or cosine function: Problem type 1
pcalc641 Word problem involving a sine or cosine function: Problem type 2
pcalc474 Sketching a graph of a damped sine or cosine function
pcalc475 Domains and ranges of trigonometric functions
pcalc637 Matching graphs and equations for secant, cosecant, tangent, and cotangent functions
Trigonometric Identities and Equations

pcalc016 Values of inverse trigonometric functions
pcalc018 Composition of a trigonometric function with its inverse trigonometric function: Problem type 1
pcalc419 Composition of a trigonometric function with its inverse trigonometric function: Problem type 2
pcalc420 Composition of a trigonometric function with the inverse of another trigonometric function: Problem type 1
pcalc421 Composition of a trigonometric function with the inverse of another trigonometric function: Problem type 2
pcalc036 Composition of a trigonometric function with the inverse of another trigonometric function: Problem type 3
pcalc423 Composition of trigonometric functions with variable expressions as inputs: Problem type 1
pcalc422 Composition of trigonometric functions with variable expressions as inputs: Problem type 2
pcalc418 Using a calculator to approximate inverse trigonometric values
pcalc648 Simplifying trigonometric expressions
pcalc666 Using cofunction identities
pcalc110 Verifying a trigonometric identity
pcalc034 Proving trigonometric identities: Problem type 1
pcalc404 Proving trigonometric identities: Problem type 2
pcalc405 Proving trigonometric identities: Problem type 3
pcalc429 Proving trigonometric identities: Problem type 4
pcalc406 Proving trigonometric identities using odd and even properties
pcalc430 Sum and difference identities: Problem type 1
pcalc663 Sum and difference identities: Problem type 2
pcalc407 Sum and difference identities: Problem type 3
pcalc431 Sum and difference identities: Problem type 4
pcalc432 Sum and difference identities: Problem type 5
pcalc433 Sum and difference identities: Problem type 6
pcalc434 Sum and difference identities: Problem type 7
pcalc435 Sum and difference identities: Problem type 8
pcalc037 Double-angle identities: Problem type 1
pcalc664 Double-angle identities: Problem type 2
pcalc665 Double-angle identities: Problem type 3
pcalc436 Double-angle identities: Problem type 4
pcalc437 Double-angle identities: Problem type 5
pcalc438 Double-angle identities: Problem type 6
pcalc439 Double-angle identities: Problem type 7
pcalc440 Double-angle identities: Problem type 8
pcalc670 Finding solutions in an interval for a trigonometric equation involving a squared function: Problem type 1
pcalc668 Solving a trigonometric equation modeling a real-world situation
pcalc651 Using a graphing calculator to solve a trigonometric equation
pcalc127 Using a graphing calculator to solve a trigonometric inequality
pcalc022 Solving a trigonometric equation involving a squared function: Problem type 1
B.18. TRIGONOMETRY

pcalc023 Solving a trigonometric equation involving a squared function: Problem type 2
pcalc024 Solving a trigonometric equation involving more than one function
pcalc025 Solving a trigonometric equation involving an angle multiplied by a constant
pcalc655 Finding solutions in an interval for a trigonometric equation with an angle multiplied by a constant
pcalc656 Finding solutions in an interval for an equation with sine and cosine using sum and difference identities
pcalc026 Solving a trigonometric equation using sum and difference identities
pcalc027 Solving a trigonometric equation using double-angle identities
pcalc028 Solving a trigonometric equation using half-angle identities

Triangles and Vectors

pcalc031 Solving a triangle with the law of sines: Problem type 1
pcalc032 Solving a triangle with the law of sines: Problem type 2
pcalc644 Solving a word problem using the law of sines
geom320 Proving the law of sines
pcalc033 Solving a triangle with the law of cosines
geom499 Proving the law of cosines
pcalc645 Solving a word problem using the law of cosines
geom439 Using trigonometry to find the area of a right triangle
geom319 Expressing the area of a triangle in terms of the sine of one of its angles
pcalc647 Heron’s formula
vector028 Writing a position vector in ai+bj form given its graph
vector014 Writing a vector in ai+bj form given its initial and terminal points
vector013 Writing a vector in component form given its initial and terminal points
vector015 Magnitude of a vector given in ai+bj form
pcalc060 Magnitude of a vector given in component form
vector016 Vector addition and scalar multiplication: ai+bj form
vector017 Linear combination of vectors: ai+bj form
geom586 Vector addition and scalar multiplication: Component form
vector008 Linear combination of vectors: Component form
pcalc729 Unit vectors
pcalc739 Multiplication of a vector by a scalar: Geometric approach
geom857 Vector addition: Geometric approach
vector007 Vector subtraction: Geometric approach
vector002 Finding the magnitude and direction of a vector given its graph
vector005 Finding the components of a vector given its graph
vector019 Finding the direction angle of a vector given in ai+bj form
vector018 Writing a vector given its magnitude and direction angle
vector020 Writing a vector to represent a force pushing or pulling an object
vector021 Finding the magnitude and direction angle of the resultant force of two vectors
vector011 Finding magnitudes of forces related to a sum of three vectors
vector012 Finding magnitudes of forces related to an object suspended by cables
vector023 Dot product of vectors given in ai+bj form
vector009 Dot product of vectors given in component form
pcalc730 Finding the angle between two vectors given in component form
vector024 Classifying vector relationships by finding the angle between two vectors given in ai + bj form
vector010 Using the dot product to find perpendicular vectors
vector006 Finding the component of a vector along another vector
vector025 Decomposing a vector into two orthogonal vectors
vector026 Finding the amount of work done given a force vector and a distance
vector027 Finding magnitudes of forces related to an object on a ramp

Polar Coordinates and Complex Numbers

pcalc449 Plotting points in polar coordinates
pcalc450 Multiple representations of polar coordinates
pcalc056 Converting rectangular coordinates to polar coordinates: Special angles
Appendix B. Syllabi in Aleks

Conic Sections

- pcalc566 Graphing a parabola of the form \( y^2 = ax \) or \( x^2 = ay \)
- pcalc575 Graphing a parabola of the form \( x = a(y-k)^2 + h \) or \( y = a(x-h)^2 + k \)
- pcalc067 Graphing a parabola of the form \( ay^2 + by + cx + d = 0 \) or \( ax^2 + bx + cy + d = 0 \)
- pcalc068 Writing an equation of a parabola given the vertex and the focus
- pcalc475 Writing an equation of a parabola given the focus and the directrix
- geom494 Deriving the equation of a parabola given its focus and directrix
- pcalc476 Finding the vertex, focus, directrix, and axis of symmetry of a parabola
- pcalc477 Writing an equation of a parabola given its graph
- pcalc478 Word problem involving a parabola
- pcalc734 Graphing an ellipse given its equation in standard form
- pcalc070 Graphing an ellipse centered at the origin: \( Ax^2 + By^2 = C \)
- pcalc071 Graphing an ellipse given its equation in general form
- pcalc479 Finding the center, vertices, and foci of an ellipse
- pcalc472 Finding the foci of an ellipse given its equation in general form
- pcalc481 Writing an equation of a hyperbola given the foci and the vertices
- pcalc482 Writing an equation of a hyperbola given the foci and the asymptotes: Basic
- pcalc483 Writing an equation of a hyperbola given the foci and the asymptotes: Advanced
- pcalc376 Classifying conics given their equations
- pcalc538 Completing a table and choosing a graph given a pair of parametric equations
- pcalc539 Writing the equation of a line and sketching its graph given its parametric equations
- pcalc540 Writing the equation of a parabola and sketching its graph given its parametric equations
- pcalc541 Writing the equation of a circle or ellipse and sketching its graph given its parametric equations
- pcalc542 Graphing a pair of parametric equations with a restricted domain: Line or parabola
- pcalc553 Graphing a pair of parametric equations with a restricted domain: Circle
- pcalc556 Graphing a pair of parametric equations with a restricted domain: Ellipse
- pcalc554 Completing pairs of parametric equations
Exponential and Logarithmic Functions

- Graphing an exponential function: $f(x) = a(b)^x$
- Graphing an exponential function: $f(x) = b-x$ or $f(x) = -b^ax$
- Translating the graph of an exponential function
- Finding domain and range from the graph of an exponential function
- Transforming the graph of a natural exponential function
- Graphing an exponential function and its asymptote: $f(x) = a(e)x-b + c$
- Using a calculator to evaluate exponential expressions
- Evaluating an exponential function that models a real-world situation
- Translating the graph of a logarithmic function
- Graphing a logarithmic function: Basic
- Domain of a logarithmic function: Advanced
- Graphing a logarithmic function: Advanced
- Basic properties of logarithms
- Using properties of logarithms to evaluate expressions
- Expanding a logarithmic expression: Problem type 1
- Expanding a logarithmic expression: Problem type 2
- Expanding a logarithmic expression: Problem type 3
- Writing an expression as a single logarithm
- Change of base for logarithms: Problem type 1
- Change of base for logarithms: Problem type 2
- Solving a multi-step equation involving a single logarithm: Problem type 1
- Solving a multi-step equation involving a single logarithm: Problem type 2
- Solving a multi-step equation involving natural logarithms
- Solving an equation involving logarithms on both sides: Problem type 1
- Solving an equation involving logarithms on both sides: Problem type 2
- Solving an exponential equation by finding common bases: Linear exponents
- Solving an exponential equation by finding common bases: Quadratic exponents
- Solving an exponential equation by using logarithms: Decimal answers, basic
- Solving an exponential equation by using natural logarithms: Decimal answers
- Solving an exponential equation by using logarithms: Decimal answers, advanced
- Solving an exponential equation by using logarithms: Exact answers in logarithmic form
- Solving an exponential equation by using substitution and quadratic factoring
- Using a graphing calculator to solve an exponential or logarithmic equation
- Finding the time to reach a limit in a word problem on exponential growth or decay
- Finding the final amount in a word problem on continuous exponential growth or decay
- Finding the time in a word problem on compound interest
- Finding the final amount in a word problem on continuous compound interest
- Finding the final amount in a word problem involving parametric equations for projectile motion: Problem type 1
- Finding the final amount in a word problem involving parametric equations for projectile motion: Problem type 2
pcalc527 Finding the initial amount in a word problem on continuous compound interest
pcalc615 Finding the rate or time in a word problem on continuous exponential growth or decay
pcalc528 Finding half-life or doubling time
pcalc529 Writing and evaluating a function modeling continuous exponential growth or decay given doubling time or half-life
pcalc530 Writing and evaluating a function modeling continuous exponential growth or decay given two outputs

B.19 Intro. to Statistics

Mathematical Readiness

arith048 Order of operations with whole numbers
arith051 Order of operations with whole numbers and grouping symbols
arith220 Decimal place value: Hundreds to ten thousandths
arith221 Rounding decimals
arith226 Converting between percentages and decimals
arith030 Finding a percentage of a whole number without a calculator: Basic
arith069 Writing a ratio as a percentage without a calculator
arith090 Converting a percentage to a fraction in simplest form
arith002 Converting a fraction to a percentage: Denominator of 20, 25, or 50
stat022 Summation of indexed data
alge006 Solving a two-step equation with integers
alge011 Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
alge013 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
alge256 Y-intercept of a line
alge257 X- and y-intercepts of a line given the equation in standard form
alge070 Writing an equation of a line given the y-intercept and another point
alge197 Graphing a line given its x- and y-intercepts
alge194 Graphing a line given its equation in slope-intercept form
alge196 Graphing a line through a given point with a given slope

Descriptive Statistics

stat904 Interpreting pie charts
stat901 Computations from pie charts
stat844 Double bar charts
stat702 Histograms for grouped data
stat703 Frequency polygons for grouped data
stat717 Interpreting relative frequency histograms
stat718 Cumulative distributions and ogives
stat164 Comparing means without calculation
stat165 Comparing standard deviations without calculation
stat023 Box-and-whisker plots
stat831 Interpreting a stem-and-leaf display
stat827 Using back-to-back stem-and-leaf displays to compare data sets
stat706 Mean, median, and mode: Computations
stat902 Rejecting unreasonable claims based on average statistics
stat007 Weighted mean: Tabular data
stat719 Estimating the mean of grouped data
stat009 Percentiles
stat021 Population standard deviation
stat011 Sample standard deviation
stat729 Estimating the standard deviation of grouped data
B.19. INTRO. TO STATISTICS

stat730 Chebyshev’s theorem and the empirical rule
stat798 Mean, median, and mode: Comparisons
stat025 Transforming the mean and standard deviation of a data set
stat905 Making reasonable inferences based on proportion statistics

Probability

stat782 Factorial expressions
stat788 Combinations
stat789 Permutations
stat790 Permutations, combinations, and the multiplication principle for counting
stat117 Probabilities of draws with replacement
stat118 Probabilities of draws without replacement
stat119 Venn diagrams: Two events
stat110 Venn diagrams: Three events
stat101 Venn diagrams: Word problems
stat106 Outcomes and event probability
stat226 Die rolling
stat114 Probability of intersection or union: Word problems
stat115 Independent events: Basic
stat120 Probability of union: Basic
stat104 Mutually exclusive events: Two events
stat102 Mutually exclusive events: Three events
stat115 Independent events: Three events
stat103 Independent events: Three events
stat113 The curious die
stat020 Calculating relative frequencies in a contingency table
stat116 Conditional probability: Basic
stat851 Probability of dependent events
stat109 Intersection and conditional probability
stat107 Conditional probability: Mutually exclusive events
stat108 Conditional probability: Independent events
stat116 Tree diagrams for conditional probabilities
stat110 Law of total probabilities
stat111 Bayes’ theorem

Random Variables and Distributions

stat777 Classification of variables and levels of measurement
stat142 Discrete versus continuous variables
stat151 Discrete probability distribution: Basic
stat143 Discrete probability distribution: Word problems
stat149 Cumulative distribution function
stat150 Expectation and variance of a random variable
stat153 Rules for expectation and variance of random variables
stat145 Marginal distributions of two discrete random variables
stat146 Joint distributions of dependent or independent random variables
stat147 Probabilities of two random variables given their joint distribution
stat148 Conditional probabilities of two random variables given their joint distribution
stat156 Binomial problems: Mean and standard deviation
stat174 Binomial problems: Basic
stat155 Binomial problems: Advanced
stat157 Standard normal probabilities
stat760 Standard normal values: Basic
stat160 Standard normal values: Advanced
stat159 Normal versus standard normal density curves
stat161 Normal distribution raw scores
APPENDIX B. SYLLABI IN ALEKS

stat162 Mean and deviation of a normal distribution
stat163 Normal distribution: Word problems
stat173 t distribution
stat170 Chi-square distribution
stat171 F distribution
stat187 Normal approximation to binomial
stat185 Central limit theorem: Sample mean
stat186 Central limit theorem: Sample sum
stat188 Central limit theorem: Sample proportion

Confidence Intervals and Hypothesis Testing

stat200 Selecting a distribution for inferences on the population mean
stat201 Confidence interval for the population mean: Use of the standard normal
stat202 Confidence interval for the population mean: Use of the t distribution
stat203 Confidence interval for a population proportion
stat204 Confidence interval for the population standard deviation
stat205 Confidence interval for the difference of population means: Use of the standard normal
stat206 Confidence interval for the difference of population means: Use of the t distribution
stat207 Confidence interval for the difference of population proportions
stat208 Confidence interval for the ratio of population variances
stat755 Choosing an appropriate sample size
stat190 Type I and Type II errors
stat192 Type I and Type II errors and power
stat194 Effect size, sample size, and power
stat300 Determining null and alternative hypotheses
stat301 Hypothesis test for the population mean: Z test
stat302 Hypothesis test for the population mean: t test
stat303 Hypothesis test for a population proportion
stat304 Hypothesis test for the population variance or standard deviation
stat305 Hypothesis test for the difference of population means: Z test
stat309 Hypothesis test for the difference of population means: Paired comparisons
stat306 Hypothesis test for the difference of population means: t test
stat307 Hypothesis test for the difference of population proportions
stat308 Hypothesis test for the ratio of population variances

Regression and Correlation

stat339 Sketching the least-squares regression line
stat333 Linear relationship and the sample correlation coefficient
stat340 Predictions from the least-squares regression line
stat930 Computing the sample correlation coefficient and the coefficients for the least-squares regression line
stat931 Explained and unexplained variation and the least-squares regression line
stat325 Confidence intervals and prediction intervals from simple linear regression
stat947 Hypothesis tests for the correlation coefficient and the slope of the least-squares regression line
stat400 Interpreting the regression coefficients
stat401 Identifying degrees of freedom
stat402 ANOVA table: Problem type 1
stat403 ANOVA table: Problem type 2
stat404 F test of a multiple regression model
stat405 t test of a multiple regression model

ANOVA, Chi-square and Nonparametric Tests

stat422 ANOVA: Mean squares and the common population variance
stat423 ANOVA: Degrees of freedom and the F statistic
B.20 Prep. for Beginning Algebra

Arithmetic and Geometry

arith233 Introduction to exponents
arith692 Writing expressions using exponents
arith681 Introduction to order of operations
arith648 Order of operations with whole numbers
arith651 Order of operations with whole numbers and grouping symbols
arith693 Order of operations with whole numbers and exponents: Basic
arith056 Factors
arith034 Prime numbers
arith035 Prime factorization
arith033 Greatest common factor of 2 numbers
arith070 Least common multiple of 2 numbers
arith016 Square root of a perfect square
arith687 Fractional position on a number line
arith667 Plotting fractions on a number line
arith212 Equivalent fractions
arith067 Simplifying a fraction
arith044 Ordering fractions with the same denominator
arith092 Using a common denominator to order fractions
arith618 Addition or subtraction of fractions with the same denominator
arith664 Introduction to addition or subtraction of fractions with different denominators
arith230 Addition or subtraction of fractions with different denominators
arith100 Fractional part of a circle
arith079 Product of a unit fraction and a whole number
arith086 Product of a fraction and a whole number: Problem type 1
APPENDIX B. SYLLABI IN ALEKS

arith119 Introduction to fraction multiplication
arith053 Fraction multiplication
arith088 The reciprocal of a number
arith094 Division involving a whole number and a fraction
arith022 Fraction division
arith097 Mixed arithmetic operations with fractions
arith015 Writing an improper fraction as a mixed number
arith019 Writing a mixed number as an improper fraction
arith084 Addition of mixed numbers with the same denominator and carry
arith216 Subtraction of mixed numbers with the same denominator and borrowing
arith085 Addition or subtraction of mixed numbers with different denominators
arith020 Mixed number multiplication: Problem type 1
arith068 Mixed number division
arith110 Decimal place value: Tenths and hundredths
arith221 Rounding decimals
arith608 Ordering decimals
arith624 Addition of aligned decimals
arith013 Decimal addition with 3 numbers
arith625 Subtraction of aligned decimals
arith082 Multiplication of a decimal by a power of ten
arith017 Multiplication of a decimal by a whole number
arith055 Decimal multiplication: Problem type 1
arith083 Division of a decimal by a power of ten
arith081 Division of a decimal by a whole number
arith019 Division of a decimal by a 2-digit decimal
arith222 Converting a fraction to a terminating decimal
arith089 Converting a fraction to a repeating decimal
arith223 Converting a mixed number to a decimal
arith087 Converting a decimal to a proper fraction in simplest form: Advanced
arith026 Word problem with one decimal operation: Problem type 1
arith027 Word problem with one decimal operation: Problem type 2
arith224 Word problem with decimal addition and multiplication
geom339 Perimeter of a polygon
geom030 Perimeter of a square or a rectangle
geom221 Finding the missing length in a figure
geom019 Area of a square or a rectangle
geom034 Area of a piecewise rectangular figure
geom081 Area of a triangle
geom022 Area of a parallelogram
geom082 Circumference and area of a circle
geom036 Word problem involving the area between two concentric circles
geom032 Area involving rectangles and circles
geom031 Volume of a rectangular prism
geom035 Volume of a cylinder

Real Numbers and Algebraic Expressions

arith091 Ordering integers
arith099 Writing a signed number for a real-world situation
alge286 Plotting integers on a number line
arith200 Integer addition: Problem type 1
arith108 Integer addition: Problem type 2
arith688 Integer subtraction: Problem type 1
arith089 Integer subtraction: Problem type 2
arith690 Integer subtraction: Problem type 3
arith701 Word problem with addition or subtraction of integers
arith116 Signed fraction addition or subtraction: Basic
arith106 Signed fraction addition or subtraction: Advanced
arith117 Signed decimal addition and subtraction
arith234 Signed decimal addition and subtraction with 3 numbers
Linear Equations and Inequalities

alge009 Additive property of equality with whole numbers
alge801 Additive property of equality with fractions and mixed numbers
alge800 Additive property of equality with decimals
alge010 Additive property of equality with integers
alge206 Additive property of equality with a negative coefficient
alge008 Multiplicative property of equality with whole numbers
alge820 Multiplicative property of equality with fractions
alge825 Multiplicative property of equality with decimals
alge797 Multiplicative property of equality with integers
alge012 Multiplicative property of equality with signed fractions
alge803 Using two steps to solve an equation with whole numbers
alge006 Solving a two-step equation with integers
alge208 Solving a two-step equation with signed fractions
alge824 Solving a two-step equation with signed decimals
alge209 Solving an equation to find the value of an expression
alge011 Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
alge013 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
alge742 Solving equations with zero, one, or infinitely many solutions
alge810 Introduction to algebraic symbol manipulation
alge733 Writing a one-step expression for a real-world situation
alge291 Translating a phrase into a two-step expression
alge016 Translating a sentence into a one-step equation
alge802 Solving a fraction word problem using a linear equation of the form Ax = B
alge014 Solving a word problem with two unknowns using a linear equation
alge219 Solving a decimal word problem using a linear equation with the variable on both sides
alge173 Solving a decimal word problem using a linear equation of the form Ax + B = C
alge704 Solving a fraction word problem using a linear equation with the variable on both sides
alge792 Solving a word problem with three unknowns using a linear equation
alge794 Solving a value mixture problem using a linear equation
g geom001 Finding an angle measure of a triangle given two angles
g geom530 Solving equations involving vertical angles
g geom817 Finding a side length given the perimeter and side lengths with variables
g geom217 Finding the side length of a rectangle given its perimeter or area
APPENDIX B. SYLLABI IN ALEKS

alge015 Translating a sentence by using an inequality symbol
alge017 Graphing a linear inequality on the number line
alge822 Writing an inequality given a graph on the number line
alge019 Solving a linear inequality: Problem type 1
alge020 Solving a linear inequality: Problem type 2
alge021 Solving a linear inequality: Problem type 3
alge745 Solving a linear inequality: Problem type 5
alge748 Writing an inequality for a real-world situation
alge749 Solving a decimal word problem using a two-step linear inequality

Percents and Proportions

arith226 Converting between percentages and decimals
arith090 Converting a percentage to a fraction in simplest form
arith002 Converting a fraction to a percentage: Denominator of 20, 25, or 50
arith069 Writing a ratio as a percentage without a calculator
mstat049 Computing a percentage from a table of values
arith030 Finding a percentage of a whole number without a calculator: Basic
arith068 Finding the sale price without a calculator given the original price and percent discount
arith031 Finding the original price given the sale price and percent discount
arith225 Finding the percentage increase or decrease: Advanced
stat801 Computations from a circle graph
arith032 Finding simple interest without a calculator
alge272 Solving a proportion of the form \( x/a = b/c \)
arith064 Solving a word problem on proportions using a unit rate
arith060 Word problem on proportions: Problem type 1
arith228 Word problem on unit rates associated with ratios of whole numbers: Decimal answers
alge823 Solving a one-step word problem using the formula \( d = rt \)
alge218 Solving a word problem involving rates and time conversion
unit034 Converting between metric and U.S. Customary unit systems

Lines and Functions

set001 Set builder notation
alge850 Table for a linear equation
fun001 Table for a linear function
alge064 Reading a point in the coordinate plane
alge067 Plotting a point in the coordinate plane
alge066 Finding a solution to a linear equation in two variables
alge197 Graphing a line given its x- and y-intercepts
alge194 Graphing a line given its equation in slope-intercept form
alge198 Graphing a vertical or horizontal line
alge701 Writing an equation and drawing its graph to model a real-world situation: Advanced
mstat007 Interpreting a line graph
alge684 Finding slope given the graph of a line on a grid
alge685 Finding slope given two points on the line

B.21 Prep. for Intermediate Algebra

Real Numbers

arith087 Fractional position on a number line
arith066 Plotting fractions on a number line
B.21. PREP. FOR INTERMEDIATE ALGEBRA

arith006 Simplifying a fraction
arith067 Using a common denominator to order fractions
arith230 Addition or subtraction of fractions with different denominators
arith086 Product of a fraction and a whole number: Problem type 1
arith053 Fraction multiplication
arith222 Fraction division
arith100 Fractional part of a circle
arith697 Mixed arithmetic operations with fractions
arith110 Decimal place value: Tenths and hundredths
arith221 Rounding decimals
arith608 Ordering decimals
arith226 Converting between percentages and decimals
arith698 Applying the percent equation
arith069 Writing a ratio as a percentage without a calculator
mstat049 Computing a percentage from a table of values
arith074 Finding the sale price without a calculator given the original price and percent discount
arith031 Finding the original price given the sale price and percent discount
arith225 Finding the percentage increase or decrease: Advanced
stat801 Computations from a circle graph
arith232 Finding simple interest without a calculator
arith228 Word problem on unit rates associated with ratios of whole numbers: Decimal answers
alge823 Solving a one-step word problem using the formula d = rt
alge218 Solving a word problem involving rates and time conversion
alge272 Solving a proportion of the form x/a = b/c
arith210 Word problem on proportions: Problem type 1
arith200 Integer addition: Problem type 1
arith108 Integer addition: Problem type 2
arith688 Integer subtraction: Problem type 1
arith689 Integer subtraction: Problem type 2
arith690 Integer subtraction: Problem type 3
arith116 Signed fraction addition or subtraction: Basic
arith106 Signed fraction addition or subtraction: Advanced
arith117 Signed decimal addition and subtraction
arith234 Signed decimal addition and subtraction with 3 numbers
arith231 Integer multiplication and division
arith800 Multiplication of 3 or 4 integers
arith082 Signed fraction multiplication: Basic
arith105 Signed fraction multiplication: Advanced
arith702 Exponents and integers: Problem type 1
arith703 Exponents and integers: Problem type 2
arith704 Exponents and signed fractions
arith118 Order of operations with integers
arith600 Order of operations with integers and exponents
alge005 Evaluating a linear expression: Integer multiplication with addition or subtraction
alge004 Evaluating a quadratic expression: Integers
arith071 Absolute value of a number
arith104 Operations with absolute value: Problem type 2
alge001 Identifying numbers as integers or non-integers
alge002 Identifying numbers as rational or irrational
alge187 Properties of addition
alge188 Properties of real numbers
alge606 Distributive property: Whole number coefficients
alge604 Distributive property: Integer coefficients
alge607 Combining like terms: Integer coefficients
alge663 Combining like terms: Advanced
alge293 Combining like terms in a quadratic expression
set001 Set builder notation
set002 Union and intersection of finite sets
set004 Set builder and interval notation

Linear Equations and Inequalities
### APPENDIX B. SYLLABI IN ALEKS

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>alge010</td>
<td>Additive property of equality with integers</td>
</tr>
<tr>
<td>alge266</td>
<td>Additive property of equality with a negative coefficient</td>
</tr>
<tr>
<td>alge797</td>
<td>Multiplicative property of equality with integers</td>
</tr>
<tr>
<td>alge825</td>
<td>Multiplicative property of equality with decimals</td>
</tr>
<tr>
<td>alge820</td>
<td>Multiplicative property of equality with fractions</td>
</tr>
<tr>
<td>alge012</td>
<td>Multiplicative property of equality with signed fractions</td>
</tr>
<tr>
<td>alge006</td>
<td>Solving a two-step equation with integers</td>
</tr>
<tr>
<td>alge208</td>
<td>Solving a two-step equation with signed fractions</td>
</tr>
<tr>
<td>alge200</td>
<td>Solving an equation to find the value of an expression</td>
</tr>
<tr>
<td>alge011</td>
<td>Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution</td>
</tr>
<tr>
<td>alge061</td>
<td>Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients</td>
</tr>
<tr>
<td>alge209</td>
<td>Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions</td>
</tr>
<tr>
<td>alge179</td>
<td>Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators</td>
</tr>
<tr>
<td>alge742</td>
<td>Solving equations with zero, one, or infinitely many solutions</td>
</tr>
<tr>
<td>alge810</td>
<td>Introduction to algebraic symbol manipulation</td>
</tr>
<tr>
<td>alge743</td>
<td>Algebraic symbol manipulation: Problem type 1</td>
</tr>
<tr>
<td>alge744</td>
<td>Algebraic symbol manipulation: Problem type 2</td>
</tr>
<tr>
<td>alge733</td>
<td>Writing a one-step expression for a real-world situation</td>
</tr>
<tr>
<td>alge291</td>
<td>Translating a phrase into a two-step expression</td>
</tr>
<tr>
<td>alge016</td>
<td>Translating a sentence into a one-step equation</td>
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<td>alge802</td>
<td>Solving a fraction word problem using a linear equation of the form $Ax = B$</td>
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<td>alge014</td>
<td>Solving a word problem with two unknowns using a linear equation</td>
</tr>
<tr>
<td>alge219</td>
<td>Solving a decimal word problem using a linear equation with the variable on both sides</td>
</tr>
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<td>alge173</td>
<td>Solving a decimal word problem using a linear equation of the form $Ax + B = C$</td>
</tr>
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<td>alge704</td>
<td>Solving a fraction word problem using a linear equation with the variable on both sides</td>
</tr>
<tr>
<td>alge792</td>
<td>Solving a word problem with three unknowns using a linear equation</td>
</tr>
<tr>
<td>alge794</td>
<td>Solving a value mixture problem using a linear equation</td>
</tr>
<tr>
<td>alge795</td>
<td>Solving a percent mixture problem using a linear equation</td>
</tr>
<tr>
<td>alge796</td>
<td>Solving a distance, rate, time problem using a linear equation</td>
</tr>
<tr>
<td>stat803</td>
<td>Finding the value for a new score that will yield a given mean</td>
</tr>
<tr>
<td>alge015</td>
<td>Translating a sentence by using an inequality symbol</td>
</tr>
<tr>
<td>alge017</td>
<td>Graphing a linear inequality on the number line</td>
</tr>
<tr>
<td>alge822</td>
<td>Writing an inequality given a graph on the number line</td>
</tr>
<tr>
<td>alge166</td>
<td>Graphing a compound inequality on the number line</td>
</tr>
<tr>
<td>alge019</td>
<td>Solving a linear inequality: Problem type 1</td>
</tr>
<tr>
<td>alge020</td>
<td>Solving a linear inequality: Problem type 2</td>
</tr>
<tr>
<td>alge021</td>
<td>Solving a linear inequality: Problem type 3</td>
</tr>
<tr>
<td>alge207</td>
<td>Solving a linear inequality: Problem type 4</td>
</tr>
<tr>
<td>alge745</td>
<td>Solving a linear inequality: Problem type 5</td>
</tr>
<tr>
<td>alge746</td>
<td>Solving a compound linear inequality: Graph solution, basic</td>
</tr>
<tr>
<td>alge747</td>
<td>Solving a compound linear inequality: Interval notation</td>
</tr>
<tr>
<td>alge748</td>
<td>Writing an inequality for a real-world situation</td>
</tr>
<tr>
<td>alge749</td>
<td>Solving a decimal word problem using a two-step linear inequality</td>
</tr>
<tr>
<td>alge750</td>
<td>Solving a decimal word problem using a linear inequality with the variable on both sides</td>
</tr>
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<td>alge270</td>
<td>Solving an absolute value equation of the form $a−x− = b$ or $−x−+a = b$</td>
</tr>
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<td>alge103</td>
<td>Solving an absolute value equation of the form $−ax+b− = c$</td>
</tr>
<tr>
<td>alge170</td>
<td>Solving an absolute value inequality: Basic</td>
</tr>
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</table>

#### Functions, Lines, and Systems

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>fun001</td>
<td>Table for a linear function</td>
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<tr>
<td>pcalc760</td>
<td>Evaluating functions: Linear and quadratic or cubic</td>
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<tr>
<td>fun033</td>
<td>Variable expressions as inputs of functions: Problem type 1</td>
</tr>
<tr>
<td>fun032</td>
<td>Identifying functions from relations</td>
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</tbody>
</table>
fun010 Vertical line test
fun016 Domain and range from ordered pairs
fun024 Domain and range from the graph of a continuous function
alge064 Reading a point in the coordinate plane
alge067 Plotting a point in the coordinate plane
alge850 Table for a linear equation
alge066 Finding a solution to a linear equation in two variables
alge216 Determining whether given points lie on one, both, or neither of 2 lines given equations
alge197 Graphing a line given its x- and y-intercepts
alge194 Graphing a line given its equation in slope-intercept form
alge195 Graphing a line given its equation in standard form
alge196 Graphing a line through a given point with a given slope
alge198 Graphing a vertical or horizontal line
alge225 Graphing a linear inequality in the plane: Vertical or horizontal line
alge720 Graphing a linear inequality in the plane: Slope-intercept form
alge252 Graphing a parabola of the form y = ax^2
alge262 Graphing a cubic function of the form y = ax^3
alge168 Graphing an absolute value equation in the plane: Advanced
alge069 Finding the y-intercept of a line given its equation
alge210 Finding x- and y-intercepts of a line given the equation: Advanced
alge684 Finding slope given the graph of a line on a grid
alge685 Finding slope given two points on the line
alge631 Finding the slope of a line given its equation
alge070 Writing an equation of a line given the y-intercept and another point
alge071 Writing the equation of a line given the slope and a point on the line
alge072 Writing the equation of the line through two given points
alge073 Writing the equations of vertical and horizontal lines through a given point
geom807 Finding slopes of lines parallel and perpendicular to a line given in the form Ax + By = C
geom808 Writing equations of lines parallel and perpendicular to a line given through a point
mstat007 Interpreting a line graph
alge263 Interpreting the graphs of two functions
alge701 Writing an equation and drawing its graph to model a real-world situation: Advanced
alge805 Application problem with a linear function: Finding a coordinate given the slope and a point
alge806 Application problem with a linear function: Finding a coordinate given two points
alge725 Graphically solving a system of linear equations
alge751 Solving a system of linear equations using substitution
alge076 Solving a system of linear equations using elimination with multiplication and addition
alge752 Solving a 2x2 system of linear equations that is inconsistent or consistent dependent
alge753 Solving a 3x3 system of linear equations: Problem type 1
alge078 Solving a word problem involving a sum and another basic relationship using a system of linear equations
alge184 Solving a value mixture problem using a system of linear equations
alge224 Solving a distance, rate, time problem using a system of linear equations
alge192 Solving a percent mixture problem using a system of linear equations
alge172 Solving a tax rate or interest rate problem using a system of linear equations
alge793 Solving a word problem using a 3x3 system of linear equations: Problem type 1

Exponents, Polynomials, and Radicals

alge790 Evaluating expressions with exponents of zero
arith042 Evaluating an expression with a negative exponent: Positive fraction base
arith043 Evaluating an expression with a negative exponent: Negative integer base
alge791 Rewriting an algebraic expression without a negative exponent
alge024 Introduction to the product rule of exponents
alge030 Product rule with positive exponents: Multivariate
alge028 Product rule with negative exponents
alge827 Introduction to the quotient rule of exponents
alge026 Quotient of expressions involving exponents
alge755 Quotient rule with negative exponents: Problem type 1
alge754 Introduction to the power rules of exponents
alge027 Power rules with positive exponents
alge025 Power of a power rule with negative exponents
alge799 Power rules with negative exponents
alge756 Power and product rules with positive exponents
arith636 Scientific notation with positive exponent
arith637 Scientific notation with negative exponent
scinot002 Multiplying and dividing numbers written in scientific notation
alge798 Simplifying a sum or difference of two univariate polynomials
alge029 Simplifying a sum or difference of three univariate polynomials
alge735 Multiplying a univariate polynomial by a monomial with a positive coefficient
alge033 Multiplying binomials with leading coefficients of 1
alge764 Multiplying conjugate binomials: Univariate
alge032 Squaring a binomial: Univariate
alge736 Introduction to the GCF of two monomials
alge738 Factoring out a monomial from a polynomial: Univariate
alge705 Factoring a quadratic with leading coefficient 1
alge040 Factoring a quadratic with leading coefficient greater than 1
alge624 Factoring a difference of squares
alge681 Solving an equation written in factored form
alge045 Finding the roots of a quadratic equation with leading coefficient 1
alge048 Finding the roots of a quadratic equation with leading coefficient greater than 1
arith601 Square root of a perfect square
arith601 Square root of a rational perfect square
arith604 Cube root of an integer
arith602 Estimating a square root
arith603 Simplifying the square root of a whole number less than 100
alge264 Square root of a perfect square monomial
alge080 Simplifying a radical expression with an even exponent
arith632 Square root addition or subtraction
arith639 Square root multiplication: Advanced
alge086 Rationalizing the denominator of a radical expression

Geometry

geom300 Perimeter of a square or a rectangle
geom019 Area of a square or a rectangle
geom801 Area of a triangle
geom022 Area of a parallelogram
geom022 Circumference and area of a circle
geom311 Volume of a rectangular prism
geom035 Volume of a cylinder
geom031 Surface area of a cube or a rectangular prism
geom334 Surface area of a cylinder: Exact answers in terms of pi
geom001 Finding an angle measure of a triangle given two angles
geom008 Finding an angle measure for a triangle with an extended side
geom530 Solving equations involving vertical angles
geom037 Similar polygons
geom017 Finding a side length given the perimeter and side lengths with variables
geom217 Finding the side length of a rectangle given its perimeter or area
geom143 Finding the perimeter or area of a rectangle given one of these values
geom340 Area of a piecewise rectangular figure
geom301 Perimeter involving rectangles and circles
geom302 Area involving rectangles and circles
geom036 Word problem involving the area between two concentric circles

B.22 Prep. for College Algebra

Real Numbers
B.22. PREP. FOR COLLEGE ALGEBRA

arith067 Simplifying a fraction
arith092 Using a common denominator to order fractions
arith230 Addition or subtraction of fractions with different denominators
arith053 Fraction multiplication
arith022 Fraction division
arith100 Fractional part of a circle
arith226 Converting between percentages and decimals
arith098 Applying the percent equation
arith074 Finding the sale price without a calculator given the original price and percent discount
arith031 Finding the original price given the sale price and percent discount
arith225 Finding the percentage increase or decrease: Advanced
arith232 Finding simple interest without a calculator
arith228 Word problem on unit rates associated with ratios of whole numbers: Decimal answers
alge272 Solving a proportion of the form x/a = b/c
arith10 Word problem on proportions: Problem type 1
arith11 Word problem on proportions: Problem type 2
arith108 Integer addition: Problem type 2
arith690 Integer subtraction: Problem type 3
arith116 Signed fraction addition or subtraction: Basic
arith106 Signed fraction addition or subtraction: Advanced
arith234 Signed decimal addition and subtraction with 3 numbers
arith231 Integer multiplication and division
arith822 Signed fraction multiplication: Basic
arith105 Signed fraction multiplication: Advanced
arith702 Exponents and integers: Problem type 1
arith703 Exponents and integers: Problem type 2
arith704 Exponents and signed fractions
arith600 Order of operations with integers and exponents
alge005 Evaluating a linear expression: Integer multiplication with addition or subtraction
alge004 Evaluating a quadratic expression: Integers
arith071 Absolute value of a number
arith104 Operations with absolute value: Problem type 2
alge001 Identifying numbers as integers or non-integers
alge002 Identifying numbers as rational or irrational
alge187 Properties of addition
alge188 Properties of real numbers

Equations and Inequalities

alge010 Additive property of equality with integers
alge012 Multiplicative property of equality with signed fractions
alge006 Solving a two-step equation with integers
alge208 Solving a two-step equation with signed fractions
alge200 Solving an equation to find the value of an expression
alge011 Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
alge061 Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
alge013 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
alge209 Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions
alge179 Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators
alge742 Solving equations with zero, one, or infinitely many solutions
alge743 Algebraic symbol manipulation: Problem type 1
alge744 Algebraic symbol manipulation: Problem type 2
alge733 Writing a one-step expression for a real-world situation
alge291 Translating a phrase into a two-step expression
alge016 Translating a sentence into a one-step equation
APPENDIX B. SYLLABI IN ALEKS

alge014 Solving a word problem with two unknowns using a linear equation
alge219 Solving a decimal word problem using a linear equation with the variable on both sides
alge173 Solving a decimal word problem using a linear equation of the form \(Ax + B = C\)
alge704 Solving a fraction word problem using a linear equation with the variable on both sides
alge704 Solving a value mixture problem using a linear equation
alge794 Solving a percent mixture problem using a linear equation
alge795 Solving a distance, rate, time problem using a linear equation
alge792 Solving a word problem with three unknowns using a linear equation
alge166 Graphing a linear inequality on the number line
alge019 Solving a linear inequality: Problem type 1
alge020 Solving a linear inequality: Problem type 2
alge021 Solving a linear inequality: Problem type 3
alge207 Solving a linear inequality: Problem type 4
alge746 Solving a compound linear inequality: Graph solution, basic
alge747 Solving a compound linear inequality: Interval notation
alge729 Writing a multi-step inequality for a real-world situation
alge749 Solving a decimal word problem using a two-step linear inequality
alge750 Solving an absolute value equation of the form \(a—x— = b\) or \(—x—+a = b\)
alge103 Solving an absolute value equation of the form \(—ax+b— = c\)
alge170 Solving an absolute value inequality: Basic

Exponents and Polynomials

alge790 Evaluating expressions with exponents of zero
arith042 Evaluating an expression with a negative exponent: Positive fraction base
arith043 Evaluating an expression with a negative exponent: Negative integer base
arith029 Ordering numbers with positive exponents
arith024 Ordering numbers with negative exponents
alge791 Rewriting an algebraic expression without a negative exponent
alge024 Introduction to the product rule of exponents
alge030 Product rule with positive exponents: Multivariate
alge028 Product rule with negative exponents
alge026 Quotient of expressions involving exponents
alge755 Quotient rule with negative exponents: Problem type 1
alge754 Introduction to the power rules of exponents
alge027 Power rules with positive exponents
alge025 Power of a power rule with negative exponents
alge799 Power rules with negative exponents
alge756 Power and product rules with positive exponents
alge757 Power, product, and quotient rules with negative exponents
arith036 Scientific notation with positive exponent
arith037 Scientific notation with negative exponent
scinot002 Multiplying and dividing numbers written in scientific notation
alge758 Degree and leading coefficient of a univariate polynomial
alge601 Degree of a multivariate polynomial
alge663 Combining like terms: Advanced
alge708 Simplifying a sum or difference of two univariate polynomials
alge029 Simplifying a sum or difference of three univariate polynomials
alge735 Multiplying a univariate polynomial by a monomial with a positive coefficient
alge835 Multiplying a multivariate polynomial by a monomial
alge033 Multiplying binomials with leading coefficients of 1
alge764 Multiplying conjugate binomials: Univariate
alge002 Squaring a binomial: Univariate
alge180 Multiplication involving binomials and trinomials in two variables
alge736 Introduction to the GCF of two monomials
alge037 Greatest common factor of two multivariate monomials
alge738 Factoring out a monomial from a polynomial: Univariate
alge739 Factoring out a monomial from a polynomial: Multivariate
B.22. PREP. FOR COLLEGE ALGEBRA

Factors a quadratic with leading coefficient 1
Factors a quadratic with leading coefficient greater than 1
Factors a product of a quadratic trinomial and a monomial
Factors a difference of squares
Factors a polynomial by grouping: Problem type 1
Factors with repeated use of the difference of squares formula
Factors a sum or difference of two cubes
Solving an equation written in factored form
Finding the roots of a quadratic equation with leading coefficient 1
Finding the roots of a quadratic equation with leading coefficient greater than 1
Finding the roots of a quadratic equation needing simplification
Solving an equation that can be written in quadratic form: Problem type 1
Solving a quadratic equation using the square root property: Exact answers, basic
Solving a quadratic equation using the square root property: Exact answers, advanced
Completing the square
Solving a quadratic equation by completing the square: Exact answers
Applying the quadratic formula: Exact answers
Discriminant of a quadratic equation
Solving a word problem using a quadratic equation with rational roots
Solving a word problem using a quadratic equation with irrational roots
Solving a quadratic inequality written in factored form
Solving an equation written in quadratic form: Problem type 1

Lines and Systems

Plotting a point in the coordinate plane
Finding a solution to a linear equation in two variables
Determining whether given points lie on one, both, or neither of 2 lines given equations
Graphing a line given its x- and y-intercepts
Graphing a line given its equation in slope-intercept form
Graphing a line given its equation in standard form
Graphing a line through a given point with a given slope
Graphing a vertical or horizontal line
Finding the y-intercept of a line given its equation
Finding x- and y-intercepts of a line given the equation: Advanced
Finding slope given the graph of a line on a grid
Finding slope given two points on the line
Finding the slope of a line given its equation
Writing an equation of a line given the y-intercept and another point
Writing the equation of a line given the slope and a point on the line
Writing the equation of the line through two given points
Writing the equations of vertical and horizontal lines through a given point
Finding slopes of lines parallel and perpendicular to a line given in the form Ax + By = C
Writing equations of lines parallel and perpendicular to a given line through a point
Writing an equation and drawing its graph to model a real-world situation: Advanced
Application problem with a linear function: Finding a coordinate given the slope and a point
Application problem with a linear function: Finding a coordinate given two points
Graphing a linear inequality in the plane: Standard form
Graphing a linear inequality in the plane: Vertical or horizontal line
Graphing a linear inequality in the plane: Slope-intercept form
Graphically solving a system of linear equations
Solving a system of linear equations using substitution
Solving a system of linear equations using elimination with multiplication and addition
Solving a 3x3 system of linear equations: Problem type 1
Solving a 2x2 system of linear equations that is inconsistent or consistent dependent
Solving a word problem involving a sum and another basic relationship using a system of linear equations
Solving a value mixture problem using a system of linear equations
Solving a distance, rate, time problem using a system of linear equations
Solving a percent mixture problem using a system of linear equations
Solving a tax rate or interest rate problem using a system of linear equations
alge793 Solving a word problem using a 3x3 system of linear equations: Problem type 1
alge263 Interpreting the graphs of two functions
alge079 Graphing a system of two linear inequalities: Basic

Functions and Graphs

set001 Set builder notation
set002 Union and intersection of finite sets
set004 Set builder and interval notation
fun032 Identifying functions from relations
fun010 Vertical line test
pcalc760 Evaluating functions: Linear and quadratic or cubic
pcalc682 Evaluating functions: Absolute value, rational, radical
fun030 Evaluating a piecewise-defined function
fun033 Variable expressions as inputs of functions: Problem type 1
fun016 Domain and range from ordered pairs
pcalc761 Finding inputs and outputs of a function from its graph
pcalc750 Finding intercepts of a nonlinear function given its graph
pcalc751 Finding where a function is increasing, decreasing, or constant given the graph: Interval notation
pcalc774 Finding zeros of a polynomial function written in factored form
fun024 Domain and range from the graph of a continuous function
alge185 Writing an equation for a function after a vertical translation
fun020 Writing an equation for a function after a vertical and horizontal translation
pcalc769 Translating the graph of a function: One step
pcalc770 Translating the graph of a function: Two steps
pcalc771 Transforming the graph of a function by reflecting over an axis
pcalc772 Transforming the graph of a function by shrinking or stretching
alge277 Finding the x-intercept(s) and the vertex of a parabola
alge252 Graphing a parabola of the form y = ax^2
alge253 Graphing a parabola of the form y = (x-h)^2 + k
pcalc746 Graphing a parabola of the form y = ax^2 + bx + c: Integer coefficients
alge702 Classifying the graph of a function
alge262 Graphing a cubic function of the form y = ax^3
alge168 Graphing an absolute value equation in the plane: Advanced
fun019 Sum, difference, and product of two functions
alge786 Quotient of two functions: Basic
fun022 Composition of two functions: Basic
fun011 Horizontal line test
pcalc777 Determining whether two functions are inverses of each other
fun012 Inverse functions: Linear, discrete

Rational Expressions

alge715 Domain of a rational function: Excluded values
alge710 Simplifying a ratio of polynomials: Problem type 1
alge682 Simplifying a ratio of polynomials: Problem type 2
alge034 Simplifying a ratio of multivariate polynomials
alge059 Ordering fractions with variables
alge053 Multiplying rational expressions involving multivariate monomials
alge620 Multiplying rational expressions involving quadratics with leading coefficients of 1
alge054 Dividing rational expressions involving multivariate monomials
alge766 Dividing rational expressions involving quadratics with leading coefficients of 1
alge737 Introduction to the LCM of two monomials
alge055 Least common multiple of two monomials
alge056 Adding rational expressions with common denominators and binomial numerators
alge057 Adding rational expressions with different denominators: ax, bx
alge226 Adding rational expressions with multivariate monomial denominators: Advanced
B.22. PREP. FOR COLLEGE ALGEBRA

alge622 Adding rational expressions with different denominators: x+a, x+b
arith695 Complex fraction without variables: Problem type 1
arith696 Complex fraction without variables: Problem type 2
alge058 Complex fraction involving multivariate monomials
alge767 Complex fraction: GCF and quadratic factoring
alge768 Complex fraction made of sums involving rational expressions
alge759 Dividing a polynomial by a monomial: Univariate
alge761 Polynomial long division: Problem type 1
alge762 Polynomial long division: Problem type 2
alge060 Solving a rational equation that simplifies to linear: Denominator x
alge205 Solving a rational equation that simplifies to linear: Denominator x+a
alge206 Solving a rational equation that simplifies to linear: Unlike binomial denominators
alge769 Solving a rational equation that simplifies to linear: Denominators a, x, or ax
alge212 Solving a rational equation that simplifies to quadratic: Binomial denominators, constant numerators
alge062 Solving a rational equation that simplifies to quadratic: Binomial denominators and numerators
pcalc681 Writing an equation that models variation
alge175 Word problem on direct variation
alge176 Word problem on inverse variation
alge772 Word problem on combined variation

Radical Expressions

pcalc763 Domain of a square root function: Advanced
pcalc781 Graphing a square root function
arith601 Square root of a rational perfect square
arith694 Cube root of an integer
arith693 Simplifying the square root of a whole number less than 100
alge264 Square root of a perfect square monomial
alge080 Simplifying a radical expression with an even exponent
alge275 Simplifying a radical expression with two variables
alge273 Simplifying a higher root of a whole number
alge811 Simplifying a higher radical expression: Multivariate
arith632 Square root addition or subtraction
alge084 Simplifying a sum or difference of radical expressions: Multivariate
arith639 Square root multiplication: Advanced
alge640 Simplifying a product of radical expressions: Multivariate
alge276 Simplifying a product involving square roots using the distributive property: Advanced
alge774 Special products of radical expressions: Conjugates and squaring
alge086 Rationalizing the denominator of a radical expression
alge088 Rationalizing the denominator of a radical expression using conjugates
alge275 Rationalizing a denominator: Quotient involving higher radicals and monomials
alge812 Converting between radical form and exponent form
alge250 Rational exponents: Non-unit fraction exponent with a whole number base
alge251 Rational exponents: Negative exponents and fractional bases
alge773 Rational exponents: Products and quotients with negative exponents
alge249 Rational exponents: Powers of powers with negative exponents
alge089 Solving a radical equation that simplifies to a linear equation: One radical, basic
alge090 Solving a radical equation that simplifies to a linear equation: Two radicals
alge091 Solving a radical equation that simplifies to a quadratic equation: One radical
alge778 Using i to rewrite square roots of negative numbers
alge779 Simplifying a product and quotient involving square roots of negative numbers
pcalc048 Adding or subtracting complex numbers
pcalc049 Multiplying complex numbers
pcalc050 Dividing complex numbers
pcalc053 Simplifying a power of i
pcalc051 Solving a quadratic equation with complex roots

Geometry
APPENDIX B. SYLLABI IN ALEKS

geom300 Perimeter of a square or a rectangle
geom019 Area of a square or a rectangle
geom340 Area of a piecewise rectangular figure
geom351 Areas of rectangles with the same perimeter
geom817 Finding a side length given the perimeter and side lengths with variables
geom217 Finding the side length of a rectangle given its perimeter or area
geom143 Finding the perimeter or area of a rectangle given one of these values
geom022 Area of a parallelogram
geom801 Area of a triangle
geom892 Circumference and area of a circle
geom218 Finding the radius or the diameter of a circle given its circumference
geom838 Circumference ratios
geom301 Perimeter involving rectangles and circles
geom302 Area involving rectangles and circles
geom836 Word problem involving the area between two concentric circles
geom921 Area involving inscribed figures
geom312 Volume of a rectangular prism
geom335 Volume of a cylinder
geom892 Word problem involving the rate of filling or emptying a cylinder
geom331 Surface area of a cube or a rectangular prism
geom334 Surface area of a cylinder: Exact answers in terms of $\pi$
geom337 Similar polygons
geom337 Indirect measurement
geom530 Solving equations involving vertical angles
geom801 Finding an angle measure of a triangle given two angles
geom808 Finding an angle measure for a triangle with an extended side
geom944 Pythagorean Theorem
alge132 Distance between two points in the plane: Exact answers
alge91 Midpoint of a line segment in the plane
pcalc605 Graphing a circle given its equation in standard form
pcalc054 Graphing a circle given its equation in general form
pcalc055 Writing an equation of a circle given its center and a point on the circle
pcalc056 Writing an equation of a circle given the endpoints of a diameter

B.23 Prep. for College Algebra with Trigonometry

Real Numbers

arith616 Simplifying a fraction
arith692 Using a common denominator to order fractions
arith230 Addition or subtraction of fractions with different denominators
arith653 Fraction multiplication
arith632 Fraction division
arith100 Fractional part of a circle
arith220 Converting between percentages and decimals
arith698 Applying the percent equation
arith674 Finding the sale price without a calculator given the original price and percent discount
arith631 Finding the original price given the sale price and percent discount
arith925 Finding the percentage increase or decrease: Advanced
arith232 Finding simple interest without a calculator
arith228 Word problem on unit rates associated with ratios of whole numbers: Decimal answers
alge272 Solving a proportion of the form $x/a = b/c$
arith610 Word problem on proportions: Problem type 1
arith611 Word problem on proportions: Problem type 2
arith108 Integer addition: Problem type 2
arith650 Integer subtraction: Problem type 3
arith616 Signed fraction addition or subtraction: Basic
arith106 Signed fraction addition or subtraction: Advanced
B.23. PREP. FOR COLLEGE ALGEBRA WITH TRIGONOMETRY

arith234 Signed decimal addition and subtraction with 3 numbers
arith231 Integer multiplication and division
arith822 Signed fraction multiplication: Basic
arith105 Signed fraction multiplication: Advanced
arith702 Exponents and integers: Problem type 1
arith703 Exponents and integers: Problem type 2
arith704 Exponents and signed fractions
arith600 Order of operations with integers and exponents
alge004 Evaluating a linear expression: Integer multiplication with addition or subtraction
arith071 Absolute value of a number
arith104 Operations with absolute value: Problem type 2
alge001 Identifying numbers as integers or non-integers
alge002 Identifying numbers as rational or irrational
alge187 Properties of addition
alge188 Properties of real numbers

Equations and Inequalities

alge010 Additive property of equality with integers
alge012 Multiplicative property of equality with signed fractions
alge006 Solving a two-step equation with integers
alge208 Solving a two-step equation with signed fractions
alge200 Solving an equation to find the value of an expression
alge011 Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
alge061 Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
alge013 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
alge209 Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions
alge179 Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators
alge742 Solving equations with zero, one, or infinitely many solutions
alge744 Algebraic symbol manipulation: Problem type 1
alge733 Writing a one-step expression for a real-world situation
alge291 Translating a phrase into a two-step expression
alge016 Translating a sentence into a one-step equation
alge014 Solving a word problem with two unknowns using a linear equation
alge219 Solving a decimal word problem using a linear equation with the variable on both sides
alge173 Solving a decimal word problem using a linear equation of the form $Ax + B = C$
alge704 Solving a fraction word problem using a linear equation with the variable on both sides
alge794 Solving a value mixture problem using a linear equation
alge795 Solving a percent mixture problem using a linear equation
alge796 Solving a distance, rate, time problem using a linear equation
alge792 Solving a word problem with three unknowns using a linear equation
alge017 Graphing a linear inequality on the number line
alge160 Graphing a compound inequality on the number line
alge019 Solving a linear inequality: Problem type 1
alge020 Solving a linear inequality: Problem type 2
alge021 Solving a linear inequality: Problem type 3
alge209 Solving a linear inequality: Problem type 4
alge746 Solving a compound linear inequality: Graph solution, basic
alge747 Solving a compound linear inequality: Interval notation
alge749 Writing a multi-step inequality for a real-world situation
alge749 Solving a decimal word problem using a two-step linear inequality
alge750 Solving a decimal word problem using a linear inequality with the variable on both sides
alge270 Solving an absolute value equation of the form $a — x — = b$ or $—x—— + a = b$
Appendix B. Syllabi in Aleks

- alge103 Solving an absolute value equation of the form $-ax+b = c$
- alge170 Solving an absolute value inequality: Basic

Exponents and Polynomials

- alge790 Evaluating expressions with exponents of zero
- arith042 Evaluating an expression with a negative exponent: Positive fraction base
- arith043 Evaluating an expression with a negative exponent: Negative integer base
- arith029 Ordering numbers with positive exponents
- arith024 Ordering numbers with negative exponents
- alge791 Rewriting an algebraic expression without a negative exponent
- alge024 Introduction to the product rule of exponents
- alge030 Product rule with positive exponents: Multivariate
- alge028 Product rule with negative exponents
- alge026 Quotient of expressions involving exponents
- alge755 Quotient rule with negative exponents: Problem type 1
- alge754 Introduction to the power rules of exponents
- alge027 Power rules with positive exponents
- alge025 Power of a power rule with negative exponents
- alge799 Power rules with negative exponents
- alge756 Power and product rules with positive exponents
- alge757 Power, product, and quotient rules with negative exponents
- arith036 Scientific notation with positive exponent
- arith037 Scientific notation with negative exponent
- sci002 Multiplying and dividing numbers written in scientific notation
- alge758 Degree and leading coefficient of a univariate polynomial
- alge031 Degree of a multivariate polynomial
- alge663 Combining like terms: Advanced
- alge798 Simplifying a sum or difference of two univariate polynomials
- alge029 Simplifying a sum or difference of three univariate polynomials
- alge735 Multiplying a univariate polynomial by a monomial with a positive coefficient
- alge033 Multiplying binomials with leading coefficients of 1
- alge032 Squaring a binomial: Univariate
- alge180 Multiplication involving binomials and trinomials in two variables
- alge736 Introduction to the GCF of two monomials
- alge037 Greatest common factor of two multivariate monomials
- alge738 Factoring out a monomial from a polynomial: Univariate
- alge739 Factoring out a monomial from a polynomial: Multivariate
- alge705 Factoring a quadratic with leading coefficient 1
- alge040 Factoring a quadratic with leading coefficient greater than 1
- alge041 Factoring a product of a quadratic trinomial and a monomial
- alge624 Factoring a difference of squares
- alge038 Factoring a polynomial by grouping: Problem type 1
- alge042 Factoring with repeated use of the difference of squares formula
- alge044 Factoring a sum or difference of two cubes
- alge045 Finding the roots of a quadratic equation with leading coefficient 1
- alge048 Finding the roots of a quadratic equation with leading coefficient greater than 1
- alge211 Solving a quadratic equation needing simplification
- alge781 Solving an equation that can be written in quadratic form: Problem type 1
- alge092 Solving a quadratic equation using the square root property: Exact answers, basic
- alge227 Solving a quadratic equation using the square root property: Exact answers, advanced
- alge094 Completing the square
- alge780 Solving a quadratic equation by completing the square: Exact answers
- alge095 Applying the quadratic formula: Exact answers
- alge214 Discriminant of a quadratic equation
- alge703 Solving a word problem using a quadratic equation with rational roots
- alge524 Solving a word problem using a quadratic equation with irrational roots
alge784 Solving a quadratic inequality written in factored form
alge771 Solving a quadratic inequality

Lines and Systems

alge067 Plotting a point in the coordinate plane
alge066 Finding a solution to a linear equation in two variables
alge216 Determining whether given points lie on one, both, or neither of 2 lines given equations
alge197 Graphing a line given its x- and y-intercepts
alge194 Graphing a line given its equation in slope-intercept form
alge195 Graphing a line given its equation in standard form
alge196 Graphing a line through a given point with a given slope
alge198 Graphing a vertical or horizontal line
alge069 Finding the y-intercept of a line given its equation
alge210 Finding x- and y-intercepts of a line given the equation: Advanced
alge684 Finding slope given the graph of a line on a grid
alge685 Finding slope given two points on the line
alge631 Finding the slope of a line given its equation
alge070 Writing an equation of a line given the y-intercept and another point
alge071 Writing the equation of a line given the slope and a point on the line
alge072 Writing the equation of the line through two given points
alge073 Writing the equations of vertical and horizontal lines through a given point
ggeom807 Finding slopes of lines parallel and perpendicular to a line given in the form Ax + By = C
ggeom808 Writing equations of lines parallel and perpendicular to a given line through a point
alge701 Writing an equation and drawing its graph to model a real-world situation: Advanced
alge805 Application problem with a linear function: Finding a coordinate given the slope and a point
alge806 Application problem with a linear function: Finding a coordinate given two points
alge018 Graphing a linear inequality in the plane: Standard form
alge225 Graphing a linear inequality in the plane: Vertical or horizontal line
alge720 Graphing a linear inequality in the plane: Slope-intercept form
alge725 Graphically solving a system of linear equations
alge751 Solving a system of linear equations using substitution
alge076 Solving a system of linear equations using elimination with multiplication and addition
alge753 Solving a 3x3 system of linear equations: Problem type 1
alge752 Solving a 2x2 system of linear equations that is inconsistent or consistent dependent
alge078 Solving a word problem involving a sum and another basic relationship using a system of linear equations
alge184 Solving a value mixture problem using a system of linear equations
alge224 Solving a distance, rate, time problem using a system of linear equations
alge192 Solving a percent mixture problem using a system of linear equations
alge172 Solving a tax rate or interest rate problem using a system of linear equations
alge793 Solving a word problem using a 3x3 system of linear equations: Problem type 1
alge263 Interpreting the graphs of two functions
alge079 Graphing a system of two linear inequalities: Basic

Functions and Graphs

set001 Set builder notation
set002 Union and intersection of finite sets
set004 Set builder and interval notation
fun032 Identifying functions from relations
fun010 Vertical line test
pcalc760 Evaluating functions: Linear and quadratic or cubic
pcalc682 Evaluating functions: Absolute value, rational, radical
fun030 Evaluating a piecewise-defined function
fun033 Variable expressions as inputs of functions: Problem type 1
fun016 Domain and range from ordered pairs
pcalc761 Finding inputs and outputs of a function from its graph
pcalc750 Finding intercepts of a nonlinear function given its graph
### APPENDIX B. SYLLABI IN ALEKS

#### Rational Expressions

- **alge715** Domain of a rational function: Excluded values
- **alge710** Simplifying a ratio of polynomials: Problem type 1
- **alge682** Simplifying a ratio of polynomials: Problem type 2
- **alge034** Simplifying a ratio of multivariate polynomials
- **alge059** Ordering fractions with variables
- **alge053** Multiplying rational expressions involving multivariate monomials
- **alge620** Multiplying rational expressions involving quadratics with leading coefficients of 1
- **alge054** Dividing rational expressions involving multivariate monomials
- **alge766** Dividing rational expressions involving quadratics with leading coefficients of 1
- **alge737** Introduction to the LCM of two monomials
- **alge055** Least common multiple of two monomials
- **alge056** Adding rational expressions with common denominators and binomial numerators
- **alge057** Adding rational expressions with different denominators: ax, bx
- **alge226** Adding rational expressions with multivariate monomial denominators: Advanced
- **arith695** Complex fraction without variables: Problem type 1
- **arith696** Complex fraction without variables: Problem type 2
- **alge058** Complex fraction involving multivariate monomials
- **alge767** Complex fraction: GCF and quadratic factoring
- **alge768** Complex fraction made of sums involving rational expressions
- **alge739** Dividing a polynomial by a monomial: Univariate
- **alge761** Polynomial long division: Problem type 1
- **alge762** Polynomial long division: Problem type 2
- **alge060** Solving a rational equation that simplifies to linear: Denominator x
- **alge205** Solving a rational equation that simplifies to linear: Denominator x+a
- **alge206** Solving a rational equation that simplifies to linear: Unlike binomial denominators
- **alge769** Solving a rational equation that simplifies to linear: Denominators a, x, or ax
- **alge212** Solving a rational equation that simplifies to quadratic: Binomial denominators, constant numerators
- **alge062** Solving a rational equation that simplifies to quadratic: Binomial denominators and numerators
- **pcalc681** Writing an equation that models variation
- **alge175** Word problem on direct variation
- **alge176** Word problem on inverse variation
- **alge772** Word problem on combined variation
Radical Expressions

pcalc763 Domain of a square root function: Advanced
pcalc781 Graphing a square root function
arith601 Square root of a rational perfect square
arith894 Cube root of an integer
arith993 Simplifying the square root of a whole number less than 100
alge264 Square root of a perfect square monomial
alge890 Simplifying a radical expression with an even exponent
alge275 Simplifying a radical expression with two variables
alge273 Simplifying a higher root of a whole number
alge811 Simplifying a higher radical expression: Multivariate
arith832 Square root addition or subtraction
alge884 Simplifying a sum or difference of radical expressions: Multivariate
arith609 Square root multiplication: Advanced
alge640 Simplifying a product of radical expressions: Multivariate
alge276 Simplifying a product involving square roots using the distributive property: Advanced
alge774 Special products of radical expressions: Conjugates and squaring
alge886 Rationalizing the denominator of a radical expression
alge888 Rationalizing the denominator of a radical expression using conjugates
alge775 Rationalizing a denominator: Quotient involving higher radicals and monomials
alge812 Converting between radical form and exponent form
alge250 Rational exponents: Non-unit fraction exponent with a whole number base
alge251 Rational exponents: Negative exponents and fractional bases
alge773 Rational exponents: Products and quotients with negative exponents
alge249 Rational exponents: Powers of powers with negative exponents
alge289 Solving a radical equation that simplifies to a linear equation: One radical, basic
alge290 Solving a radical equation that simplifies to a linear equation: Two radicals
alge291 Solving a radical equation that simplifies to a quadratic equation: One radical
alge298 Using i to rewrite square roots of negative numbers
alge779 Simplifying a product and quotient involving square roots of negative numbers
pcalc048 Adding or subtracting complex numbers
pcalc049 Multiplying complex numbers
pcalc050 Dividing complex numbers
pcalc053 Simplifying a power of i
pcalc051 Solving a quadratic equation with complex roots

Geometry

geom300 Perimeter of a square or a rectangle
geom301 Area of a square or a rectangle
geom340 Area of a piecewise rectangular figure
geom351 Areas of rectangles with the same perimeter
geom817 Finding a side length given the perimeter and side lengths with variables
geom217 Finding the side length of a rectangle given its perimeter or area
geom143 Finding the perimeter or area of a rectangle given one of these values
geom822 Area of a parallelogram
geom801 Area of a triangle
geom802 Circumference and area of a circle
geom218 Finding the radius or the diameter of a circle given its circumference
geom838 Circumference ratios
geom301 Perimeter involving rectangles and circles
geom302 Area involving rectangles and circles
geom836 Word problem involving the area between two concentric circles
geom214 Area involving inscribed figures
geom311 Volume of a rectangular prism
geom35 Volume of a cylinder
geom92 Word problem involving the rate of filling or emptying a cylinder
geom031 Surface area of a cube or a rectangular prism
APPENDIX B. SYLLABI IN ALEKS

geom034 Surface area of a cylinder: Exact answers in terms of pi
geom037 Similar polygons
geom337 Indirect measurement
geom530 Solving equations involving vertical angles
geom091 Finding an angle measure of a triangle given two angles
geom098 Finding an angle measure for a triangle with an extended side
geom044 Pythagorean Theorem
alge132 Distance between two points in the plane: Exact answers
alge191 Midpoint of a line segment in the plane
pcalc605 Graphing a circle given its equation in standard form
pcalc604 Graphing a circle given its equation in general form
pcalc605 Writing an equation of a circle given its center and a point on the circle
pcalc606 Writing an equation of a circle given the endpoints of a diameter

B.24 Prep. for PreCalculus

Real Numbers

arith067 Simplifying a fraction
arith092 Using a common denominator to order fractions
arith230 Addition or subtraction of fractions with different denominators
arith053 Fraction multiplication
arith022 Fraction division
arith100 Fractional part of a circle
arith226 Converting between percentages and decimals
arith098 Applying the percent equation
arith074 Finding the sale price without a calculator given the original price and percent discount
arith031 Finding the original price given the sale price and percent discount
arith225 Finding the percentage increase or decrease: Advanced
arith232 Finding simple interest without a calculator
arith228 Word problem on unit rates associated with ratios of whole numbers: Decimal answers
alge272 Solving a proportion of the form \( x/a = b/c \)
arith610 Word problem on proportions: Problem type 1
arith611 Word problem on proportions: Problem type 2
arith108 Integer addition: Problem type 2
arith690 Integer subtraction: Problem type 3
arith116 Signed fraction addition or subtraction: Basic
arith106 Signed fraction addition or subtraction: Advanced
arith234 Signed decimal addition and subtraction with 3 numbers
arith231 Integer multiplication and division
arith822 Signed fraction multiplication: Basic
arith105 Signed fraction multiplication: Advanced
arith702 Exponents and integers: Problem type 1
arith703 Exponents and integers: Problem type 2
arith704 Exponents and signed fractions
arith600 Order of operations with integers and exponents
alge005 Evaluating a linear expression: Integer multiplication with addition or subtraction
alge004 Evaluating a quadratic expression: Integers
arith071 Absolute value of a number
arith104 Operations with absolute value: Problem type 2
alge001 Identifying numbers as integers or non-integers
alge002 Identifying numbers as rational or irrational
alge187 Properties of addition
alge188 Properties of real numbers

Equations and Inequalities
B.24. PREP. FOR PRECALCULUS

B.24. PREP. FOR PRECALCULUS

alge010 Additive property of equality with integers
alge012 Multiplicative property of equality with signed fractions
alge006 Solving a two-step equation with integers
alge208 Solving a two-step equation with signed fractions
alge200 Solving an equation to find the value of an expression
alge011 Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
alge001 Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
alge013 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
alge209 Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions
alge179 Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators
alge742 Solving equations with zero, one, or infinitely many solutions
alge743 Algebraic symbol manipulation: Problem type 1
alge744 Algebraic symbol manipulation: Problem type 2
alge733 Writing a one-step expression for a real-world situation
alge291 Translating a phrase into a two-step expression
alge016 Translating a sentence into a one-step equation
alge014 Solving a word problem with two unknowns using a linear equation
alge219 Solving a decimal word problem using a linear equation with the variable on both sides
alge173 Solving a decimal word problem using a linear equation of the form Ax + B = C
alge704 Solving a fraction word problem using a linear equation with the variable on both sides
alge794 Solving a value mixture problem using a linear equation
alge795 Solving a percent mixture problem using a linear equation
alge796 Solving a distance, rate, time problem using a linear equation
alge792 Solving a word problem with three unknowns using a linear equation
alge018 Graphing a linear inequality on the number line
alge166 Graphing a compound inequality on the number line
alge019 Solving a linear inequality: Problem type 1
alge020 Solving a linear inequality: Problem type 2
alge021 Solving a linear inequality: Problem type 3
alge017 Solving a linear inequality: Problem type 4
alge746 Solving a compound linear inequality: Graph solution, basic
alge747 Solving a compound linear inequality: Interval notation
alge729 Writing a multi-step inequality for a real-world situation
alge749 Solving a decimal word problem using a two-step linear inequality
alge750 Solving a decimal word problem using a linear inequality with the variable on both sides
alge210 Solving an absolute value equation of the form a—x— = b or —x— + a = b
alge181 Solving an absolute value equation of the form —ax+b — = c
alge210 Solving an absolute value equation: Basic

Exponents and Polynomials

alge790 Evaluating expressions with exponents of zero
arith042 Evaluating an expression with a negative exponent: Positive fraction base
arith043 Evaluating an expression with a negative exponent: Negative integer base
arith029 Ordering numbers with positive exponents
arith024 Ordering numbers with negative exponents
alge791 Rewriting an algebraic expression without a negative exponent
alge024 Introduction to the product rule of exponents
alge030 Product rule with positive exponents: Multivariate
alge028 Product rule with negative exponents
alge026 Quotient of expressions involving exponents
alge755 Quotient rule with negative exponents: Problem type 1
alge754 Introduction to the power rules of exponents
alge027 Power rules with positive exponents
alge025 Power of a power rule with negative exponents
alge799 Power rules with negative exponents
alge756 Power and product rules with positive exponents
alge757 Power, product, and quotient rules with negative exponents
arith036 Scientific notation with positive exponent
arith037 Scientific notation with negative exponent
scinot002 Multiplying and dividing numbers written in scientific notation
alge758 Degree and leading coefficient of a univariate polynomial
alge031 Degree of a multivariate polynomial
alge663 Combining like terms: Advanced
alge798 Simplifying a sum or difference of two univariate polynomials
alge029 Simplifying a sum or difference of three univariate polynomials
alge735 Multiplying a univariate polynomial by a monomial with a positive coefficient
alge835 Multiplying a multivariate polynomial by a monomial
alge033 Multiplying binomials with leading coefficients of 1
alge764 Multiplying conjugate binomials: Univariate
alge032 Squaring a binomial: Univariate
alge180 Multiplication involving binomials and trinomials in two variables
alge736 Introduction to the GCF of two monomials
alge037 Greatest common factor of two multivariate monomials
alge738 Factoring out a monomial from a polynomial: Univariate
alge739 Factoring out a monomial from a polynomial: Multivariate
alge705 Factoring a quadratic with leading coefficient 1
alge040 Factoring a quadratic with leading coefficient greater than 1
alge041 Factoring a product of a quadratic trinomial and a monomial
alge624 Factoring a difference of squares
alge038 Factoring a polynomial by grouping: Problem type 1
alge042 Factoring with repeated use of the difference of squares formula
alge044 Factoring a sum or difference of two cubes
alge681 Solving an equation written in factored form
alge045 Finding the roots of a quadratic equation with leading coefficient 1
alge048 Finding the roots of a quadratic equation with leading coefficient greater than 1
alge211 Solving a quadratic equation needing simplification
alge781 Solving an equation that can be written in quadratic form: Problem type 1
alge092 Solving a quadratic equation using the square root property: Exact answers, basic
alge227 Solving a quadratic equation using the square root property: Exact answers, advanced
alge094 Completing the square
alge780 Solving a quadratic equation by completing the square: Exact answers
alge095 Applying the quadratic formula: Exact answers
alge214 Discriminant of a quadratic equation
alge703 Solving a word problem using a quadratic equation with rational roots
alge524 Solving a word problem using a quadratic equation with irrational roots
alge784 Solving a quadratic inequality written in factored form
alge771 Solving a quadratic inequality

Lines and Systems

alge067 Plotting a point in the coordinate plane
alge066 Finding a solution to a linear equation in two variables
alge216 Determining whether given points lie on one, both, or neither of 2 lines given equations
alge197 Graphing a line given its x- and y-intercepts
alge194 Graphing a line given its equation in slope-intercept form
alge195 Graphing a line given its equation in standard form
alge196 Graphing a line through a given point with a given slope
alge198 Graphing a vertical or horizontal line
alge069 Finding the y-intercept of a line given its equation
alge210 Finding x- and y-intercepts of a line given the equation: Advanced
alge684 Finding slope given the graph of a line on a grid
alge685 Finding slope given two points on the line
alge631 Finding the slope of a line given its equation
alge070 Writing an equation of a line given the y-intercept and another point
### Functions and Graphs

- Set builder notation
- Union and intersection of finite sets
- Set builder and interval notation
- Identifying functions from relations
- Vertical line test
- Evaluating functions: Linear and quadratic or cubic
- Evaluating functions: Absolute value, rational, radical
- Evaluating a piecewise-defined function
- Domain and range from ordered pairs
- Finding inputs and outputs of a function from its graph
- Finding intercepts of a nonlinear function given its graph
- Finding where a function is increasing, decreasing, or constant given the graph: Interval notation
- Finding local maxima and minima of a function given the graph
- Finding zeros of a polynomial function written in factored form
- Domain and range from the graph of a continuous function
- Writing an equation for a function after a vertical translation
- Writing an equation for a function after a vertical and horizontal translation
- Translating the graph of a function: One step
- Translating the graph of a function: Two steps
- Transforming the graph of a function by reflecting over an axis
- Finding the x-intercept(s) and the vertex of a parabola
- Graphing a parabola of the form $y = ax^2$
- Graphing a parabola of the form $y = (x-h)^2 + k$
- Graphing a parabola of the form $y = ax^2 + bx + c$: Integer coefficients
- Classifying the graph of a function
- Graphing a cubic function of the form $y = ax^3$
- Graphing an absolute value equation in the plane: Advanced
- Sum, difference, and product of two functions
- Quotient of two functions: Basic
- Composition of two functions: Basic
- Horizontal line test
### Rational Expressions

- **alge715** Domain of a rational function: Excluded values
- **alge710** Simplifying a ratio of polynomials: Problem type 1
- **alge682** Simplifying a ratio of polynomials: Problem type 2
- **alge034** Simplifying a ratio of multivariate polynomials
- **alge059** Ordering fractions with variables
- **alge053** Multiplying rational expressions involving multivariate monomials
- **alge620** Multiplying rational expressions involving quadratics with leading coefficients of 1
- **alge054** Dividing rational expressions involving multivariate monomials
- **alge766** Dividing rational expressions involving quadratics with leading coefficients of 1
- **alge737** Introduction to the LCM of two monomials
- **alge055** Least common multiple of two monomials
- **alge056** Adding rational expressions with common denominators and binomial numerators
- **alge226** Adding rational expressions with different denominators: $ax$, $bx$
- **alge057** Adding rational expressions with different denominators: $x+a$, $x+b$
- **arith695** Complex fraction without variables: Problem type 1
- **arith696** Complex fraction without variables: Problem type 2
- **alge058** Complex fraction involving multivariate monomials
- **alge767** Complex fraction: GCF and quadratic factoring
- **alge768** Complex fraction made of sums involving rational expressions
- **alge759** Dividing a polynomial by a monomial: Univariate
- **alge761** Polynomial long division: Problem type 1
- **alge762** Polynomial long division: Problem type 2
- **alge060** Solving a rational equation that simplifies to linear: Denominator $x$
- **alge205** Solving a rational equation that simplifies to linear: Denominator $x+a$
- **alge062** Solving a rational equation that simplifies to quadratic: Binomial denominators and numerators
- **alge061** Solving a rational equation that simplifies to quadratic: Binomial denominators and numerators
- **arith698** Solving a rational equation that simplifies to linear: Unlike binomial denominators
- **alge769** Solving a rational equation that simplifies to linear: Denominators $a$, $x$, or $ax$
- **alge212** Solving a rational equation that simplifies to quadratic: Binomial denominators, constant numerators
- **alge062** Solving a rational equation that simplifies to quadratic: Binomial denominators and numerators
- **pcalc681** Writing an equation that models variation
- **alge175** Word problem on direct variation
- **alge176** Word problem on inverse variation
- **alge772** Word problem on combined variation

### Radical Expressions

- **pcalc763** Domain of a square root function: Advanced
- **pcalc781** Graphing a square root function
- **arith601** Square root of a rational perfect square
- **arith694** Cube root of an integer
- **arith693** Simplifying the square root of a whole number less than 100
- **alge264** Square root of a perfect square monomial
- **alge080** Simplifying a radical expression with an even exponent
- **alge275** Simplifying a radical expression with two variables
- **alge273** Simplifying a higher root of a whole number
- **alge811** Simplifying a higher radical expression: Multivariate
- **arith632** Square root addition or subtraction
- **alge084** Simplifying a sum or difference of radical expressions: Multivariate
- **arith639** Square root multiplication: Advanced
- **alge640** Simplifying a product of radical expressions: Multivariate
- **alge276** Simplifying a product involving square roots using the distributive property: Advanced
- **alge774** Special products of radical expressions: Conjugates and squaring
- **alge086** Rationalizing the denominator of a radical expression
B.25 Preparation for Calculus

Real Numbers
APPENDIX B. SYLLABI IN ALEKS

arith067 Simplifying a fraction
arith092 Using a common denominator to order fractions
arith230 Addition or subtraction of fractions with different denominators
arith053 Fraction multiplication
arith022 Fraction division
arith100 Fractional part of a circle
arith226 Converting between percentages and decimals
arith098 Applying the percent equation
arith074 Finding the sale price without a calculator given the original price and percent discount
arith031 Finding the original price given the sale price and percent discount
arith225 Finding the percentage increase or decrease: Advanced
arith228 Word problem on unit rates associated with ratios of whole numbers: Decimal answers
alge272 Solving a proportion of the form $x/a = b/c$
arith610 Word problem on proportions: Problem type 1
arith611 Word problem on proportions: Problem type 2
arith108 Integer addition: Problem type 2
arith90 Integer subtraction: Problem type 3
arith116 Signed fraction addition or subtraction: Basic
arith106 Signed fraction addition or subtraction: Advanced
arith234 Signed decimal addition and subtraction with 3 numbers
arith231 Integer multiplication and division
arith822 Signed fraction multiplication: Basic
arith105 Signed fraction multiplication: Advanced
arith702 Exponents and integers: Problem type 1
arith703 Exponents and integers: Problem type 2
arith704 Exponents and signed fractions
arith060 Order of operations with integers and exponents
alge005 Evaluating a linear expression: Integer multiplication with addition or subtraction
alge004 Evaluating a quadratic expression: Integers
arith071 Absolute value of a number
arith104 Operations with absolute value: Problem type 2
alge001 Identifying numbers as integers or non-integers
alge002 Identifying numbers as rational or irrational
alge187 Properties of addition
alge188 Properties of real numbers

Equations and Inequalities

alge010 Additive property of equality with integers
alge012 Multiplicative property of equality with signed fractions
alge006 Solving a two-step equation with integers
alge208 Solving a two-step equation with signed fractions
alge200 Solving an equation to find the value of an expression
alge011 Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
alge061 Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
alge013 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
alge209 Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions
alge179 Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators
alge742 Solving equations with zero, one, or infinitely many solutions
alge743 Algebraic symbol manipulation: Problem type 1
alge744 Algebraic symbol manipulation: Problem type 2
alge014 Solving a word problem with two unknowns using a linear equation
alge219 Solving a decimal word problem using a linear equation with the variable on both sides
alge173 Solving a decimal word problem using a linear equation of the form $Ax + B = C$
alge704 Solving a fraction word problem using a linear equation with the variable on both sides
B.25. PREPARATION FOR CALCULUS

Exponents and Polynomials

alge794 Solving a value mixture problem using a linear equation
alge020 Solving a linear inequality: Problem type 2
alge021 Solving a linear inequality: Problem type 3
alge207 Solving a linear inequality: Problem type 4
alge166 Graphing a compound inequality on the number line
alge746 Solving a compound linear inequality: Graph solution, basic
alge47 Solving a compound linear inequality: Interval notation
alge729 Writing a multi-step inequality for a real-world situation
alge749 Solving a decimal word problem using a two-step linear inequality
alge750 Solving a decimal word problem using a linear inequality with the variable on both sides
alge270 Solving an absolute value equation of the form \(-x = b\) or \(-x + a = b\)
alge103 Solving an absolute value equation of the form \(-ax + b = c\)
alge167 Solving an absolute value equation of the form \(-ax + b = -cx + d\)
alge170 Solving an absolute value inequality: Basic

arith042 Evaluating an expression with a negative exponent: Positive fraction base
arith043 Evaluating an expression with a negative exponent: Negative integer base
arith029 Ordering numbers with positive exponents
arith024 Ordering numbers with negative exponents
alge024 Introduction to the product rule of exponents
alge030 Product rule with positive exponents: Multivariate
alge028 Product rule with negative exponents
alge026 Quotient of expressions involving exponents
alge755 Quotient rule with negative exponents: Problem type 1
alge754 Introduction to the power rules of exponents
alge027 Power rules with positive exponents
alge025 Power of a power rule with negative exponents
alge799 Power rules with negative exponents
alge756 Power and product rules with positive exponents
alge757 Power, product, and quotient rules with negative exponents
arith036 Scientific notation with positive exponent
arith037 Scientific notation with negative exponent
scinot002 Multiplying and dividing numbers written in scientific notation
alge758 Degree and leading coefficient of a univariate polynomial
alge031 Degree of a multivariate polynomial
alge663 Combining like terms: Advanced
alge798 Simplifying a sum or difference of two univariate polynomials
alge029 Simplifying a sum or difference of three univariate polynomials
alge735 Multiplying a univariate polynomial by a monomial with a positive coefficient
alge835 Multiplying a multivariate polynomial by a monomial
alge033 Multiplying binomials with leading coefficients of 1
alge764 Multiplying conjugate binomials: Univariate
alge032 Squaring a binomial: Univariate
alge180 Multiplication involving binomials and trinomials in two variables
alge736 Introduction to the GCF of two monomials
alge037 Greatest common factor of two multivariate monomials
alge738 Factoring out a monomial from a polynomial: Univariate
alge739 Factoring out a monomial from a polynomial: Multivariate
alge705 Factoring a quadratic with leading coefficient 1
alge040 Factoring a quadratic with leading coefficient greater than 1
alge041 Factoring a product of a quadratic trinomial and a monomial
alge024 Factoring a difference of squares
alge038 Factoring a polynomial by grouping: Problem type 1
alge042 Factoring with repeated use of the difference of squares formula
alge044 Factoring a sum or difference of two cubes
alge681 Solving an equation written in factored form
alge045 Finding the roots of a quadratic equation with leading coefficient 1
APPENDIX B. SYLLABI IN ALEKS

alge048 Finding the roots of a quadratic equation with leading coefficient greater than 1
alge211 Solving a quadratic equation needing simplification
alge781 Solving an equation that can be written in quadratic form: Problem type 1
alge092 Solving a quadratic equation using the square root property: Exact answers, basic
alge227 Solving a quadratic equation using the square root property: Exact answers, advanced
alge094 Completing the square
alge780 Solving a quadratic equation by completing the square: Exact answers
alge095 Applying the quadratic formula: Exact answers
alge214 Discriminant of a quadratic equation
alge163 Writing a quadratic equation given the roots and the leading coefficient
alge703 Solving a word problem using a quadratic equation with rational roots
alge524 Solving a word problem using a quadratic equation with irrational roots
alge784 Solving a quadratic inequality written in factored form
alge771 Solving a quadratic inequality

Lines and Systems

alge067 Plotting a point in the coordinate plane
alge066 Finding a solution to a linear equation in two variables
alge216 Determining whether given points lie on one, both, or neither of 2 lines given equations
alge197 Graphing a line given its x- and y-intercepts
alge194 Graphing a line given its equation in slope-intercept form
alge195 Graphing a line given its equation in standard form
alge196 Graphing a line through a given point with a given slope
alge198 Graphing a vertical or horizontal line
alge069 Finding the y-intercept of a line given its equation
alge210 Finding x- and y-intercepts of a line given the equation: Advanced
alge684 Finding slope given the graph of a line on a grid
alge685 Finding slope given two points on the line
alge631 Finding the slope of a line given its equation
alge070 Writing an equation of a line given the y-intercept and another point
alge071 Writing the equation of a line given the slope and a point on the line
alge072 Writing the equation of the line through two given points
alge073 Writing the equations of vertical and horizontal lines through a given point
geom807 Finding slopes of lines parallel and perpendicular to a line given in the form \(Ax + By = C\)
geom808 Writing equations of lines parallel and perpendicular to a given line through a point
alge701 Writing an equation and drawing its graph to model a real-world situation: Advanced
alge805 Application problem with a linear function: Finding a coordinate given the slope and a point
alge806 Application problem with a linear function: Finding a coordinate given two points
alge018 Graphing a linear inequality in the plane: Standard form
alge225 Graphing a linear inequality in the plane: Vertical or horizontal line
alge725 Graphically solving a system of linear equations
alge751 Solving a system of linear equations using substitution
alge076 Solving a system of linear equations using elimination with multiplication and addition
alge753 Solving a 3x3 system of linear equations: Problem type 1
alge752 Solving a 2x2 system of linear equations that is inconsistent or consistent dependent
alge078 Solving a word problem involving a sum and another basic relationship using a system of linear equations
alge184 Solving a value mixture problem using a system of linear equations
alge224 Solving a distance, rate, time problem using a system of linear equations
alge192 Solving a percent mixture problem using a system of linear equations
alge172 Solving a tax rate or interest rate problem using a system of linear equations
alge793 Solving a word problem using a 3x3 system of linear equations: Problem type 1
alge263 Interpreting the graphs of two functions
alge079 Graphing a system of two linear inequalities: Basic

Functions and Graphs

set001 Set builder notation
set002 Union and intersection of finite sets
B.25. PREPARATION FOR CALCULUS

set004 Set builder and interval notation
set005 Union and intersection of intervals
fun032 Identifying functions from relations
fun010 Vertical line test
pcalc760 Evaluating functions: Linear and quadratic or cubic
pcalc682 Evaluating functions: Absolute value, rational, radical
fun030 Evaluating a piecewise-defined function
fun033 Variable expressions as inputs of functions: Problem type 1
fun016 Domain and range from ordered pairs
pcalc761 Finding inputs and outputs of a function from its graph
pcalc750 Finding intercepts of a nonlinear function given its graph
pcalc751 Finding where a function is increasing, decreasing, or constant given the graph: Interval notation
pcalc752 Finding local maxima and minima of a function given the graph
fun024 Domain and range from the graph of a continuous function
fun025 Domain and range from the graph of a piecewise function
alge185 Writing an equation for a function after a vertical translation
fun020 Writing an equation for a function after a vertical and horizontal translation
pcalc769 Translating the graph of a function: One step
pcalc770 Translating the graph of a function: Two steps
pcalc771 Transforming the graph of a function by reflecting over an axis
pcalc772 Transforming the graph of a function by shrinking or stretching
alge277 Finding the x-intercept(s) and the vertex of a parabola
pcalc793 Using a graphing calculator to find the x-intercept(s) and vertex of a quadratic function
alge252 Graphing a parabola of the form \( y = ax^2 \)
alge253 Graphing a parabola of the form \( y = (x-h)^2 + k \)
pcalc746 Graphing a parabola of the form \( y = ax^2 + bx + c \): Integer coefficients
pcalc747 Graphing a parabola of the form \( y = ax^2 + bx + c \): Rational coefficients
pcalc774 Rewriting a quadratic function to find the vertex of its graph
pcalc762 Range of a quadratic function
alge702 Classifying the graph of a function
alge262 Graphing a cubic function of the form \( y = ax^3 \)
alge168 Graphing an absolute value equation in the plane: Advanced
fun031 Graphing a piecewise-defined function: Problem type 1
pcalc764 Finding zeros of a polynomial function written in factored form
pcalc765 Finding x- and y-intercepts given a polynomial function
pcalc782 Determining the end behavior of the graph of a polynomial function
pcalc738 Inferring properties of a polynomial function from its graph
pcalc795 Using a graphing calculator to find zeros of a polynomial function
pcalc794 Using a graphing calculator to find local extrema of a polynomial function
pcalc115 Using a graphing calculator to solve a word problem involving a local extremum of a polynomial function
fun019 Sum, difference, and product of two functions
fun022 Composition of two functions: Basic
alge786 Quotient of two functions: Basic
alge129 Composition of two functions: Advanced
fun011 Horizontal line test
 pcalc777 Determining whether two functions are inverses of each other
fun012 Inverse functions: Linear, discrete
alge130 Inverse functions: Rational

Rational Expressions

alge715 Domain of a rational function: Excluded values
alge710 Simplifying a ratio of polynomials: Problem type 1
alge682 Simplifying a ratio of polynomials: Problem type 2
alge694 Simplifying a ratio of multivariate polynomials
alge059 Ordering fractions with variables
alge053 Multiplying rational expressions involving multivariate monomials
alge620 Multiplying rational expressions involving quadratics with leading coefficients of 1
APPENDIX B. SYLLABI IN ALEKS

alge054 Dividing rational expressions involving multivariate monomials
alge766 Dividing rational expressions involving quadratics with leading coefficients of 1
alge737 Introduction to the LCM of two monomials
alge055 Least common multiple of two monomials
alge056 Adding rational expressions with common denominators and binomial numerators
alge057 Adding rational expressions with different denominators: ax, bx
alge226 Adding rational expressions with multivariate monomial denominators: Advanced
alge622 Adding rational expressions with different denominators: x+a, x+b
arith695 Complex fraction without variables: Problem type 1
arith696 Complex fraction without variables: Problem type 2
alge058 Complex fraction involving multivariate monomials
alge767 Complex fraction: GCF and quadratic factoring
alge768 Complex fraction made of sums involving rational expressions
alge759 Dividing a polynomial by a monomial: Univariate
alge761 Polynomial long division: Problem type 1
alge762 Polynomial long division: Problem type 2
alge060 Solving a rational equation that simplifies to linear: Denominator x
alge205 Solving a rational equation that simplifies to linear: Denominator x+a
alge206 Solving a rational equation that simplifies to linear: Unlike binomial denominators
alge769 Solving a rational equation that simplifies to linear: Denominators a, x, or ax
alge212 Solving a rational equation that simplifies to quadratic: Binomial denominators, constant numerators
alge062 Solving a rational equation that simplifies to quadratic: Binomial denominators and numerators
alge047 Solving a rational equation that simplifies to quadratic: Proportional form, advanced
pcalc812 Partial fraction decomposition with distinct linear factors
pcalc813 Partial fraction decomposition with repeated linear factors
pcalc814 Partial fraction decomposition with an irreducible quadratic factor
pcalc681 Writing an equation that models variation
alge175 Word problem on direct variation
alge176 Word problem on inverse variation
alge772 Word problem on combined variation
alge220 Word problem on inverse proportions
arith612 Word problem involving multiple rates
pcalc815 Sketching the graph of a rational function: Constant over linear
pcalc816 Sketching the graph of a rational function: Linear over linear
pcalc819 Sketching the graph of a rational function: Quadratic over linear
pcalc792 Graphing rational functions with holes

Radical Expressions

pcalc763 Domain of a square root function: Advanced
pcalc781 Graphing a square root function
arith601 Square root of a rational perfect square
arith094 Cube root of an integer
arith093 Simplifying the square root of a whole number less than 100
alge264 Square root of a perfect square monomial
alge080 Simplifying a radical expression with an even exponent
alge275 Simplifying a radical expression with two variables
alge273 Simplifying a higher root of a whole number
alge811 Simplifying a higher radical expression: Multivariate
arith032 Square root addition or subtraction
alge084 Simplifying a sum or difference of radical expressions: Multivariate
arith039 Square root multiplication: Advanced
alge640 Simplifying a product of radical expressions: Multivariate
alge276 Simplifying a product involving square roots using the distributive property: Advanced
alge774 Special products of radical expressions: Conjugates and squaring
alge086 Rationalizing the denominator of a radical expression
alge088 Rationalizing the denominator of a radical expression using conjugates
alge775 Rationalizing a denominator: Quotient involving higher radicals and monomials
alge812 Converting between radical form and exponent form
alge250 Rational exponents: Non-unit fraction exponent with a whole number base
B.25. PREPARATION FOR CALCULUS

Exponentials and Logarithms

alge108 Converting between logarithmic and exponential equations
pcalc799 Converting between natural logarithmic and exponential equations
alge232 Evaluating a logarithmic expression
pcalc708 Basic properties of logarithms
pcalc779 Expanding a logarithmic expression: Problem type 1
alge787 Writing an expression as a single logarithm
pcalc612 Change of base for logarithms: Problem type 1
pcalc613 Change of base for logarithms: Problem type 2
alge233 Solving an equation of the form log_ba = c
alge113 Solving an equation involving logarithms on both sides: Problem type 1
pcalc803 Solving a multi-step equation involving a single logarithm
pcalc804 Solving a multi-step equation involving natural logarithms
pcalc805 Solving an equation involving logarithms on both sides: Problem type 2
alge111 Solving an exponential equation by using logarithms: Exact answers in logarithmic form
alge112 Solving an exponential equation by finding common bases: Linear and quadratic exponents
alge789 Solving exponential equations by using logarithms and natural logarithms: Decimal answers
pcalc798 Evaluating an exponential function that models a real-world situation
alge177 Finding a final amount in a word problem on exponential growth or decay
alge178 Finding the time to reach a limit in a word problem on exponential growth or decay
pcalc614 Finding the initial or final amount in a word problem on exponential growth or decay
pcalc615 Finding the rate or time in a word problem on continuous exponential growth or decay
alge712 Graphing an exponential function and its asymptote: f(x) = a(b)x
pcalc797 The graph, domain, and range of an exponential function
pcalc103 Graphing an exponential function and its asymptote: f(x) = a(e)x-b + c
pcalc800 The graph, domain, and range of a logarithmic function
pcalc104 Graphing a logarithmic function: Advanced
pcalc102 Translating the graph of a logarithmic or exponential function

Geometry

g geom300 Perimeter of a square or a rectangle
geom019 Area of a square or a rectangle
g geom340 Area of a piecewise rectangular figure
g geom351 Areas of rectangles with the same perimeter
g geom817 Finding a side length given the perimeter and side lengths with variables
g geom217 Finding the side length of a rectangle given its perimeter or area
g geom143 Finding the perimeter or area of a rectangle given one of these values
g geom922 Area of a parallelogram
g geom801 Area of a triangle
g geom802 Circumference and area of a circle
g geom218 Finding the radius or the diameter of a circle given its circumference
geom301 Perimeter involving rectangles and circles
geom838 Circumference ratios
geom302 Area involving rectangles and circles
geom036 Word problem involving the area between two concentric circles
geom214 Area involving inscribed figures
geom311 Volume of a rectangular prism
geom035 Volume of a cylinder
geom086 Volume of a cone: Exact answers in terms of pi
geom841 Volume of a sphere
geom092 Word problem involving the rate of filling or emptying a cylinder
geom133 Ratio of volumes
geom031 Surface area of a cube or a rectangular prism
geom034 Surface area of a cylinder: Exact answers in terms of pi
geom037 Similar polygons
geom337 Indirect measurement
geom044 Pythagorean Theorem
alge132 Distance between two points in the plane: Exact answers
alge191 Midpoint of a line segment in the plane
pcalc065 Graphing a circle given its equation in standard form
pcalc064 Graphing a circle given its equation in general form
pcalc065 Writing an equation of a circle given its center and a point on the circle
pcalc066 Writing an equation of a circle given the endpoints of a diameter

Trigonometry

pcalc002 Converting between degree and radian measure: Problem type 1
pcalc006 Sketching an angle in standard position
pcalc026 Reference angles: Problem type 1
pcalc022 Coterminal angles
pcalc065 Arc length and central angle measure
pcalc023 Area of a sector of a circle
pcalc090 Sine, cosine, and tangent ratios: Variables for side lengths
pcalc067 Using a trigonometric ratio to find a side length in a right triangle
pcalc0610 Using trigonometry to find a length in a word problem with one right triangle
pcalc068 Using a trigonometric ratio to find an angle measure in a right triangle
pcalc061 Using trigonometry to find angles of elevation or depression in a word problem
pcalc008 Finding trigonometric ratios given a right triangle
pcalc042 Solving a right triangle
pcalc031 Solving a triangle with the law of sines: Problem type 1
pcalc033 Solving a triangle with the law of cosines
pcalc027 Finding coordinates on the unit circle for special angles
pcalc029 Trigonometric functions and special angles: Problem type 1
pcalc030 Trigonometric functions and special angles: Problem type 2
pcalc031 Trigonometric functions and special angles: Problem type 3
pcalc011 Finding values of trigonometric functions given information about an angle: Problem type 1
pcalc012 Finding values of trigonometric functions given information about an angle: Problem type 2
pcalc013 Finding values of trigonometric functions given information about an angle: Problem type 3
pcalc033 Amplitude and period of sine and cosine functions
pcalc034 Amplitude, period, and phase shift of sine and cosine functions
pcalc017 Sketching the graph of $y=a\sin(x+c)$ or $y=a\cos(x+c)$
pcalc016 Sketching the graph of $y=a\sin(bx)$ or $y=a\cos(bx)$
pcalc016 Values of inverse trigonometric functions
pcalc018 Composition of a trigonometric function with its inverse trigonometric function: Problem type 1
pcalc019 Composition of a trigonometric function with the inverse of another trigonometric function: Problem type 2
pcalc036 Composition of a trigonometric function with the inverse of another trigonometric function: Problem type 3
pcalc048 Simplifying trigonometric expressions
pcalc066 Using cofunction identities
pcalc029 Sum and difference identities: Problem type 1
APPENDIX B. SYLLABI IN ALEKS

arith116 Signed fraction addition or subtraction: Basic
arith106 Signed fraction addition or subtraction: Advanced
arith234 Signed decimal addition and subtraction with 3 numbers
arith231 Integer multiplication and division
arith822 Signed fraction multiplication: Basic
arith105 Signed fraction multiplication: Advanced
arith702 Exponents and integers: Problem type 1
arith703 Exponents and integers: Problem type 2
arith704 Exponents and signed fractions
arith600 Order of operations with integers and exponents
alg005 Evaluating a linear expression: Integer multiplication with addition or subtraction
alg004 Evaluating a quadratic expression: Integers
arith071 Absolute value of a number
arith104 Operations with absolute value: Problem type 2
alg001 Identifying numbers as integers or non-integers
alg002 Identifying numbers as rational or irrational
alge187 Properties of addition
alge188 Properties of real numbers

Equations and Inequalities

alge010 Additive property of equality with integers
alge012 Multiplicative property of equality with signed fractions
alge006 Solving a two-step equation with integers
alge208 Solving a two-step equation with signed fractions
alge200 Solving an equation to find the value of an expression
alge011 Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
alge061 Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
alge013 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
alge209 Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions
alge179 Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators
alge742 Solving equations with zero, one, or infinitely many solutions
alge743 Algebraic symbol manipulation: Problem type 1
alge744 Algebraic symbol manipulation: Problem type 2
alge014 Solving a word problem with two unknowns using a linear equation
alge219 Solving a decimal word problem using a linear equation with the variable on both sides
alge173 Solving a decimal word problem using a linear equation of the form Ax + B = C
alge704 Solving a fraction word problem using a linear equation with the variable on both sides
alge794 Solving a value mixture problem using a linear equation
alge020 Solving a linear inequality: Problem type 2
alge021 Solving a linear inequality: Problem type 3
alge207 Solving a linear inequality: Problem type 4
alge166 Graphing a compound inequality on the number line
alge746 Solving a compound linear inequality: Graph solution, basic
alge747 Solving a compound linear inequality: Interval notation
alge729 Writing a multi-step inequality for a real-world situation
alge749 Solving a decimal word problem using a two-step linear inequality
alge750 Solving a decimal word problem using a linear inequality with the variable on both sides
alge270 Solving an absolute value equation of the form a—x— = b or —x— + a = b
alge103 Solving an absolute value equation of the form —ax+b— = c
alge167 Solving an absolute value equation of the form —ax+b— = —cx+d—
alge170 Solving an absolute value inequality: Basic

Exponents and Polynomials
B.26. PREP. FOR CALCULUS WITH LIMITS

alge790 Evaluating expressions with exponents of zero
arith042 Evaluating an expression with a negative exponent: Positive fraction base
arith043 Evaluating an expression with a negative exponent: Negative integer base
arith029 Ordering numbers with positive exponents
arith024 Ordering numbers with negative exponents
alge024 Introduction to the product rule of exponents
alge030 Product rule with positive exponents: Multivariate
alge028 Product rule with negative exponents
alge026 Quotient of expressions involving exponents
alge755 Quotient rule with negative exponents: Problem type 1
alge754 Introduction to the power rules of exponents
alge027 Power rules with positive exponents
alge025 Power of a power rule with negative exponents
alge799 Power rules with negative exponents
alge756 Power and product rules with positive exponents
alge757 Power, product, and quotient rules with negative exponents
arith036 Scientific notation with positive exponent
arith037 Scientific notation with negative exponent
scinot002 Multiplying and dividing numbers written in scientific notation
alge758 Degree and leading coefficient of a univariate polynomial
alge031 Degree of a multivariate polynomial
alge663 Combining like terms: Advanced
alge798 Simplifying a sum or difference of two univariate polynomials
alge029 Simplifying a sum or difference of three univariate polynomials
alge735 Multiplying a univariate polynomial by a monomial with a positive coefficient
alge835 Multiplying a multivariate polynomial by a monomial
alge033 Multiplying binomials with leading coefficients of 1
alge764 Multiplying conjugate binomials: Univariate
alge032 Squaring a binomial: Univariate
alge180 Multiplication involving binomials and trinomials in two variables
alge736 Introduction to the GCF of two monomials
alge037 Greatest common factor of two multivariate monomials
alge738 Factoring out a monomial from a polynomial: Univariate
alge739 Factoring out a monomial from a polynomial: Multivariate
alge705 Factoring a quadratic with leading coefficient 1
alge040 Factoring a quadratic with leading coefficient greater than 1
alge041 Factoring a product of a quadratic trinomial and a monomial
alge624 Factoring a difference of squares
alge038 Factoring a polynomial by grouping: Problem type 1
alge042 Factoring with repeated use of the difference of squares formula
alge044 Factoring a sum or difference of two cubes
alge681 Solving an equation written in factored form
alge045 Finding the roots of a quadratic equation with leading coefficient 1
alge046 Finding the roots of a quadratic equation with leading coefficient greater than 1
alge211 Solving a quadratic equation needing simplification
alge781 Solving an equation that can be written in quadratic form: Problem type 1
alge092 Solving a quadratic equation using the square root property: Exact answers, basic
alge227 Solving a quadratic equation using the square root property: Exact answers, advanced
alge094 Completing the square
alge780 Solving a quadratic equation by completing the square: Exact answers
alge095 Applying the quadratic formula: Exact answers
alge214 Discriminant of a quadratic equation
alge163 Writing a quadratic equation given the roots and the leading coefficient
alge703 Solving a word problem using a quadratic equation with rational roots
alge524 Solving a word problem using a quadratic equation with irrational roots
alge784 Solving a quadratic inequality written in factored form
alge771 Solving a quadratic inequality

Lines and Systems

alge067 Plotting a point in the coordinate plane
alge066 Finding a solution to a linear equation in two variables
alge216 Determining whether given points lie on one, both, or neither of 2 lines given equations
alge197 Graphing a line given its x- and y-intercepts
alge194 Graphing a line given its equation in slope-intercept form
alge195 Graphing a line given its equation in standard form
alge196 Graphing a line through a given point with a given slope
alge198 Graphing a vertical or horizontal line
alge069 Finding the y-intercept of a line given its equation
alge210 Finding x- and y-intercepts of a line given the equation: Advanced
alge684 Finding slope given the graph of a line on a grid
alge685 Finding slope given two points on the line
alge631 Finding the slope of a line given its equation
alge070 Finding an equation of a line given the y-intercept and another point
alge071 Writing the equation of a line given the slope and a point on the line
alge072 Writing the equation of the line through two given points
alge073 Writing the equations of vertical and horizontal lines through a given point
ggeom808 Finding slopes of lines parallel and perpendicular to a line given in the form Ax + By = C
alge074 Writing equations of lines parallel and perpendicular to a line given through a point
alge701 Writing an equation and drawing its graph to model a real-world situation: Advanced
alge805 Application problem with a linear function: Finding a coordinate given the slope and a point
alge806 Application problem with a linear function: Finding a coordinate given two points
alge018 Graphing a linear inequality in the plane: Basic
alge0225 Graphing a linear inequality in the plane: Standard form
alge725 Graphically solving a system of linear equations
alge751 Solving a system of linear equations using substitution
alge076 Solving a system of linear equations using elimination with multiplication and addition
alge753 Solving a 3x3 system of linear equations: Problem type 1
alge752 Solving a 2x2 system of linear equations that is inconsistent or consistent dependent
alge078 Solving a word problem involving a sum and another basic relationship using a system of linear equations
alge184 Solving a value mixture problem using a system of linear equations
alge224 Solving a distance, rate, time problem using a system of linear equations
alge192 Solving a percent mixture problem using a system of linear equations
alge172 Solving a tax rate or interest rate problem using a system of linear equations
alge793 Solving a word problem using a 3x3 system of linear equations: Problem type 1
alge263 Interpreting the graphs of two functions
alge079 Graphing a system of two linear inequalities: Basic

Functions and Graphs

set001 Set builder notation
set002 Union and intersection of finite sets
set004 Set builder and interval notation
set005 Union and intersection of intervals
fun032 Identifying functions from relations
fun010 Vertical line test
pcalc760 Evaluating functions: Linear and quadratic or cubic
pcalc762 Evaluating functions: Absolute value, rational, radical
fun030 Evaluating a piecewise-defined function
fun033 Variable expressions as inputs of functions: Problem type 1
fun016 Domain and range from ordered pairs
pcalc761 Finding inputs and outputs of a function from its graph
pcalc750 Finding intercepts of a nonlinear function given its graph
pcalc751 Finding where a function is increasing, decreasing, or constant given the graph: Interval notation
pcalc752 Finding local maxima and minima of a function given the graph
fun024 Domain and range from the graph of a continuous function
fun025 Domain and range from the graph of a piecewise function
alge185 Writing an equation for a function after a vertical translation
fun020 Writing an equation for a function after a vertical and horizontal translation
pcalc769 Translating the graph of a function: One step
pcalc770 Translating the graph of a function: Two steps
Transforming the graph of a function by reflecting over an axis

Finding the x-intercept(s) and the vertex of a parabola

Using a graphing calculator to find the x-intercept(s) and vertex of a quadratic function

Graphing a parabola of the form $y = ax^2$

Graphing a parabola of the form $y = (x-h)^2 + k$

Graphing a parabola of the form $y = ax^2 + bx + c$: Integer coefficients

Graphing a parabola of the form $y = ax^2 + bx + c$: Rational coefficients

Rewriting a quadratic function to find the vertex of its graph

Range of a quadratic function

Classifying the graph of a function

Graphing a cubic function of the form $y = ax^3$

Graphing an absolute value equation in the plane: Advanced

Graphing a piecewise-defined function: Problem type 1

Finding zeros of a polynomial function written in factored form

Finding x- and y-intercepts given a polynomial function

Determining the end behavior of the graph of a polynomial function

Inferring properties of a polynomial function from its graph

Using a graphing calculator to find zeros of a polynomial function

Using a graphing calculator to solve a word problem involving a polynomial of degree 3

Using a graphing calculator to find local extrema of a polynomial function

Using a graphing calculator to solve a word problem involving a local extremum of a polynomial function

Sum, difference, and product of two functions

Quotient of two functions: Basic

Composition of two functions: Basic

Composition of two functions: Advanced

Horizontal line test

Determining whether two functions are inverses of each other

Inverse functions: Linear, discrete

Inverse functions: Rational

Domain of a rational function: Excluded values

Simplifying a ratio of polynomials: Problem type 1

Simplifying a ratio of polynomials: Problem type 2

Simplifying a ratio of multivariate polynomials

Ordering fractions with variables

Multiplying rational expressions involving multivariate monomials

Multiplying rational expressions involving quadratics with leading coefficients of 1

Dividing rational expressions involving multivariate monomials

Dividing rational expressions involving quadratics with leading coefficients of 1

Introduction to the LCM of two monomials

Least common multiple of two monomials

Adding rational expressions with common denominators and binomial numerators

Adding rational expressions with different denominators: ax, bx

Adding rational expressions with multivariate monomial denominators: Advanced

Adding rational expressions with different denominators: $x+a$, $x+b$

Complex fraction without variables: Problem type 1

Complex fraction without variables: Problem type 2

Complex fraction involving multivariate monomials

Complex fraction: GCF and quadratic factoring

Complex fraction made of sums involving rational expressions

Dividing a polynomial by a monomial: Univariate

Polynomial long division: Problem type 1

Polynomial long division: Problem type 2

Solving a rational equation that simplifies to linear: Denominator $x$

Solving a rational equation that simplifies to linear: Denominator $x+a$

Solving a rational equation that simplifies to linear: Unlike binomial denominators
APPENDIX B. SYLLABI IN ALEKS

alg769 Solving a rational equation that simplifies to linear: Denominators a, x, or ax
alg212 Solving a rational equation that simplifies to quadratic: Binomial denominators, constant numerators
alg062 Solving a rational equation that simplifies to quadratic: Binomial denominators and numerators
alg047 Solving a rational equation that simplifies to quadratic: Proportional form, advanced
pcalc812 Partial fraction decomposition with distinct linear factors
pcalc813 Partial fraction decomposition with repeated linear factors
pcalc814 Partial fraction decomposition with an irreducible quadratic factor
pcalc681 Writing an equation that models variation
alg175 Word problem on direct variation
alg772 Word problem on combined variation
alg220 Word problem on inverse proportions
arith612 Word problem involving multiple rates
pcalc815 Sketching the graph of a rational function: Constant over linear
pcalc816 Sketching the graph of a rational function: Linear over linear
pcalc792 Sketching the graph of a rational function: Quadratic over linear

Radical Expressions

pcalc763 Domain of a square root function: Advanced
pcalc781 Graphing a square root function
arith601 Square root of a rational perfect square
arith094 Cube root of an integer
arith093 Simplifying the square root of a whole number less than 100
alg264 Square root of a perfect square monomial
alg080 Simplifying a radical expression with an even exponent
alg275 Simplifying a radical expression with two variables
alg273 Simplifying a higher root of a whole number
alg811 Simplifying a higher radical expression: Multivariate
arith032 Square root addition or subtraction
alg084 Simplifying a sum or difference of radical expressions: Multivariate
arith039 Square root multiplication: Advanced
alg640 Simplifying a product of radical expressions: Multivariate
alg276 Simplifying a product involving square roots using the distributive property: Advanced
alg774 Special products of radical expressions: Conjugates and squaring
alg086 Rationalizing the denominator of a radical expression
alg088 Rationalizing the denominator of a radical expression using conjugates
alg775 Rationalizing a denominator: Quotient involving higher radicals and monomials
alg812 Converting between radical form and exponent form
alg250 Rational exponents: Non-unit fraction exponent with a whole number base
alg251 Rational exponents: Negative exponents and fractional bases
alg773 Rational exponents: Products and quotients with negative exponents
alg249 Rational exponents: Powers of powers with negative exponents
alg089 Solving a radical equation that simplifies to a linear equation: One radical, basic
alg090 Solving a radical equation that simplifies to a linear equation: Two radicals
alg091 Solving a radical equation that simplifies to a quadratic equation: One radical
alg093 Solving an equation using the odd-root property: Problem type 1
alg778 Using i to rewrite square roots of negative numbers
alg779 Simplifying a product and quotient involving square roots of negative numbers
pcalc048 Adding or subtracting complex numbers
pcalc049 Multiplying complex numbers
pcalc050 Dividing complex numbers
pcalc053 Simplifying a power of i
pcalc051 Solving a quadratic equation with complex roots

Exponentials and Logarithms
B.26. PREP. FOR CALCULUS WITH LIMITS

alge108 Converting between logarithmic and exponential equations
pcalc799 Converting between natural logarithmic and exponential equations
alge232 Evaluating a logarithmic expression
pcalc708 Basic properties of logarithms
pcalc779 Expanding a logarithmic expression: Problem type 1
alge787 Writing an expression as a single logarithm
pcalc612 Change of base for logarithms: Problem type 1
pcalc613 Change of base for logarithms: Problem type 2
alge113 Solving an equation involving logarithms on both sides: Problem type 1
pcalc803 Solving a multi-step equation involving a single logarithm
pcalc804 Solving a multi-step equation involving natural logarithms
pcalc805 Solving an equation involving logarithms on both sides: Problem type 2
alge111 Solving an exponential equation by using logarithms: Exact answers in logarithmic form
alge112 Solving an exponential equation by finding common bases: Linear and quadratic exponents
alge789 Solving exponential equations by using logarithms and natural logarithms: Decimal answers
pcalc798 Evaluating an exponential function that models a real-world situation
alge177 Finding a final amount in a word problem on exponential growth or decay
alge178 Finding the time to reach a limit in a word problem on exponential growth or decay
pcalc614 Finding the initial or final amount in a word problem on exponential growth or decay
pcalc615 Finding the rate or time in a word problem on continuous exponential growth or decay
alge712 Graphing an exponential function and its asymptote: \( f(x) = a(b)^x \)
pcalc797 The graph, domain, and range of an exponential function
pcalc103 Graphing an exponential function and its asymptote: \( f(x) = a(e)^{x-b} + c \)
pcalc800 The graph, domain, and range of a logarithmic function
pcalc104 Graphing a logarithmic function: Advanced
pcalc102 Translating the graph of a logarithmic or exponential function

Geometry

g geom300 Perimeter of a square or a rectangle
g geom019 Area of a square or a rectangle
g geom340 Area of a piecewise rectangular figure
g geom351 Areas of rectangles with the same perimeter
g geom817 Finding a side length given the perimeter and side lengths with variables
g geom217 Finding the side length of a rectangle given its perimeter or area
g geom143 Finding the perimeter or area of a rectangle given one of these values
g geom622 Area of a parallelogram
g geom801 Area of a triangle
g geom802 Circumference and area of a circle
g geom218 Finding the radius or the diameter of a circle given its circumference
g geom301 Perimeter involving rectangles and circles
g geom838 Circumference ratios
g geom302 Area involving rectangles and circles
g geom036 Word problem involving the area between two concentric circles
g geom214 Area involving inscribed figures
g geom311 Volume of a rectangular prism
g geom035 Volume of a cylinder
g geom886 Volume of a cone: Exact answers in terms of \( \pi \)
g geom841 Volume of a sphere
g geom092 Word problem involving the rate of filling or emptying a cylinder
g geom133 Ratio of volumes
g geom031 Surface area of a cube or a rectangular prism
g geom034 Surface area of a cylinder: Exact answers in terms of \( \pi \)
g geom037 Similar polygons
g geom337 Indirect measurement
g geom044 Pythagorean Theorem
g alg132 Distance between two points in the plane: Exact answers
g alg191 Midpoint of a line segment in the plane
calc605 Graphing a circle given its equation in standard form
pcalc064 Graphing a circle given its equation in general form
pcalc065 Writing an equation of a circle given its center and a point on the circle
pcalc066 Writing an equation of a circle given the endpoints of a diameter

**Trigonometry**

pcalc002 Converting between degree and radian measure: Problem type 1
pcalc006 Sketching an angle in standard position
pcalc026 Reference angles: Problem type 1
pcalc022 Coterminal angles
pcalc005 Arc length and central angle measure
pcalc023 Area of a sector of a circle
pcalc090 Sine, cosine, and tangent ratios: Variables for side lengths
pcalc007 Using a trigonometric ratio to find a side length in a right triangle
pcalc010 Using trigonometry to find a length in a word problem with one right triangle
pcalc008 Using a trigonometric ratio to find an angle measure in a right triangle
pcalc088 Finding trigonometric ratios given a right triangle
pcalc042 Solving a right triangle
pcalc031 Solving a triangle with the law of sines: Problem type 1
pcalc033 Solving a triangle with the law of cosines
pcalc027 Finding coordinates on the unit circle for special angles
pcalc029 Trigonometric functions and special angles: Problem type 1
pcalc0630 Trigonometric functions and special angles: Problem type 2
pcalc0631 Trigonometric functions and special angles: Problem type 3
pcalc011 Finding values of trigonometric functions given information about an angle: Problem type 1
pcalc012 Finding values of trigonometric functions given information about an angle: Problem type 2
pcalc013 Finding values of trigonometric functions given information about an angle: Problem type 3
pcalc0633 Amplitude and period of sine and cosine functions
pcalc0634 Amplitude, period, and phase shift of sine and cosine functions
pcalc0107 Sketching the graph of $y = a \sin(x+c)$ or $y = a \cos(x+c)$
pcalc0106 Sketching the graph of $y = a \sin(bx)$ or $y = a \cos(bx)$
pcalc0106 Values of inverse trigonometric functions
pcalc0108 Composition of a trigonometric function with its inverse trigonometric function: Problem type 1
pcalc0109 Composition of a trigonometric function with the inverse of another trigonometric function: Problem type 2
pcalc0108 Composition of a trigonometric function with the inverse of another trigonometric function: Problem type 3
pcalc0648 Simplifying trigonometric expressions
pcalc0666 Using cofunction identities
pcalc0629 Sum and difference identities: Problem type 1
pcalc0630 Sum and difference identities: Problem type 2
pcalc0630 Double-angle identities: Problem type 1
pcalc0667 Double-angle identities: Problem type 2
pcalc109 Product-to-sum and sum-to-product identities: Problem type 1
pcalc1065 Finding solutions in an interval for a basic equation involving sine or cosine
pcalc1051 Finding solutions in an interval for a basic tangent, cotangent, secant, or cosecant equation
pcalc1054 Finding solutions in an interval for a trigonometric equation using Pythagorean identities: Problem type 1
pcalc1020 Solving a basic trigonometric equation involving sine or cosine
pcalc1021 Solving a basic trigonometric equation involving tangent, cotangent, secant, or cosecant
pcalc055 Plotting a point in polar coordinates
pcalc056 Converting rectangular coordinates to polar coordinates: Special angles
pcalc057 Converting polar coordinates to rectangular coordinates
pcalc058 Converting an equation written in rectangular form to one written in polar form
pcalc059 Converting an equation written in polar form to one written in rectangular coordinates

**Limits and Continuity**
B.27 Prep. for Statistics

Numbers

arith200 Integer addition: Problem type 1
arith688 Integer subtraction: Problem type 1
arith231 Integer multiplication and division
arith048 Order of operations with whole numbers
arith051 Order of operations with whole numbers and grouping symbols
arith118 Order of operations with integers
arith220 Decimal place value: Hundreds to ten thousandths
arith221 Rounding decimals
arith082 Multiplication of a decimal by a power of ten
arith083 Division of a decimal by a power of ten
arith117 Signed decimal addition and subtraction
arith226 Converting between percentages and decimals
arith090 Converting a percentage to a fraction in simplest form
arith686 Writing a ratio as a percentage
stat849 Computing a percentage from a table of values
arith064 Introduction to addition or subtraction of fractions with different denominators
arith053 Fraction multiplication
arith022 Fraction division

Algebraic Expressions

arith047 Evaluating expressions with exponents: Problem type 1
arith600 Order of operations with integers and exponents
alg731 Evaluating an algebraic expression: Whole numbers with two operations
alg004 Evaluating a quadratic expression: Integers
alg005 Evaluating a linear expression: Integer multiplication with addition or subtraction
alg606 Distributive property: Whole number coefficients
alg607 Combining like terms: Integer coefficients
stat026 Introduction to summation notation
stat022 Summation of indexed data
alg024 Introduction to the product rule of exponents
alg027 Power rules with positive exponents
Linear Equations

- alge016 Translating a sentence into a one-step equation
- alge292 Translating sentences into two-variable equations
- alge810 Introduction to algebraic symbol manipulation
- alge006 Solving a two-step equation with integers
- alge011 Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
- alge013 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution

Lines in the Coordinate Plane

- alge064 Reading a point in the coordinate plane
- alge067 Plotting a point in the coordinate plane
- alge256 Y-intercept of a line
- alge257 X- and y-intercepts of a line given the equation in standard form
- alge197 Graphing a line given its x- and y-intercepts
- alge194 Graphing a line given its equation in slope-intercept form
- alge684 Finding slope given the graph of a line on a grid
- alge070 Writing an equation of a line given the y-intercept and another point
- alge196 Graphing a line through a given point with a given slope

Descriptive Statistics

- stat777 Classification of variables and levels of measurement
- stat142 Discrete versus continuous variables
- stat807 Interpreting line graphs
- stat227 Interpreting bar graphs
- stat844 Double bar charts
- stat904 Interpreting pie charts
- stat901 Computations from pie charts
- stat831 Interpreting a stem-and-leaf display
- stat702 Histograms for grouped data
- stat717 Interpreting relative frequency histograms
- stat703 Frequency polygons for grouped data
- stat718 Cumulative distributions and ogives
- stat706 Mean, median, and mode: Computations
- stat798 Mean, median, and mode: Comparisons
- stat007 Weighted mean: Tabular data
- stat902 Rejecting unreasonable claims based on average statistics
- stat905 Making reasonable inferences based on proportion statistics
- stat009 Percentiles
- stat021 Population standard deviation
- stat011 Sample standard deviation

Counting and Probability

- stat782 Factorial expressions
- stat788 Combinations
- stat789 Permutations
- stat826 Introduction to probability of an event
- stat810 Probability of an event
- stat846 Experimental and theoretical probability
- stat106 Outcomes and event probability
B.28 Prep. for Math and Dosage

Whole Numbers

arith124 Whole number place value: Problem type 1
arith608 Numeral translation: Problem type 1
arith635 Adding a 2-digit number and a 1-digit number with carry
arith001 Addition without carry
arith650 Addition with carry
arith630 Addition with carry to the hundreds place
arith602 Addition of large numbers
arith636 Subtracting a 1-digit number from a 2-digit number
arith007 Subtraction without borrowing
arith606 Subtraction with borrowing
arith128 Adding or subtracting 10, 100, or 1000
arith682 Subtraction with multiple regrouping steps
arith637 Subtraction and regrouping with zeros
arith608 One-digit multiplication
arith679 Multiplication by 10, 100, and 1000
arith603 Multiplication without carry
arith604 Multiplication with carry
arith615 Introduction to multiplication of large numbers
arith632 Multiplication with trailing zeros: Problem type 1
arith638 Multiplication with trailing zeros: Problem type 2
arith614 Multiplication of large numbers
arith675 Division facts
arith652 Division without carry
arith605 Division with carry
arith680 Division with trailing zeros: Problem type 1
arith649 Division with trailing zeros: Problem type 2
arith650 Division involving quotients with intermediate zeros
arith616 Quotient and remainder: Problem type 1
arith617 Quotient and remainder: Problem type 2
arith078 Rounding to tens or hundreds
arith601 Rounding to thousands, ten thousands, or hundred thousands
arith647 Divisibility rules for 2, 5, and 10
arith648 Divisibility rules for 3 and 9
arith634 Prime numbers
arith633 Greatest common factor of 2 numbers
arith670 Least common multiple of 2 numbers

Fractions and Mixed Numbers

arith623 Introduction to fractions
arith665 Understanding equivalent fractions
arith612 Equivalent fractions
arith666 Introduction to simplifying a fraction
APPENDIX B. SYLLABI IN ALEKS

arith067 Simplifying a fraction
arith062 Writing a mixed number and an improper fraction for a shaded region
arith015 Writing an improper fraction as a mixed number
arith019 Writing a mixed number as an improper fraction
arith044 Ordering fractions with the same denominator
arith091 Ordering fractions with the same numerator
arith092 Using a common denominator to order fractions
arith087 Fractional position on a number line
arith067 Plotting fractions on a number line
arith618 Addition or subtraction of fractions with the same denominator
arith109 Addition or subtraction of unit fractions
arith664 Introduction to addition or subtraction of fractions with different denominators
arith230 Addition or subtraction of fractions with different denominators
arith215 Addition or subtraction of mixed numbers with the same denominator
arith084 Addition of mixed numbers with the same denominator and carry
arith216 Subtraction of mixed numbers with the same denominator and borrowing
arith085 Addition or subtraction of mixed numbers with different denominators
arith079 Product of a unit fraction and a whole number
arith086 Product of a fraction and a whole number: Problem type 1
arith119 Introduction to fraction multiplication
arith053 Fraction multiplication
arith088 The reciprocal of a number
arith694 Division involving a whole number and a fraction
arith082 Division of fractions
arith674 Finding the percentage of a grid that is shaded
arith226 Converting between percentages and decimals

Decimals

arith127 Writing a decimal and a fraction for a shaded region
arith110 Decimal place value: Tenths and hundredths
arith220 Decimal place value: Hundreds to ten thousandths
arith221 Rounding decimals
arith129 Introduction to ordering decimals
arith068 Ordering decimals
arith670 Converting a decimal to a fraction: Basic
arith087 Converting a decimal to a proper fraction in simplest form: Advanced
arith671 Converting a fraction with a denominator of 10, 100, or 1000 to a decimal
arith222 Converting a fraction to a terminating decimal
arith089 Converting a fraction to a repeating decimal
arith672 Converting a decimal to a mixed number
arith223 Converting a mixed number to a decimal
arith624 Addition of aligned decimals
arith013 Decimal addition with 3 numbers
arith625 Subtraction of aligned decimals
arith082 Multiplication of a decimal by a power of ten
arith017 Multiplication of a decimal by a whole number
arith055 Decimal multiplication: Problem type 1
arith083 Division of a decimal by a power of ten
arith081 Division of a decimal by a whole number
arith019 Division of a decimal by a 2-digit decimal
arith045 Word problem with powers of ten

Percents, Ratios, and Proportions

arith674 Finding the percentage of a grid that is shaded
arith226 Converting between percentages and decimals
arith090 Converting a percentage to a fraction in simplest form
arith002 Converting a fraction to a percentage: Denominator of 20, 25, or 50
dosage001 Writing a ratio as a percentage
dosage003 Writing a ratio proportion as a fraction proportion
dosage002 Finding the missing value in a proportion

Measurements and Conversions

unit001 Metric distance conversion with whole number values
unit002 Metric mass or capacity conversion with whole number values
unit003 Metric distance conversion with decimal values
unit004 Metric conversion with decimal values: Two-step problem
dosage004 Converting units
mstat065 Converting between temperatures in Fahrenheit and Celsius

B.29 Prep. for the CSU - ELM

Numbers and Data

arith124 Whole number place value: Problem type 1
arith125 Whole number place value: Problem type 2
arith066 Expanded form
arith643 Expanded form with zeros
arith028 Numerical translation: Problem type 1
arith060 Numerical translation: Problem type 2
arith633 One-digit addition with carry
arith634 Addition of 3 or 4 one-digit numbers
arith635 Adding a 2-digit number and a 1-digit number with carry
arith001 Addition without carry
arith050 Addition with carry
arith630 Addition with carry to the hundreds place
arith012 Addition of large numbers
arith128 Adding or subtracting 10, 100, or 1000
arith636 Subtracting a 1-digit number from a 2-digit number
arith007 Subtraction without borrowing
arith006 Subtraction with borrowing
arith682 Subtraction with multiple regrouping steps
arith637 Subtraction and regrouping with zeros
arith613 Word problem with addition or subtraction of whole numbers
arith126 Multiplication as repeated addition
arith008 One-digit multiplication
arith679 Multiplication by 10, 100, and 1000
arith003 Multiplication without carry
arith004 Multiplication with carry
arith615 Introduction to multiplication of large numbers
arith632 Multiplication with trailing zeros: Problem type 1
arith638 Multiplication with trailing zeros: Problem type 2
arith014 Multiplication of large numbers
arith075 Division facts
arith052 Division without carry
arith005 Division with carry
arith680 Division with trailing zeros: Problem type 1
arith649 Division with trailing zeros: Problem type 2
arith616 Quotient and remainder: Problem type 1
arith617 Quotient and remainder: Problem type 2
APPENDIX B. SYLLABI IN ALEKS

arith631 Quotient and remainder: Problem type 3
arith650 Division involving quotients with intermediate zeros
arith614 Word problem with multiplication or division of whole numbers
arith130 Word problem with multiplication and addition or subtraction of whole numbers
arith644 Word problem on quotient and remainder
arith023 Word problem with division of whole numbers and rounding
arith651 Introduction to inequalities
arith077 Ordering large numbers
arith078 Rounding to tens or hundreds
arith123 Rounding to hundreds or thousands
arith061 Rounding to thousands, ten thousands, or hundred thousands
arith233 Introduction to exponents
arith645 Introduction to parentheses
arith681 Introduction to order of operations
arith048 Order of operations with whole numbers
arith051 Order of operations with whole numbers and grouping symbols
arith655 Introduction to properties of addition
arith656 Introduction to properties of multiplication
arith657 Understanding the distributive property
arith646 Even and odd numbers
arith647 Divisibility rules for 2, 5, and 10
arith648 Divisibility rules for 3 and 9
arith656 Factors
arith034 Prime numbers
arith033 Greatest common factor of 2 numbers
arith035 Prime factorization
arith036 Least common multiple of 2 numbers
arith240 Word problem with common multiples
alge925 Finding the next terms of an arithmetic sequence with whole numbers
alge933 Finding the next terms of a geometric sequence with whole numbers
arith200 Integer addition: Problem type 1
arith108 Integer addition: Problem type 2
arith688 Integer subtraction: Problem type 1
arith689 Integer subtraction: Problem type 2
arith690 Integer subtraction: Problem type 3
arith701 Word problem with addition or subtraction of integers
arith231 Integer multiplication and division
arith800 Multiplication of 3 or 4 integers
arith118 Order of operations with integers
arith674 Finding the percentage of a grid that is shaded
arith226 Converting between percentages and decimals
arith690 Converting a percentage to a fraction in simplest form
arith682 Converting a fraction to a percentage: Denominator of 20, 25, or 50
arith669 Writing to a ratio as a percentage without a calculator
arith630 Finding a percentage of a whole number without a calculator: Basic
arith698 Applying the percent equation
arith074 Finding the sale price without a calculator given the original price and percent discount
arith631 Finding the original price given the sale price and percent discount
arith225 Finding the percentage increase or decrease: Advanced
arith232 Finding simple interest without a calculator
arith623 Introduction to fractions
arith665 Understanding equivalent fractions
arith212 Equivalent fractions
arith666 Introduction to simplifying a fraction
arith067 Simplifying a fraction
arith129 Introduction to ordering decimals
arith608 Ordering decimals
arith609 Ordering fractions and decimals
arith887 Fractional position on a number line
arith691 Ordering integers
arith644 Ordering fractions with the same denominator
arith691 Ordering fractions with the same numerator
B.29. PREP. FOR THE CSU - ELM

- Using a common denominator to order fractions
- Finding the LCD of two fractions
- Addition or subtraction of fractions with the same denominator
- Addition or subtraction of unit fractions
- Introduction to addition or subtraction of fractions with different denominators
- Addition or subtraction of fractions with different denominators
- Signed fraction addition or subtraction: Basic
- Signed fraction addition or subtraction: Advanced
- Fractional part of a circle
- Product of a unit fraction and a whole number
- Product of a fraction and a whole number: Problem type 1
- Introduction to fraction multiplication
- Fraction multiplication
- Signed fraction multiplication: Basic
- Signed fraction multiplication: Advanced
- Multi-step word problem involving fractions and multiplication
- The reciprocal of a number
- Division involving a whole number and a fraction
- Addition or subtraction of mixed numbers with the same denominator
- Addition of mixed numbers with the same denominator and carry
- Subtraction of mixed numbers with the same denominator and borrowing
- Addition or subtraction of mixed numbers with different denominators
- Mixed number multiplication: Problem type 1
- Mixed number multiplication: Problem type 2
- Mixed number division
- Writing a mixed number and an improper fraction for a shaded region
- Writing an improper fraction as a mixed number
- Writing a mixed number as an improper fraction
- Addition or subtraction of mixed numbers with the same denominator
- Addition of mixed numbers with the same denominator and carry
- Subtraction of mixed numbers with the same denominator and borrowing
- Mixed number multiplication: Problem type 1
- Mixed number multiplication: Problem type 2
- Mixed number division
- Converting a decimal to a fraction: Basic
- Converting a decimal to a proper fraction in simplest form: Advanced
- Converting a decimal to a mixed number
- Converting a fraction with a denominator of 10, 100, or 1000 to a decimal
- Converting a fraction to a repeating decimal
- Converting a mixed number to a decimal
- Addition of aligned decimals
- Decimal addition with 3 numbers
- Subtraction of aligned decimals
- Estimating a decimal sum or difference
- Word problem with one decimal operation: Problem type 1
- Word problem with one decimal operation: Problem type 2
- Multiplication of a decimal by a power of ten
- Multiplication of a decimal by a whole number
- Decimal multiplication: Problem type 1
- Decimal multiplication: Problem type 2
- Division of a decimal by a power of ten
- Division of a decimal by a whole number
- Division of a decimal by a 2-digit decimal
- Word problem with decimal addition and multiplication
- Word problem with decimal subtraction and division
- Word problem with powers of ten
- Writing ratios for real-world situations
- Word problem on unit rates associated with ratios of whole numbers: Decimal answers
- Solving a proportion of the form (x+a)÷b = c÷d
- Solving a proportion of the form a/(x+b) = c/x
- Solving a word problem on proportions using a unit rate
- Word problem on proportions: Problem type 1
- Word problem on proportions: Problem type 2
- Word problem on mixed number proportions
- Word problem with clocks
arith127 Writing a decimal and a fraction for a shaded region
arith110 Decimal place value: Tenths and hundredths
arith220 Decimal place value: Hundreds to ten thousandths
arith221 Rounding decimals
arith101 Estimating a sum of whole numbers
arith102 Estimating a difference of whole numbers
arith604 Estimating a product or quotient of whole numbers
arith016 Square root of a perfect square
arith602 Estimating a square root
arith601 Square root of a rational perfect square
mstat056 Interpreting a tally table
mstat057 Interpreting a pictograph table
mstat005 Constructing a bar graph for non-numerical data
mstat006 Constructing a box-and-whisker plot
mstat024 Interpreting a bar graph
mstat044 Interpreting a double bar graph
mstat004 Constructing a histogram for numerical data
mstat007 Interpreting a line graph
stat804 Interpreting a circle graph or pie chart
geom814 Angle measure in a circle graph
mstat001 Mean of a data set
stat803 Finding the value for a new score that will yield a given mean
mstat028 Mean and median of a data set
mstat049 Computing a percentage from a table of values
stat801 Computations from a circle graph

Algebra

alge284 Evaluating an algebraic expression: Whole number addition or subtraction
alge683 Evaluating an algebraic expression: Whole number multiplication or division
alge285 Evaluating an algebraic expression: Whole numbers with two operations
alge832 Evaluating an algebraic expression: Whole number operations and exponents
alge005 Evaluating a linear expression: Integer multiplication with addition or subtraction
alge004 Evaluating a quadratic expression: Integers
arith071 Absolute value of a number
arith104 Operations with absolute value: Problem type 2
alge187 Properties of addition
alge188 Properties of real numbers
alge606 Distributive property: Whole number coefficients
alge604 Distributive property: Integer coefficients
alge700 Combining like terms: Whole number coefficients
alge607 Combining like terms: Integer coefficients
alge663 Combining like terms: Advanced
alge293 Combining like terms in a quadratic expression
alge733 Writing a one-step expression for a real-world situation
alge831 Translating a phrase into a one-step expression
alge291 Translating a phrase into a two-step expression
alge016 Translating a sentence into a one-step equation
alge841 Translating a sentence into a multi-step equation
alge720 Writing a multi-step equation for a real-world situation
alge015 Translating a sentence by using an inequality symbol
alge186 Translating a sentence into a compound inequality
alge810 Introduction to algebraic symbol manipulation
alge743 Algebraic symbol manipulation: Problem type 1
alge744 Algebraic symbol manipulation: Problem type 2
arith092 Writing expressions using exponents
arith083 Power of 10: Positive exponent
arith093 Order of operations with whole numbers and exponents: Basic
arith713 Order of operations with whole numbers and exponents: Advanced
arith702 Exponents and integers: Problem type 1
APPENDIX B. SYLLABI IN ALEKS

alge759 Dividing a polynomial by a monomial: Univariate
alge760 Dividing a polynomial by a monomial: Multivariate
alge761 Polynomial long division: Problem type 1
alge762 Polynomial long division: Problem type 2
alge763 Polynomial long division: Problem type 3
alge736 Introduction to the GCF of two monomials
alge037 Greatest common factor of two multivariate monomials
alge930 Greatest common factor of three univariate monomials
alge738 Factoring out a monomial from a polynomial: Univariate
alge739 Factoring out a monomial from a polynomial: Multivariate
alge949 Factoring out a binomial from a polynomial: GCF factoring, basic
alge923 Factoring a univariate polynomial by grouping: Problem type 1
alge950 Factoring a univariate polynomial by grouping: Problem type 2
alge951 Factoring a multivariate polynomial by grouping: Problem type 1
alge952 Factoring a multivariate polynomial by grouping: Problem type 2
alge936 Factoring out a constant before factoring a quadratic
alge939 Factoring a quadratic with leading coefficient greater than 1: Problem type 1
alge940 Factoring a quadratic with leading coefficient greater than 1: Problem type 2
alge941 Factoring a quadratic with leading coefficient greater than 1: Problem type 3
alge978 Factoring a quadratic by the ac-method
alge948 Factoring a polynomial involving a GCF and a difference of squares: Univariate
alge933 Factoring a polynomial involving a GCF and a difference of squares: Multivariate
alge042 Factoring with repeated use of the difference of squares formula
alge044 Factoring a sum or difference of two cubes
alge049 Restriction on a variable in a denominator: Linear
alge715 Domain of a rational function: Excluded values
alge710 Simplifying a ratio of polynomials: Problem type 1
alge034 Simplifying a ratio of multivariate polynomials
alge053 Multiplying rational expressions involving multivariate monomials
alge620 Multiplying rational expressions involving quadratics with leading coefficients of 1
alge054 Dividing rational expressions involving multivariate monomials
alge766 Dividing rational expressions involving quadratics with leading coefficients of 1
alge737 Introduction to the LCM of two monomials
alge055 Least common multiple of two monomials
alge056 Adding rational expressions with common denominators and binomial numerators
alge057 Adding rational expressions with different denominators: ax, bx
alge226 Adding rational expressions with multivariate monomial denominators: Advanced
alge622 Adding rational expressions with different denominators: x+a, x+b
alge661 Adding rational expressions involving different quadratic denominators
arith695 Complex fraction without variables: Problem type 1
arith696 Complex fraction without variables: Problem type 2
alge058 Complex fraction involving multivariate monomials
alge162 Complex fraction that contains a complex fraction
alge767 Complex fraction: GCF and quadratic factoring
alge768 Complex fraction made of sums involving rational expressions
alge009 Additive property of equality with whole numbers
alge801 Additive property of equality with fractions and mixed numbers
alge800 Additive property of equality with decimals
alge010 Additive property of equality with integers
alge266 Additive property of equality with a negative coefficient
alge836 Additive property of equality with signed fractions
B.29. PREP. FOR THE CSU - ELM

alge008 Multiplicative property of equality with whole numbers
alge820 Multiplicative property of equality with fractions
alge825 Multiplicative property of equality with decimals
alge707 Multiplicative property of equality with integers
alge012 Multiplicative property of equality with signed fractions
alge834 Identifying solutions to a linear equation in one variable: Two-step equations
alge803 Using two steps to solve an equation with whole numbers
alge006 Solving a two-step equation with integers
alge837 Solving a multi-step equation given in fractional form
alge208 Solving a two-step equation with signed fractions
alge824 Solving a two-step equation with signed decimals
alge200 Solving an equation to find the value of an expression
alge920 Introduction to solving an equation with parentheses
alge838 Introduction to solving an equation with variables on the same side
alge862 Solving a linear equation with several occurrences of the variable: Variables on the same side
alge863 Solving a linear equation with several occurrences of the variable: Variables on both sides
alge011 Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
alge013 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
alge209 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
alge061 Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
alge179 Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators
alge742 Solving equations with zero, one, or infinitely many solutions
alge986 Identifying properties used to solve a linear equation
alge914 Identifying solutions to a system of linear equations
alge915 Identifying solutions to a system of linear equations from graphs
alge725 Graphically solving a system of linear equations
alge751 Solving a system of linear equations using substitution
alge916 Solving a system of linear equations using elimination with multiplication and addition
alge917 Solving a system of linear equations with decimal coefficients
alge752 Solving a 2x2 system of linear equations that is inconsistent or consistent dependent
alge844 Identifying solutions to a two-step linear inequality in one variable
alge848 Additive property of inequality with whole numbers
alge849 Additive property of inequality with integers
alge852 Additive property of inequality with signed fractions
alge853 Additive property of inequality with signed decimals
alge854 Multiplicative property of inequality with integers
alge855 Multiplicative property of inequality with signed fractions
alge856 Solving a two-step linear inequality: Problem type 1
alge857 Solving a two-step linear inequality: Problem type 2
alge977 Solving a linear inequality with multiple occurrences of the variable: Problem type 1
alge858 Solving a linear inequality with multiple occurrences of the variable: Problem type 2
alge859 Solving a linear inequality with multiple occurrences of the variable: Problem type 3
alge860 Solving inequalities with no solution or all real numbers as solutions
alge746 Solving a compound linear inequality: Graph solution, basic
alge749 Solving a decimal word problem using a two-step linear inequality
alge750 Solving a decimal word problem using a linear inequality with the variable on both sides
alge823 Solving a one-step word problem using the formula d = rt
alge272 Solving a proportion of the form x/a = b/c
alge802 Solving a fraction word problem using a linear equation of the form Ax = B
alge014 Solving a word problem with two unknowns using a linear equation
alge173 Solving a decimal word problem using a linear equation of the form Ax + B = C
alge219 Solving a decimal word problem using a linear equation with the variable on both sides
alge704 Solving a fraction word problem using a linear equation with the variable on both sides
alge792 Solving a word problem with three unknowns using a linear equation
APPENDIX B. SYLLABI IN ALEKS

alge842 Solving a word problem involving consecutive integers
alge794 Solving a value mixture problem using a linear equation
alge795 Solving a percent mixture problem using a linear equation
alge796 Solving a distance, rate, time problem using a linear equation
geom530 Solving equations involving vertical angles
geom531 Solving equations involving angles and a pair of parallel lines
geom502 Finding angle measures of a right or isosceles triangle given angles with variables
alge678 Solving a word problem involving a sum and another basic relationship using a system of linear equations
alge224 Solving a distance, rate, time problem using a system of linear equations
alge192 Solving a percent mixture problem using a system of linear equations
alge681 Solving an equation written in factored form
alge956 Finding the roots of a quadratic equation of the form ax2 + bx = 0
alge045 Finding the roots of a quadratic equation with leading coefficient 1
alge048 Finding the roots of a quadratic equation with leading coefficient greater than 1
alge211 Solving a quadratic equation needing simplification
alge962 Solving an equation of the form x2 = a using the square root property
alge092 Solving a quadratic equation using the square root property: Exact answers, basic
alge227 Solving a quadratic equation using the square root property: Exact answers, advanced
alge094 Completing the square
alge790 Solving a quadratic equation by completing the square: Exact answers
alge955 Applying the quadratic formula: Exact answers
alge963 Applying the quadratic formula: Decimal answers
pcalc501 Solving a quadratic equation with complex roots
alge214 Discriminant of a quadratic equation
alge089 Solving a radical equation that simplifies to a linear equation: One radical, basic
alge703 Solving a word problem using a quadratic equation with rational roots
alge524 Solving a word problem using a quadratic equation with irrational roots
alge864 Solving an absolute value equation: Problem type 1
alge865 Solving an absolute value inequality: Problem type 1
alge884 Finding x- and y-intercepts given the graph of a line on a grid
alge924 Finding x- and y-intercepts of a line given the equation: Basic
alge210 Finding x- and y-intercepts of a line given the equation: Advanced
alge875 Classifying slopes given graphs of lines
alge886 Finding slope given the graph of a line on a grid
alge889 Finding the slope and y-intercept of a line given its equation in the form y = mx + b
alge890 Finding the slope and y-intercept of a line given its equation in the form Ax+By=C
alge887 Finding slope given two points on the line
alge885 Finding the slope of horizontal and vertical lines
alge218 Solving a word problem involving rates and time conversion
alge220 Word problem on inverse proportions
alge175 Word problem on direct variation
alge176 Word problem on inverse variation
alge702 Word problem on combined variation
alge001 Identifying numbers as integers or non-integers
alge002 Identifying numbers as rational or irrational
arith699 Writing a signed number for a real-world situation
arith712 Ordering real numbers
arith117 Signed decimal addition and subtraction
arith234 Signed decimal addition and subtraction with 3 numbers
alge845 Translating a sentence into a one-step inequality
alge846 Translating a sentence into a multi-step inequality
alge748 Writing an inequality for a real-world situation
alge729 Writing a multi-step inequality for a real-world situation
alge017 Graphing a linear inequality on the number line
alge822 Writing an inequality given a graph on the number line
alge166 Graphing a compound inequality on the number line
alge847 Writing a compound inequality given a graph on the number line
set001 Set builder notation
set004 Set builder and interval notation
set002 Union and intersection of finite sets
pcalc760 Evaluating functions: Linear and quadratic or cubic
fun033 Variable expressions as inputs of functions: Problem type 1
fun005 Writing a function rule given a table of ordered pairs: One-step rules
fun016 Domain and range from ordered pairs
fun032 Identifying functions from relations
pcalc757 Determining whether an equation defines a function: Advanced
fun010 Vertical line test
fun024 Domain and range from the graph of a continuous function
fun019 Sum, difference, and product of two functions
fun022 Composition of two functions: Basic
pcalc776 Expressing a function as a composition of two functions
alge873 Identifying solutions to a linear equation in two variables
alge850 Table for a linear equation
alge066 Finding a solution to a linear equation in two variables
alge876 Identifying linear equations: Advanced
alge874 Identifying linear functions given ordered pairs
alge891 Rewriting a linear equation in the form Ax + By = C
alge888 Finding the coordinate that yields a given slope
alge892 Writing an equation and graphing a line given its slope and y-intercept
alge070 Writing an equation of a line given the y-intercept and another point
alge893 Writing an equation in slope-intercept form given the slope and a point
alge894 Writing an equation in point-slope form given the slope and a point
alge072 Writing the equation of the line through two given points
alge073 Writing the equations of vertical and horizontal lines through a given point
alge897 Writing and evaluating a function that models a real-world situation: Advanced
alge989 Interpreting the parameters of a linear function that models a real-world situation
alge885 Application problem with a linear function: Finding a coordinate given the slope and a point
alge886 Application problem with a linear function: Finding a coordinate given two points
alge895 Identifying parallel and perpendicular lines from equations
geom807 Finding slopes of lines parallel and perpendicular to a line given in the form Ax + By = C
geom808 Writing equations of lines parallel and perpendicular to a given line through a point
mstat051 Choosing a graph to fit a narrative: Advanced
mstat023 Scatter plots and correlation
mstat030 Sketching the line of best fit
mstat068 Predictions from the line of best fit
mstat067 Approximating the equation of a line of best fit and making predictions
alge982 Identifying direct variation equations
alge938 Identifying direct variation from ordered pairs and writing equations
alge904 Writing a direct variation equation
alge913 Graphing an absolute value equation of the form y = A — x —
alge900 Graphing an absolute value equation in the plane: Basic
alge168 Graphing an absolute value equation in the plane: Advanced
alge263 Interpreting the graphs of two functions
alge919 Solving a word problem using a system of linear equations of the form Ax + By = C
alge918 Solving a word problem using a system of linear equations of the form y = mx + b
alge172 Solving a tax rate or interest rate problem using a system of linear equations
alge912 Identifying solutions to a linear inequality in two variables
alge720 Graphing a linear inequality in the plane: Slope-intercept form
alge018 Graphing a linear inequality in the plane: Standard form
alge225 Graphing a linear inequality in the plane: Vertical or horizontal line
alge079 Graphing a system of two linear inequalities: Basic
alge921 Graphing a system of two linear inequalities: Advanced
alge922 Graphing a system of three linear inequalities
pcalc093 Solving a word problem using a system of linear inequalities: Problem type 1
alge060 Solving a rational equation that simplifies to linear: Denominator x
alge205 Solving a rational equation that simplifies to linear: Denominator x+a
alge206 Solving a rational equation that simplifies to linear: Unlike binomial denominators
alge769 Solving a rational equation that simplifies to linear: Denominators a, x, or ax
alge212 Solving a rational equation that simplifies to quadratic: Binomial denominators, constant numerators
alge062 Solving a rational equation that simplifies to quadratic: Binomial denominators and numerators
alge047 Solving a rational equation that simplifies to quadratic: Proportional form, advanced
arith612 Word problem involving multiple rates
alge770 Solving a work problem using a rational equation
alge059 Ordering fractions with variables
pcalc681 Writing an equation that models variation
pcalc763 Domain of a square root function: Advanced
pcalc781 Graphing a square root function
alge264 Square root of a perfect square monomial
alge275 Simplifying a radical expression with two variables
alge273 Simplifying a higher root of a whole number
alge811 Simplifying a higher radical expression: Multivariate
alge276 Simplifying a product involving square roots using the distributive property: Advanced
alge774 Special products of radical expressions: Conjugates and squaring
alge086 Rationalizing the denominator of a radical expression
alge088 Rationalizing the denominator of a radical expression using conjugates
alge812 Converting between radical form and exponent form
alge773 Rational exponents: Products and quotients with negative exponents
alge090 Solving a radical equation that simplifies to a linear equation: Two radicals
alge091 Solving a radical equation that simplifies to a quadratic equation: One radical
alge182 Solving a radical equation that simplifies to a quadratic equation: Two radicals
alge778 Using i to rewrite square roots of negative numbers
alge779 Simplifying a product and quotient involving square roots of negative numbers
pcalc048 Adding or subtracting complex numbers
pcalc049 Multiplying complex numbers
pcalc050 Dividing complex numbers
pcalc053 Simplifying a power of i

Geometry

geom361 Naming polygons
geom867 Identifying parallelograms, rectangles, and squares
geom310 Properties of quadrilaterals
geom332 Classifying parallelograms
geom339 Perimeter of a polygon
geom300 Perimeter of a square or a rectangle
geom078 Sides of polygons having the same perimeter
geom221 Finding the missing length in a figure
geom353 Perimeter of a piecewise rectangular figure
geom866 Perimeter and area on a grid
geom019 Area of a square or a rectangle
geom350 Distinguishing between the area and perimeter of a rectangle
geom351 Areas of rectangles with the same perimeter
geom340 Area of a piecewise rectangular figure
geom142 Word problem involving the area between two rectangles
geom801 Area of a triangle
geom344 Area involving rectangles and triangles
geom022 Area of a parallelogram
geom023 Area of a trapezoid
geom347 Introduction to a circle: Diameter, radius, and chord
geom016 Circumference of a circle
geom218 Finding the radius or the diameter of a circle given its circumference
geom301 Perimeter involving rectangles and circles
geom820 Circumference and area of a circle
geom036 Word problem involving the area between two concentric circles
geom302 Area involving rectangles and circles
geom214 Area involving inscribed figures
geom868 Classifying solids
geom354 Volume of a rectangular prism made of unit cubes
geom311 Volume of a rectangular prism
geom505 Volume of a piecewise rectangular prism
geom900 Volume of a triangular prism
geom033 Volume of a pyramid
geom035 Volume of a cylinder
geom092 Word problem involving the rate of filling or emptying a cylinder
geom086 Volume of a cone: Exact answers in terms of pi
geom841 Volume of a sphere
geom219 Nets of solids
geom031 Surface area of a cube or a rectangular prism
geom245 Surface area of a piecewise rectangular prism made of unit cubes
geom034 Surface area of a cylinder: Exact answers in terms of pi
geom842 Surface area of a sphere
geom360 Identifying similar or congruent shapes on a grid
geom037 Similar polygons
geom038 Similar right triangles
geom044 Pythagorean Theorem
geom359 Identifying congruent shapes on a grid
geom347 Indirect measurement
geom038 Circumference ratios
geom217 Finding the side length of a rectangle given its perimeter or area
geom143 Finding the perimeter or area of a rectangle given one of these values
geom217 Finding a side length given the perimeter and side lengths with variables
geom036 Acute, obtuse, and right triangles
geom037 Classifying scalene, isosceles, and equilateral triangles by side lengths or angles
geom001 Finding an angle measure of a triangle given two angles
geom008 Finding an angle measure for a triangle with an extended side
geom520 Identifying and naming congruent triangles
geom039 Naming segments, rays, and lines
geom358 Identifying parallel and perpendicular lines
geom151 Measuring an angle with the protractor
geom152 Drawing an angle with the protractor
geom036 Acute, obtuse, and right angles
geom039 Finding supplementary and complementary angles
geom030 Identifying supplementary and vertical angles
geom030 Identifying corresponding and alternate angles
alge286 Plotting integers on a number line
arith067 Plotting fractions on a number line
arith065 Plotting rational numbers on a number line
alge064 Reading a point in the coordinate plane
alge067 Plotting a point in the coordinate plane
fun001 Table for a linear function
pcalc761 Finding inputs and outputs of a function from its graph
alge197 Graphing a line given its x- and y-intercepts
alge877 Graphing a linear equation of the form y = mx
alge878 Graphing a line given its equation in slope-intercept form: Integer slope
alge879 Graphing a line given its equation in slope-intercept form: Fractional slope
alge880 Graphing a line given its equation in standard form
alge198 Graphing a line by first finding its x- and y-intercepts
alge196 Graphing a line through a given point with a given slope
alge882 Graphing a line by first finding its slope and y-intercept
alge883 Graphing a line given its equation in point-slope form
alge198 Graphing a vertical or horizontal line
alge701 Writing an equation and drawing its graph to model a real-world situation: Advanced
alge974 Finding the vertex, x-intercepts, and axis of symmetry from the graph of a parabola
alge277 Finding the x-intercept(s) and the vertex of a parabola
pcalc774 Rewriting a quadratic function to find the vertex of its graph
pcalc775 Finding the maximum or minimum of a quadratic function
alge785 Word problem involving the maximum or minimum of a quadratic function
alge953 Translating the graph of a parabola: One step
alge954 Graphing a parabola of the form y = ax^2
alge955 Graphing a parabola of the form y = ax^2 + c
alge253 Graphing a parabola of the form y = (x-h)^2 + k
pcalc746 Graphing a parabola of the form y = ax^2 + bx + c: Integer coefficients
pcalc747 Graphing a parabola of the form y = ax^2 + bx + c: Rational coefficients
alge262 Graphing a cubic function of the form y = ax^3
alge723 How the leading coefficient affects the shape of a parabola
alge132 Distance between two points in the plane: Exact answers
mstat059 Choosing U.S. Customary measurement units
mstat035 Conversions involving measurements in feet and inches
mstat036 Adding measurements in feet and inches
unit005 U.S. Customary unit conversion with whole number values
unit006 U.S. Customary unit conversion with whole number values: Two-step conversion
unit007 U.S. Customary unit conversion with mixed number values: One-step conversion
unit008 U.S. Customary unit conversion with mixed number values: Two-step conversion
unit009 U.S. Customary area unit conversion with whole number values
unit060 Choosing metric measurement units
unit001 Metric distance conversion with whole number values
unit002 Metric mass or capacity conversion with whole number values
unit003 Metric distance conversion with decimal values
unit004 Metric conversion with decimal values: Two-step problem
unit010 Metric area unit conversion with decimal values
unit012 Time unit conversion with whole number values
time006 Adding time
time007 Elapsed time
unit065 Converting between temperatures in Fahrenheit and Celsius
unit034 Converting between metric and U.S. Customary unit systems
unit035 Converting between compound units: Basic
unit036 Converting between compound units: Advanced
mstat003 Mode of a data set
mstat029 How changing a value affects the mean and median
mstat055 Choosing the best measure to describe data
unit066 Weighted mean
mstat026 Introduction to the probability of an event
mstat010 Probability of an event
stat112 Probabilities involving two dice
mstat041 Interpreting a tree diagram

B.30 Florida Math 0018

Whole Numbers

arith124 Whole number place value: Problem type 1
arith125 Whole number place value: Problem type 2
arith066 Expanded form
arith643 Expanded form with zeros
arith028 Numerical translation: Problem type 1
arith060 Numerical translation: Problem type 2
arith633 One-digit addition with carry
arith634 Addition of 3 or 4 one-digit numbers
arith001 Addition without carry
arith635 Adding a 2-digit number and a 1-digit number with carry
arith650 Addition with carry
arith630 Addition with carry to the hundreds place
arith012 Addition of large numbers
arith636 Subtracting a 1-digit number from a 2-digit number
arith007 Subtraction without borrowing
arith128 Adding or subtracting 10, 100, or 1000
arith006 Subtraction with borrowing
arith682 Subtraction with multiple regrouping steps
arith637 Subtraction and regrouping with zeros
arith613 Word problem with addition or subtraction of whole numbers
arith655 Introduction to properties of addition
arith126 Multiplication as repeated addition
arith008 One-digit multiplication
arith679 Multiplication by 10, 100, and 1000
arith603 Multiplication without carry
arith604 Multiplication with carry
arith632 Multiplication with trailing zeros: Problem type 1
arith615 Introduction to multiplication of large numbers
arith638 Multiplication with trailing zeros: Problem type 2
arith614 Multiplication of large numbers
arith641 Multiples: Problem type 1
arith642 Multiples: Problem type 2
arith656 Introduction to properties of multiplication
arith675 Division facts
arith614 Word problem with multiplication or division of whole numbers
arith130 Word problem with multiplication and addition or subtraction of whole numbers
arith243 Division of whole numbers given in fractional form
arith771 Division involving zero
arith652 Division without carry
arith605 Division with carry
arith680 Division with trailing zeros: Problem type 1
arith649 Division with trailing zeros: Problem type 2
arith616 Quotient and remainder: Problem type 1
arith644 Word problem on quotient and remainder
arith617 Quotient and remainder: Problem type 2
arith631 Quotient and remainder: Problem type 3
arith650 Division involving quotients with intermediate zeros
arith623 Word problem with division of whole numbers and rounding
arith646 Even and odd numbers
arith651 Introduction to inequalities
arith677 Ordering large numbers
arith678 Rounding to tens or hundreds
arith123 Rounding to hundreds or thousands
arith661 Rounding to thousands, ten thousands, or hundred thousands
arith101 Estimating a sum of whole numbers
arith102 Estimating a difference of whole numbers
arith664 Estimating a product or quotient of whole numbers
arith692 Writing expressions using exponents
arith233 Introduction to exponents
arith683 Power of 10: Positive exponent
arith645 Introduction to parentheses
arith681 Introduction to order of operations
arith648 Order of operations with whole numbers
arith651 Order of operations with whole numbers and grouping symbols
arith653 Order of operations with whole numbers and exponents: Basic
arith713 Order of operations with whole numbers and exponents: Advanced
arith657 Understanding the distributive property

Integers

alge286 Plotting integers on a number line
mstat038 Reading the temperature from a thermometer
arith699 Writing a signed number for a real-world situation
arith691 Ordering integers
arith671 Absolute value of a number
arith200 Integer addition: Problem type 1
arith108 Integer addition: Problem type 2
arith688 Integer subtraction: Problem type 1
arith689 Integer subtraction: Problem type 2
arith690 Integer subtraction: Problem type 3
arith754 Addition and subtraction with 3 integers
APPENDIX B. SYLLABI IN ALEKS

arith755 Addition and subtraction with 4 or 5 integers
arith701 Word problem with addition or subtraction of integers
arith104 Operations with absolute value: Problem type 2
arith231 Integer multiplication and division
arith800 Multiplication of 3 or 4 integers
arith702 Exponents and integers: Problem type 1
arith703 Exponents and integers: Problem type 2
arith118 Order of operations with integers
arith600 Order of operations with integers and exponents

Algebraic Expressions and Equations

alge284 Evaluating an algebraic expression: Whole number addition or subtraction
alge683 Evaluating an algebraic expression: Whole number multiplication or division
alge285 Evaluating an algebraic expression: Whole numbers with two operations
alge832 Evaluating an algebraic expression: Whole number operations and exponents
alge005 Evaluating a linear expression: Integer multiplication with addition or subtraction
alge004 Evaluating a quadratic expression: Integers
alge310 Multiplying a constant and a linear monomial
alge606 Distributive property: Whole number coefficients
alge604 Distributive property: Integer coefficients
alge700 Combining like terms: Whole number coefficients
alge607 Combining like terms: Integer coefficients
alge608 Using distribution and combining like terms to simplify: Univariate
alge609 Using distribution with double negation and combining like terms to simplify: Multivariate
alge293 Combining like terms in a quadratic expression
alge009 Additive property of equality with whole numbers
alge010 Additive property of equality with integers
alge511 Solving for a variable in terms of other variables using addition or subtraction: Basic
alge008 Multiplicative property of equality with whole numbers
alge797 Multiplicative property of equality with integers
alge513 Solving for a variable in terms of other variables using multiplication or division: Basic
alge834 Identifying solutions to a linear equation in one variable: Two-step equations
alge803 Using two steps to solve an equation with whole numbers
alge266 Additive property of equality with a negative coefficient
alge006 Solving a two-step equation with integers
alge200 Solving an equation to find the value of an expression
alge920 Introduction to solving an equation with parentheses
alge838 Introduction to solving an equation with variables on the same side
alge862 Solving a linear equation with several occurrences of the variable: Variables on the same side
alge863 Solving a linear equation with several occurrences of the variable: Variables on both sides
alge011 Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
alge013 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
alge742 Solving equations with zero, one, or infinitely many solutions
alge512 Solving for a variable in terms of other variables using addition or subtraction: Advanced
alge733 Writing a one-step expression for a real-world situation
alge831 Translating a phrase into a one-step expression
alge291 Translating a phrase into a two-step expression
alge016 Translating a sentence into a one-step equation
alge841 Translating a sentence into a multi-step equation
alge014 Solving a word problem with two unknowns using a linear equation
alge842 Solving a word problem involving consecutive integers

Fractions

arith647 Divisibility rules for 2, 5, and 10
arith648 Divisibility rules for 3 and 9
B.30. FLORIDA MATH 0018

arith056 Factors
arith034 Prime numbers
arith035 Prime factorization
arith033 Greatest common factor of 2 numbers
arith070 Least common multiple of 2 numbers
arith084 Least common multiple of 3 numbers
arith240 Word problem with common multiples
alge925 Finding the next terms of an arithmetic sequence with whole numbers
alge933 Finding the next terms of a geometric sequence with whole numbers
alge732 Finding patterns in shapes
arith623 Introduction to fractions
arith665 Understanding equivalent fractions
arith212 Equivalent fractions
arith666 Introduction to simplifying a fraction
arith667 Simplifying a fraction
alge451 Simplifying a ratio of multivariate monomials: Basic
arith687 Fractional position on a number line
arith667 Plotting fractions on a number line
arith044 Ordering fractions with the same denominator
arith091 Ordering fractions with the same numerator
arith092 Using a common denominator to order fractions
arith079 Product of a unit fraction and a whole number
arith086 Product of a fraction and a whole number: Problem type 1
arith119 Introduction to fraction multiplication
arith53 Fraction multiplication
arith812 Product of a fraction and a whole number: Problem type 2
arith813 Multiplication of 3 fractions
arith822 Signed fraction multiplication: Basic
arith105 Signed fraction multiplication: Advanced
arith818 Word problem involving fractions and multiplication
arith095 Multi-step word problem involving fractions and multiplication
arith888 The reciprocal of a number
arith694 Division involving a whole number and a fraction
arith222 Fraction division
arith814 Signed fraction division
arith819 Word problem involving fractions and division
arith618 Addition or subtraction of fractions with the same denominator
arith802 Addition or subtraction of fractions with the same denominator and simplification
alge432 Introduction to adding fractions with variables and common denominators
arith801 Finding the LCD of two fractions
arith109 Addition or subtraction of unit fractions
arith664 Introduction to addition or subtraction of fractions with different denominators
arith230 Addition or subtraction of fractions with different denominators
arith803 Addition and subtraction of 3 fractions with different denominators
arith116 Signed fraction addition or subtraction: Basic
arith864 Signed fraction subtraction involving double negation
arith106 Signed fraction addition or subtraction: Advanced
arith811 Addition and subtraction of 3 fractions involving signs
alge436 Adding rational expressions with different denominators and a single occurrence of a variable
alge437 Adding rational expressions with denominators ax and bx: Basic
arith805 Word problem involving addition or subtraction of fractions with different denominators
arith100 Fractional part of a circle
arith662 Writing a mixed number and an improper fraction for a shaded region
arith815 Writing an improper fraction as a mixed number
arith619 Writing a mixed number as an improper fraction
arith605 Plotting rational numbers on a number line
arith215 Addition or subtraction of mixed numbers with the same denominator
arith804 Addition of mixed numbers with the same denominator and carry
arith216 Subtraction of mixed numbers with the same denominator and borrowing
arith806 Addition or subtraction of mixed numbers with different denominators and no carry or borrow
arith808 Addition of mixed numbers with different denominators and carry
arith809 Subtraction of mixed numbers with different denominators and borrowing
APPENDIX B. SYLLABI IN ALEKS

arith807 Addition and subtraction of 3 mixed numbers with different denominators
arith810 Word problem involving addition or subtraction of mixed numbers with different denominators
arith815 Mixed number multiplication
arith816 Multiplication of a mixed number and a whole number
arith817 Division with a mixed number and a whole number
arith808 Mixed number division
arith820 Word problem involving multiplication or division with mixed numbers
arith821 Exponents and fractions
arith704 Exponents and signed fractions
arith859 Order of operations with fractions: Problem type 1
arith860 Order of operations with fractions: Problem type 2
arith861 Order of operations with fractions: Problem type 3
alge808 Evaluating a linear expression: Signed fraction multiplication with addition or subtraction
arith695 Complex fraction without variables: Problem type 1
arith696 Complex fraction without variables: Problem type 2
alge801 Additive property of equality with fractions and mixed numbers
alge836 Additive property of equality with signed fractions
alge820 Multiplicative property of equality with fractions
alge012 Multiplicative property of equality with signed fractions
alge837 Solving a multi-step equation given in fractional form
alge208 Solving a two-step equation with signed fractions
alge420 Solving a linear equation with several occurrences of the variable: Fractional forms with monomial numerators
alge061 Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
alge209 Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions
alge986 Identifying properties used to solve a linear equation
alge817 Properties of addition
alge818 Properties of real numbers
alge802 Solving a fraction word problem using a linear equation of the form Ax = B
arith730 Reading a decimal position on a number line: Tenths
arith731 Reading a decimal position on a number line: Hundredths
arith830 Understanding decimal position on a number line using zoom: Thousandths
arith831 Understanding decimal position on a number line using zoom: Hundredths
arith832 Understanding decimal position on a number line using zoom: Thousandths
arith129 Introduction to ordering decimals
arith808 Ordering decimals
arith221 Rounding decimals
arith717 Converting a decimal to a proper fraction without simplifying: Basic
arith719 Converting a decimal to a proper fraction without simplifying: Advanced
arith718 Converting a decimal to a proper fraction in simplest form: Basic
arith807 Converting a decimal to a proper fraction in simplest form: Advanced
arith721 Converting a decimal to a mixed number and an improper fraction without simplifying
arith722 Converting a decimal to a mixed number and an improper fraction in simplest form: Basic
arith724 Converting a decimal to a mixed number and an improper fraction in simplest form: Advanced
arith624 Addition of aligned decimals
arith613 Decimal addition with 3 numbers
arith734 Subtraction of aligned decimals
arith735 Decimal subtraction: Basic
arith736 Decimal subtraction: Advanced

Decimals

arith127 Writing a decimal and a fraction for a shaded region
arith110 Decimal place value: Tenths and hundredths
arith220 Decimal place value: Hundreds to ten thousandths
arith714 Writing a decimal number less than 1 given its name
arith715 Writing a decimal number greater than 1 given its name
arith716 Writing a decimal number given its name: Advanced
arith829 Reading decimal position on a number line: Tenths
arith830 Reading decimal position on a number line: Hundredths
arith831 Understanding decimal position on a number line using zoom: Hundredths
arith832 Understanding decimal position on a number line using zoom: Thousandths
arith129 Introduction to ordering decimals
arith608 Ordering decimals
arith221 Rounding decimals
arith717 Converting a decimal to a proper fraction without simplifying: Basic
arith719 Converting a decimal to a proper fraction without simplifying: Advanced
arith718 Converting a decimal to a proper fraction in simplest form: Basic
arith807 Converting a decimal to a proper fraction in simplest form: Advanced
arith721 Converting a decimal to a mixed number and an improper fraction without simplifying
arith722 Converting a decimal to a mixed number and an improper fraction in simplest form: Basic
arith724 Converting a decimal to a mixed number and an improper fraction in simplest form: Advanced
arith624 Addition of aligned decimals
arith613 Decimal addition with 3 numbers
arith734 Subtraction of aligned decimals
arith735 Decimal subtraction: Basic
arith736 Decimal subtraction: Advanced
arith737 Decimal addition and subtraction with 3 or more numbers
arith117 Signed decimal addition and subtraction
arith234 Signed decimal addition and subtraction with 3 numbers
arith131 Estimating a decimal sum or difference
arith132 Word problem with addition or subtraction of 2 decimals
arith133 Word problem with addition of 3 or 4 decimals and whole numbers
arith134 Word problem with subtraction of a whole number and a decimal: Regrouping with zeros
arith739 Introduction to decimal multiplication
arith017 Multiplication of a decimal by a whole number
arith055 Decimal multiplication: Problem type 1
arith046 Decimal multiplication: Problem type 2
arith082 Multiplication of a decimal by a power of ten
arith738 Multiplication of a decimal by a power of 0.1
arith740 Multiplication of decimals that have a product less than 0.1
arith750 Signed decimal multiplication
arith752 Estimating a product of decimals
arith135 Word problem with multiplication of a decimal and a whole number
arith137 Word problem with multiplication of two decimals
arith224 Word problem with decimal addition and multiplication
arith744 Whole number division with decimal answers
arith081 Division of a decimal by a whole number
arith743 Division of a decimal by a 1-digit decimal
arith019 Division of a decimal by a 2-digit decimal
arith083 Division of a decimal by a power of ten
arith742 Division of a decimal by a power of 0.1
arith751 Signed decimal division
arith745 Decimal division with rounding
arith136 Word problem with division of a decimal and a whole number
arith138 Word problem with division of two decimals
arith227 Word problem with decimal subtraction and division
arith725 Converting a fraction with a denominator of 10 or 100 to a decimal
arith726 Converting a fraction with a denominator of 100 or 1000 to a decimal
arith609 Ordering fractions and decimals
arith727 Converting a fraction to a terminating decimal: Basic
arith728 Converting a fraction to a terminating decimal: Advanced
arith730 Converting a fraction to a repeating decimal: Basic
arith731 Converting a fraction to a repeating decimal: Advanced
arith733 Using a calculator to convert a fraction to a rounded decimal
arith111 Converting a mixed number to a terminating decimal: Basic
arith112 Converting a mixed number to a repeating decimal: Advanced
arith732 Converting a fraction or mixed number to a rounded decimal
arith753 Squaring decimal bases: Products greater than 0.1
arith741 Exponents and decimals: Products less than 0.1
arith720 Order of operations with decimals: Problem type 1
arith746 Order of operations with decimals: Problem type 2
arith747 Order of operations with decimals: Problem type 3
alge302 Evaluating a linear expression: Signed decimal addition and subtraction
alge303 Evaluating a linear expression: Signed decimal multiplication with addition or subtraction
arith748 Addition or subtraction with a decimal and a mixed number
arith749 Multiplication with a decimal and a fraction
alge800 Additive property of equality with decimals
alge825 Multiplicative property of equality with decimals
alge824 Solving a two-step equation with signed decimals
alge173 Solving a decimal word problem using a linear equation of the form Ax + B = C
alge219 Solving a decimal word problem using a linear equation with the variable on both sides
arith016 Square root of a perfect square
arith763 Using a calculator to approximate a square root
arith602 Estimating a square root
arith601 Square root of a rational perfect square
alge413 Finding all square roots of a number
arith093 Simplifying the square root of a whole number less than 100
arith762 Simplifying the square root of a whole number greater than 100
APPENDIX B. SYLLABI IN ALEKS

arith764 Introduction to square root multiplication
arith765 Square root multiplication: Basic
arith767 Introduction to square root addition or subtraction
arith832 Square root addition or subtraction
alge533 Square root addition or subtraction with three terms
alge001 Identifying numbers as integers or non-integers
alge002 Identifying numbers as rational or irrational
arith712 Ordering real numbers

Ratios, Proportions, and Percents

arith823 Writing ratios using different notations
arith863 Writing ratios for real-world situations
arith824 Simplifying a ratio of whole numbers: Problem type 1
arith825 Simplifying a ratio of decimals
arith827 Finding a unit price
arith828 Computing unit prices to find the better buy
arith864 Solving a word problem on proportions using a unit rate
alge823 Solving a one-step word problem using the formula d = rt
arith228 Word problem on unit rates associated with ratios of whole numbers: Decimal answers
alge272 Solving a proportion of the form x/a = b/c
alge840 Solving a proportion of the form (x+a)/c = b/d
alge271 Solving a proportion of the form a/(x+b) = c/x
arith610 Word problem on proportions: Problem type 1
arith611 Word problem on proportions: Problem type 2
alge063 Word problem on mixed number proportions
arith845 Word problem with powers of ten
arith836 Converting a fraction with a denominator of 100 to a percentage
arith837 Converting a percentage to a fraction with a denominator of 100
arith774 Finding the percentage of a grid that is shaded
arith723 Introduction to converting a percentage to a decimal
arith833 Introduction to converting a decimal to a percentage
arith834 Converting between percentages and decimals
arith841 Converting a mixed number percentage to a decimal
arith835 Converting between percentages and decimals in a real-world situation
arith890 Converting a percentage to a fraction in simplest form
arith839 Converting a decimal percentage to a fraction
arith838 Converting a fraction to a percentage: Denominator of 4, 5, or 10
arith892 Converting a fraction to a percentage: Denominator of 20, 25, or 50
arith843 Using a calculator to convert a fraction to a rounded percentage
arith842 Converting a fraction to a percentage in a real-world situation
arith840 Finding a percentage of a whole number
arith890 Finding a percentage of a whole number without a calculator: Basic
arith844 Finding a percentage of a whole number without a calculator: Advanced
arith862 Applying the percent equation: Problem type 1
arith863 Applying the percent equation: Problem type 2
arith845 Finding a percentage of a total amount: Real-world situations
arith846 Finding a percentage of a total amount without a calculator: Sales tax, commission, discount
arith857 Estimating a tip without a calculator
arith869 Writing a ratio as a percentage without a calculator
mstat049 Computing a percentage from a table of values
arith850 Finding the rate of a tax or commission
arith849 Finding the total amount given the percentage of a partial amount
arith852 Finding the multiplier to give a final amount after a percentage increase or decrease
arith851 Finding the final amount given the original amount and a percentage increase or decrease
arith847 Finding the sale price given the original price and percent discount
arith874 Finding the sale price without a calculator given the original price and percent discount
arith848 Finding the total cost including tax or markup
arith855 Finding the original amount given the result of a percentage increase or decrease
arith831 Finding the original price given the sale price and percent discount
arith858 Finding the percentage increase or decrease: Basic
arith225 Finding the percentage increase or decrease: Advanced
unit052 Finding the absolute error and percent error of a measurement
arith856 Finding a percentage of a total amount in a circle graph
stat801 Computations from a circle graph
arith232 Finding simple interest without a calculator
arith853 Introduction to compound interest
arith854 Computing a percent mixture

**Geometry**

geom339 Perimeter of a polygon
geom300 Perimeter of a square or a rectangle
geom018 Perimeter of a polygon involving mixed numbers and fractions
geom078 Sides of polygons having the same perimeter
geom221 Finding the missing length in a figure
geom353 Perimeter of a piecewise rectangular figure
geom358 Identifying parallel and perpendicular lines
geom349 Naming segments, rays, and lines
geom151 Measuring an angle with the protractor
geom152 Drawing an angle with the protractor
geom303 Acute, obtuse, and right angles
geom039 Finding supplementary and complementary angles
geom305 Identifying supplementary and vertical angles
geom530 Solving equations involving vertical angles
geom304 Identifying corresponding and alternate angles
geom531 Solving equations involving angles and a pair of parallel lines
geom306 Acute, obtuse, and right triangles
geom307 Classifying scalene, isosceles, and equilateral triangles by side lengths or angles
geom001 Finding an angle measure of a triangle given two angles
geom233 Finding angle measures of a triangle given angles with variables
geom502 Finding angle measures of a right or isosceles triangle given angles with variables
geom908 Finding an angle measure for a triangle with an extended side
geom812 Finding an angle measure given extended triangles
geom813 Finding an angle measure given a triangle and parallel lines
geom361 Naming polygons
mstat042 Interpreting a Venn diagram of 2 sets
geom867 Identifying parallelograms, rectangles, and squares
geom310 Properties of quadrilaterals
geom532 Classifying parallelograms
geom019 Area of a square or a rectangle
geom866 Perimeter and area on a grid
geom620 Area of a rectangle involving fractions
geom619 Area of a rectangle involving mixed numbers and fractions
geom350 Distinguishing between the area and perimeter of a rectangle
geom351 Areas of rectangles with the same perimeter
geom217 Finding the side length of a rectangle given its perimeter or area
geom817 Finding a side length given the perimeter and side lengths with variables
geom143 Finding the perimeter or area of a rectangle given one of these values
geom340 Area of a piecewise rectangular figure
geom142 Word problem involving the area between two rectangles
geom801 Area of a triangle
geom344 Area involving rectangles and triangles
geom822 Area of a parallelogram
geom823 Area of a trapezoid
geom347 Introduction to a circle: Diameter, radius, and chord
geom816 Circumference of a circle
geom218 Finding the radius or the diameter of a circle given its circumference
geom838 Circumference ratios
geom301 Perimeter involving rectangles and circles
geom892 Circumference and area of a circle
geom302 Area involving rectangles and circles
geom036 Word problem involving the area between two concentric circles
geom214 Area involving inscribed figures
geom814 Angle measure in a circle graph
geom868 Classifying solids
geom348 Vertices, edges, and faces of a solid
geom830 Counting the cubes in a solid made of cubes
geom354 Volume of a rectangular prism made of unit cubes
geom311 Volume of a rectangular prism
geom505 Volume of a piecewise rectangular prism
geom090 Volume of a triangular prism
geom033 Volume of a pyramid
geom035 Volume of a cylinder
geom092 Word problem involving the rate of filling or emptying a cylinder
geom622 Volume of a cone
geom841 Volume of a sphere
geom219 Nets of solids
geom816 Side views of a solid made of cubes
geom031 Surface area of a cube or a rectangular prism
geom345 Surface area of a piecewise rectangular prism made of unit cubes
geom091 Surface area of a triangular prism
geom621 Surface area of a cylinder
geom842 Surface area of a sphere
alge407 Introduction to the Pythagorean Theorem
geom044 Pythagorean Theorem
alge408 Word problem involving the Pythagorean Theorem
geom359 Identifying congruent shapes on a grid
geom520 Identifying and naming congruent triangles
geom360 Identifying similar or congruent shapes on a grid
geom037 Similar polygons
geom038 Similar right triangles
geom337 Indirect measurement

Measurement

mstat059 Choosing U.S. Customary measurement units
unit005 U.S. Customary unit conversion with whole number values
mstat035 Conversions involving measurements in feet and inches
mstat036 Adding measurements in feet and inches
unit006 U.S. Customary unit conversion with whole number values: Two-step conversion
unit007 U.S. Customary unit conversion with mixed number values: One-step conversion
unit008 U.S. Customary unit conversion with mixed number values: Two-step conversion
unit009 U.S. Customary area unit conversion with whole number values
mstat060 Choosing metric measurement units
unit001 Metric distance conversion with whole number values
unit002 Metric mass or capacity conversion with whole number values
unit003 Metric distance conversion with decimal values
unit004 Metric conversion with decimal values: Two-step problem
unit010 Metric area unit conversion with decimal values
unit012 Time unit conversion with whole number values
time006 Adding time
time007 Elapsed time
arith063 Word problem with clocks
mstat065 Converting between temperatures in Fahrenheit and Celsius
arith056 Simplifying a ratio of whole numbers: Problem type 2
alge218 Solving a word problem involving rates and time conversion
unit034 Converting between metric and U.S. Customary unit systems
unit035 Converting between compound units: Basic
Statistics and Probability

mstat056 Interpreting a tally table
mstat037 Constructing a line plot
mstat005 Constructing a bar graph for non-numerical data
mstat004 Constructing a histogram for numerical data
mstat024 Interpreting a bar graph
mstat044 Interpreting a double bar graph
mstat057 Interpreting a pictograph table
mstat007 Interpreting a line graph
mstat031 Interpreting a stem-and-leaf plot
stat804 Interpreting a circle graph or pie chart
stat805 Making a reasonable inference based on proportion statistics
mstat025 Finding if a question can be answered by the data
mstat003 Mode of a data set
mstat055 Finding the mode and range of a data set
arith103 Average of two numbers
mstat001 Mean of a data set
mstat028 Mean and median of a data set
stat803 Finding the value for a new score that will yield a given mean
mstat029 How changing a value affects the mean and median
mstat053 Choosing the best measure to describe data
stat802 Rejecting unreasonable claims based on average statistics
mstat066 Weighted mean
mstat027 Using back-to-back stem-and-leaf plots to compare data sets
mstat072 Five-number summary and interquartile range
mstat006 Constructing a box-and-whisker plot
mstat073 Using box-and-whisker plots to compare data sets
mstat043 Interpreting a Venn diagram of 3 sets
mstat041 Interpreting a tree diagram
mstat040 Introduction to the counting principle
mstat015 Counting principle
pcalc082 Factorial expressions
mstat017 Computing permutations and combinations
mstat008 Word problem involving permutations
mstat009 Word problem involving combinations
mstat026 Introduction to the probability of an event
mstat010 Probability of an event
mstat039 Understanding likelihood
mstat048 Odds of an event
stat106 Outcomes and event probability
stat112 Probabilities involving two dice
mstat011 Area as probability
mstat046 Experimental and theoretical probability
mstat047 Introduction to expectation
mstat012 Probability of independent events
mstat013 Probability of dependent events
mstat032 Probability of the union of two events

Graphs of Linear Equations

alge064 Reading a point in the coordinate plane
alge067 Plotting a point in the coordinate plane
alge850 Table for a linear equation
alge873 Identifying solutions to a linear equation in two variables
### APPENDIX B. SYLLABI IN ALEKS

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>alge066</td>
<td>Finding a solution to a linear equation in two variables</td>
</tr>
<tr>
<td>fun005</td>
<td>Writing a function rule given a table of ordered pairs: One-step rules</td>
</tr>
<tr>
<td>alge191</td>
<td>Midpoint of a line segment in the plane</td>
</tr>
<tr>
<td>alge877</td>
<td>Graphing a linear equation of the form $y = mx$</td>
</tr>
<tr>
<td>alge878</td>
<td>Graphing a line given its equation in slope-intercept form: Integer slope</td>
</tr>
<tr>
<td>alge879</td>
<td>Graphing a line given its equation in slope-intercept form: Fractional slope</td>
</tr>
<tr>
<td>alge880</td>
<td>Graphing a line given its equation in standard form</td>
</tr>
<tr>
<td>alge198</td>
<td>Graphing a vertical or horizontal line</td>
</tr>
<tr>
<td>alge884</td>
<td>Finding x- and y-intercepts given the graph of a line on a grid</td>
</tr>
<tr>
<td>alge924</td>
<td>Finding x- and y-intercepts of a line given the equation: Basic</td>
</tr>
<tr>
<td>alge210</td>
<td>Finding x- and y-intercepts of a line given the equation: Advanced</td>
</tr>
<tr>
<td>alge197</td>
<td>Graphing a line given its x- and y-intercepts</td>
</tr>
<tr>
<td>alge881</td>
<td>Graphing a line by first finding its x- and y-intercepts</td>
</tr>
<tr>
<td>alge954</td>
<td>Finding the coordinate that yields a given slope</td>
</tr>
<tr>
<td>alge885</td>
<td>Graphing a line given its slope and y-intercept</td>
</tr>
<tr>
<td>alge263</td>
<td>Graphing a line through a given point with a given slope</td>
</tr>
<tr>
<td>alge701</td>
<td>Writing an equation and drawing its graph to model a real-world situation: Advanced</td>
</tr>
<tr>
<td>alge060</td>
<td>Solving a rational equation that simplifies to linear: Denominator $x$</td>
</tr>
<tr>
<td>alge982</td>
<td>Identifying direct variation equations</td>
</tr>
<tr>
<td>alge988</td>
<td>Identifying direct variation from ordered pairs and writing equations</td>
</tr>
<tr>
<td>alge901</td>
<td>Writing a direct variation equation</td>
</tr>
<tr>
<td>alge175</td>
<td>Word problem on direct variation</td>
</tr>
<tr>
<td>alge828</td>
<td>Interpreting direct variation from a graph</td>
</tr>
<tr>
<td>alge905</td>
<td>Writing an inverse variation equation</td>
</tr>
<tr>
<td>alge903</td>
<td>Identifying direct and inverse variation equations</td>
</tr>
<tr>
<td>alge902</td>
<td>Identifying direct and inverse variation from ordered pairs and writing equations</td>
</tr>
<tr>
<td>alge176</td>
<td>Word problem on inverse variation</td>
</tr>
</tbody>
</table>

### Exponents and Polynomials

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>alge758</td>
<td>Degree and leading coefficient of a univariate polynomial</td>
</tr>
<tr>
<td>alge798</td>
<td>Simplifying a sum or difference of two univariate polynomials</td>
</tr>
<tr>
<td>alge029</td>
<td>Simplifying a sum or difference of three univariate polynomials</td>
</tr>
<tr>
<td>alge902</td>
<td>Simplifying a sum or difference of multivariate polynomials</td>
</tr>
<tr>
<td>alge821</td>
<td>Understanding the product rule of exponents</td>
</tr>
<tr>
<td>alge024</td>
<td>Introduction to the product rule of exponents</td>
</tr>
<tr>
<td>alge311</td>
<td>Product rule with positive exponents: Univariate</td>
</tr>
<tr>
<td>alge030</td>
<td>Product rule with positive exponents: Multivariate</td>
</tr>
<tr>
<td>alge826</td>
<td>Understanding the power rule of exponents</td>
</tr>
<tr>
<td>alge306</td>
<td>Introduction to the power of a power rule of exponents</td>
</tr>
<tr>
<td>alge305</td>
<td>Introduction to the power of a product rule of exponents</td>
</tr>
<tr>
<td>alge307</td>
<td>Power rules with positive exponents: Multivariate products</td>
</tr>
<tr>
<td>alge308</td>
<td>Power rules with positive exponents: Multivariate quotients</td>
</tr>
<tr>
<td>alge756</td>
<td>Power and product rules with positive exponents</td>
</tr>
<tr>
<td>arith029</td>
<td>Ordering numbers with positive exponents</td>
</tr>
<tr>
<td>alge735</td>
<td>Multiplying a univariate polynomial by a monomial with a positive coefficient</td>
</tr>
<tr>
<td>alge972</td>
<td>Multiplying a univariate polynomial by a monomial with a negative coefficient</td>
</tr>
<tr>
<td>alge835</td>
<td>Multiplying a multivariate polynomial by a monomial</td>
</tr>
<tr>
<td>alge033</td>
<td>Multiplying binomials with leading coefficients of 1</td>
</tr>
<tr>
<td>alge983</td>
<td>Multiplying binomials with leading coefficients greater than 1</td>
</tr>
<tr>
<td>alge765</td>
<td>Multiplying binomials in two variables</td>
</tr>
<tr>
<td>alge764</td>
<td>Multiplying conjugate binomials: Univariate</td>
</tr>
<tr>
<td>alge081</td>
<td>Multiplying conjugate binomials: Multivariate</td>
</tr>
<tr>
<td>alge032</td>
<td>Squaring a binomial: Univariate</td>
</tr>
</tbody>
</table>
alge068 Squaring a binomial: Multivariate
alge095 Multiplication involving binomials and trinomials in one variable
alge180 Multiplication involving binomials and trinomials in two variables
alge736 Introduction to the GCF of two monomials
alge037 Greatest common factor of two multivariate monomials
alge930 Greatest common factor of three univariate monomials
alge737 Introduction to the LCM of two monomials
alge055 Least common multiple of two monomials
alge605 Factoring a linear binomial
alge738 Factoring out a monomial from a polynomial: Univariate
alge739 Factoring out a monomial from a polynomial: Multivariate
alge827 Introduction to the quotient rule of exponents
alge452 Simplifying a ratio of univariate monomials
alge453 Simplifying a ratio of multivariate monomials: Advanced
alge790 Evaluating expressions with exponents of zero
arith729 Evaluating an expression with a negative exponent: Whole number base
arith884 Power of 10: Negative exponent
arith842 Evaluating an expression with a negative exponent: Positive fraction base
arith843 Evaluating an expression with a negative exponent: Negative integer base
alge791 Rewriting an algebraic expression without a negative exponent
alge961 Introduction to the product rule with negative exponents
alge028 Product rule with negative exponents
alge025 Power of a power rule with negative exponents
alge799 Power rules with negative exponents
alge758 Quotient rule with negative exponents: Problem type 1
arith836 Scientific notation with positive exponent
arith837 Scientific notation with negative exponent
scinot012 Converting between scientific notation and standard form in a real-world situation
scinot008 Multiplying numbers written in scientific notation: Basic
scinot009 Multiplying numbers written in scientific notation: Advanced
scinot010 Dividing numbers written in scientific notation: Basic
scinot011 Dividing numbers written in scientific notation: Advanced

Inequalities

alge015 Translating a sentence by using an inequality symbol
alge017 Graphing a linear inequality on the number line
alge822 Writing an inequality given a graph on the number line
alge845 Translating a sentence into a one-step inequality
alge846 Translating a sentence into a multi-step inequality
alge748 Writing an inequality for a real-world situation
alge844 Identifying solutions to a two-step linear inequality in one variable
alge848 Additive property of inequality with whole numbers
alge849 Additive property of inequality with integers
alge852 Additive property of inequality with signed fractions
alge853 Additive property of inequality with signed decimals
alge854 Multiplicative property of inequality with integers
alge964 Multiplicative property of inequality with signed fractions
alge855 Solving a two-step linear inequality: Problem type 1
alge856 Solving a two-step linear inequality: Problem type 2

B.31 Florida Math 0022

Whole Numbers
APPENDIX B. SYLLABI IN ALEKS

arith124 Whole number place value: Problem type 1
arith125 Whole number place value: Problem type 2
arith066 Expanded form
arith643 Expanded form with zeros
arith028 Numeral translation: Problem type 1
arith060 Numeral translation: Problem type 2
arith633 One-digit addition with carry
arith634 Addition of 3 or 4 one-digit numbers
arith601 Addition without carry
arith635 Adding a 2-digit number and a 1-digit number with carry
arith050 Addition with carry
arith630 Addition with carry to the hundreds place
arith012 Addition of large numbers
arith636 Subtracting a 1-digit number from a 2-digit number
arith007 Subtraction without borrowing
arith682 Subtraction with multiple regrouping steps
arith637 Subtraction and regrouping with zeros
arith613 Word problem with addition or subtraction of whole numbers
arith014 Introduction to properties of addition
arith126 Multiplication as repeated addition
arith008 One-digit multiplication
arith679 Multiplication by 10, 100, and 1000
arith003 Multiplication without carry
arith004 Multiplication with carry
arith638 Multiplication with trailing zeros: Problem type 1
arith615 Introduction to multiplication of large numbers
arith639 Multiplication with trailing zeros: Problem type 2
arith014 Multiplication of large numbers
arith641 Multiples: Problem type 1
arith642 Multiples: Problem type 2
arith656 Introduction to properties of multiplication
arith075 Division facts
arith614 Word problem with multiplication or division of whole numbers
arith130 Word problem with multiplication and addition or subtraction of whole numbers
arith243 Division of whole numbers given in fractional form
arith711 Division involving zero
arith052 Division without carry
arith005 Division with carry
arith680 Division with trailing zeros: Problem type 1
arith649 Division with trailing zeros: Problem type 2
arith616 Quotient and remainder: Problem type 1
arith644 Word problem on quotient and remainder
arith617 Quotient and remainder: Problem type 2
arith631 Quotient and remainder: Problem type 3
arith650 Division involving quotients with intermediate zeros
arith023 Word problem with division of whole numbers and rounding
arith651 Introduction to inequalities
arith077 Ordering large numbers
arith078 Rounding to tens or hundreds
arith123 Rounding to hundreds or thousands
arith606 Rounding to thousands, ten thousands, or hundred thousands
arith101 Estimating a sum of whole numbers
arith102 Estimating a difference of whole numbers
arith604 Estimating a product or quotient of whole numbers
arith692 Writing expressions using exponents
arith233 Introduction to exponents
arith683 Power of 10: Positive exponent
arith645 Introduction to parentheses
arith681 Introduction to order of operations
arith048 Order of operations with whole numbers
Fractions

arith623 Introduction to fractions
arith665 Understanding equivalent fractions
arith212 Equivalent fractions
arith666 Introduction to simplifying a fraction
arith667 Simplifying a fraction
arith687 Fractional position on a number line
arith667 Plotting fractions on a number line
arith044 Ordering fractions with the same denominator
arith091 Ordering fractions with the same numerator
arith092 Using a common denominator to order fractions
arith079 Product of a unit fraction and a whole number
arith086 Product of a fraction and a whole number: Problem type 1
arith119 Introduction to fraction multiplication
arith653 Fraction multiplication
arith812 Product of a fraction and a whole number: Problem type 2
arith813 Multiplication of 3 fractions
arith818 Word problem involving fractions and multiplication
arith95 Multi-step word problem involving fractions and multiplication
arith888 The reciprocal of a number
arith694 Division involving a whole number and a fraction
arith022 Fraction division
arith819 Word problem involving fractions and division
arith681 Addition or subtraction of fractions with the same denominator
arith802 Addition or subtraction of fractions with the same denominator and simplification
arith801 Finding the LCD of two fractions
arith109 Addition or subtraction of unit fractions
arith664 Introduction to addition or subtraction of fractions with different denominators
arith230 Addition or subtraction of fractions with different denominators
arith803 Addition and subtraction of 3 fractions with different denominators
arith805 Word problem involving addition or subtraction of fractions with different denominators
arith100 Fractional part of a circle
arith662 Writing a mixed number and an improper fraction for a shaded region
arith015 Writing an improper fraction as a mixed number
arithmetic Writing a mixed number as an improper fraction
arithmetic Addition or subtraction of mixed numbers with the same denominator
arithmetic Addition of mixed numbers with the same denominator and carry
arithmetic Subtraction of mixed numbers with the same denominator and borrowing
arithmetic Addition or subtraction of mixed numbers with different denominators and no carry or borrow
arithmetic Addition of mixed numbers with different denominators and carry
arithmetic Subtraction of mixed numbers with different denominators and borrowing
arithmetic Addition and subtraction of 3 mixed numbers with different denominators
arithmetic Mixed number multiplication
arithmetic Multiplication of a mixed number and a whole number
arithmetic Division with a mixed number and a whole number
arithmetic Mixed number division
arithmetic Word problem involving multiplication or division with mixed numbers
arithmetic Exponents and fractions
arithmetic Order of operations with fractions: Problem type 1
arithmetic Order of operations with fractions: Problem type 2
arithmetic Order of operations with fractions: Problem type 3
arithmetic Complex fraction without variables: Problem type 1

Decimals, Proportions, and Percents

arithmetic Writing a decimal and a fraction for a shaded region
arithmetic Decimal place value: Tenths and hundredths
arithmetic Decimal place value: Hundreds to ten thousandths
arithmetic Writing a decimal number less than 1 given its name
arithmetic Writing a decimal number greater than 1 given its name
arithmetic Writing a decimal number given its name: Advanced
arithmetic Reading decimal position on a number line: Tenths
arithmetic Reading decimal position on a number line: Hundredths
arithmetic Understanding decimal position on a number line using zoom: Hundredths
arithmetic Understanding decimal position on a number line using zoom: Thousandths
arithmetic Introduction to ordering decimals
arithmetic Ordering decimals
arithmetic Rounding decimals
arithmetic Converting a decimal to a proper fraction without simplifying: Basic
arithmetic Converting a decimal to a proper fraction without simplifying: Advanced
arithmetic Converting a decimal to a proper fraction in simplest form: Basic
arithmetic Converting a decimal to a proper fraction in simplest form: Advanced
arithmetic Converting a decimal to a mixed number and an improper fraction without simplifying
arithmetic Converting a decimal to a mixed number and an improper fraction in simplest form: Basic
arithmetic Converting a decimal to a mixed number and an improper fraction in simplest form: Advanced
arithmetic Addition of aligned decimals
arithmetic Decimal addition with 3 numbers
arithmetic Subtraction of aligned decimals
arithmetic Decimal subtraction: Basic
arithmetic Decimal subtraction: Advanced
arithmetic Decimal addition and subtraction with 3 or more numbers
arithmetic Estimating a decimal sum or difference
arithmetic Word problem with addition or subtraction of 2 decimals
arithmetic Word problem with addition of 3 or 4 decimals and whole numbers
arithmetic Word problem with subtraction of a whole number and a decimal: Regrouping with zeros
arithmetic Introduction to decimal multiplication
arithmetic Multiplication of a decimal by a whole number
arithmetic Decimal multiplication: Problem type 1
arithmetic Decimal multiplication: Problem type 2
arithmetic Multiplication of a decimal by a power of ten
arithmetic Multiplication of a decimal by a power of 0.1
arithmetic Multiplication of decimals that have a product less than 0.1
arithmetic Estimating a product of decimals
arith135 Word problem with multiplication of a decimal and a whole number
arith137 Word problem with multiplication of two decimals
arith224 Word problem with decimal addition and multiplication
arith744 Whole number division with decimal answers
arith081 Division of a decimal by a whole number
arith743 Division of a decimal by a 1-digit decimal
arith019 Division of a decimal by a 2-digit decimal
arith083 Division of a decimal by a power of ten
arith742 Division of a decimal by a power of 0.1
arith745 Decimal division with rounding
arith136 Word problem with division of a decimal and a whole number
arith138 Word problem with division of two decimals
arith227 Word problem with decimal subtraction and division
alge823 Solving a one-step word problem using the formula d = rt
arith725 Converting a fraction with a denominator of 10 or 100 to a decimal
arith726 Converting a fraction with a denominator of 100 or 1000 to a decimal
arith609 Ordering fractions and decimals
arith727 Converting a fraction to a terminating decimal: Basic
arith728 Converting a fraction to a terminating decimal: Advanced
arith730 Converting a fraction to a repeating decimal: Basic
arith731 Converting a fraction to a repeating decimal: Advanced
arith733 Using a calculator to convert a fraction to a rounded decimal
arith111 Converting a mixed number to a terminating decimal: Basic
arith112 Converting a mixed number to a terminating decimal: Advanced
arith732 Converting a fraction or mixed number to a rounded decimal
arith753 Squaring decimal bases: Products greater than 0.1
arith741 Exponents and decimals: Products less than 0.1
arith720 Order of operations with decimals: Problem type 1
arith746 Order of operations with decimals: Problem type 2
arith747 Order of operations with decimals: Problem type 3
arith748 Addition or subtraction with a decimal and a mixed number
arith749 Multiplication with a decimal and a fraction
arith823 Writing ratios using different notations
arith663 Writing ratios for real-world situations
arith824 Simplifying a ratio of whole numbers: Problem type 1
arith825 Simplifying a ratio of decimals
arith827 Finding a unit price
arith828 Computing unit prices to find the better buy
arith064 Solving a word problem on proportions using a unit rate
arith228 Word problem on unit rates associated with ratios of whole numbers: Decimal answers
alge272 Solving a proportion of the form x/a = b/c
arith610 Word problem on proportions: Problem type 1
arith611 Word problem on proportions: Problem type 2
alge063 Word problem on mixed number proportions
arith836 Converting a fraction with a denominator of 100 to a percentage
arith837 Converting a percentage to a fraction with a denominator of 100
arith674 Finding the percentage of a grid that is shaded
arith723 Introduction to converting a percentage to a decimal
arith833 Introduction to converting a decimal to a percentage
arith834 Converting between percentages and decimals
arith841 Converting a mixed number percentage to a decimal
arith835 Converting between percentages and decimals in a real-world situation
arith090 Converting a percentage to a fraction in simplest form
arith839 Converting a decimal percentage to a fraction
arith838 Converting a fraction to a percentage: Denominator of 4, 5, or 10
arith002 Converting a fraction to a percentage: Denominator of 20, 25, or 50
arith843 Using a calculator to convert a fraction to a rounded percentage
arith842 Converting a fraction to a percentage in a real-world situation
arith840 Finding a percentage of a whole number
arith630 Finding a percentage of a whole number without a calculator: Basic
arith844 Finding a percentage of a whole number without a calculator: Advanced
arith862 Applying the percent equation: Problem type 1
arith863 Applying the percent equation: Problem type 2
arith845 Finding a percentage of a total amount: Real-world situations
arith846 Finding a percentage of a total amount without a calculator: Sales tax, commission, discount
arith857 Estimating a tip without a calculator
arith859 Writing a ratio as a percentage without a calculator
mstat049 Computing a percentage from a table of values
arith850 Finding the rate of a tax or commission
arith849 Finding the total amount given the percentage of a partial amount
arith852 Finding the multiplier to give a final amount after a percentage increase or decrease
arith851 Finding the final amount given the original amount and a percentage increase or decrease
arith847 Finding the sale price given the original price and percent discount
arith874 Finding the sale price without a calculator given the original price and percent discount
arith848 Finding the total cost including tax or markup
arith855 Finding the original amount given the result of a percentage increase or decrease
arith831 Finding the original price given the sale price and percent discount
arith858 Finding the percentage increase or decrease: Basic
arith825 Finding the percentage increase or decrease: Advanced
arith832 Finding simple interest without a calculator
arith856 Finding a percentage of a total amount in a circle graph
stat801 Computations from a circle graph

Geometry

geom339 Perimeter of a polygon
geom300 Perimeter of a square or a rectangle
geom618 Perimeter of a polygon involving mixed numbers and fractions
geom078 Sides of polygons having the same perimeter
geom221 Finding the missing length in a figure
geom353 Perimeter of a piecewise rectangular figure
geom358 Identifying parallel and perpendicular lines
geom349 Naming segments, rays, and lines
geom151 Measuring an angle with the protractor
geom152 Drawing an angle with the protractor
geom303 Acute, obtuse, and right angles
geom039 Finding supplementary and complementary angles
geom305 Identifying supplementary and vertical angles
geom304 Identifying corresponding and alternate angles
geom306 Acute, obtuse, and right triangles
geom307 Classifying scalene, isosceles, and equilateral triangles by side lengths or angles
geom091 Finding an angle measure of a triangle given two angles
geom098 Finding an angle measure for a triangle with an extended side
geom812 Finding an angle measure given extended triangles
geom813 Finding an angle measure given a triangle and parallel lines
geom361 Naming polygons
mstat042 Interpreting a Venn diagram of 2 sets
geom867 Identifying parallelograms, rectangles, and squares
geom310 Properties of quadrilaterals
geom532 Classifying parallelograms
geom019 Area of a square or a rectangle
geom866 Perimeter and area on a grid
geom620 Area of a rectangle involving fractions
geom619 Area of a rectangle involving mixed numbers and fractions
geom350 Distinguishing between the area and perimeter of a rectangle
geom351 Areas of rectangles with the same perimeter
geom217 Finding the side length of a rectangle given its perimeter or area
geom340 Area of a piecewise rectangular figure
geom142 Word problem involving the area between two rectangles
geom801 Area of a triangle
geom344 Area involving rectangles and triangles
geom022 Area of a parallelogram
geom023 Area of a trapezoid
geom347 Introduction to a circle: Diameter, radius, and chord
geom016 Circumference of a circle
geom301 Perimeter involving rectangles and circles
geom030 Area involving rectangles and circles
geom836 Word problem involving the area between two concentric circles
geom214 Area involving inscribed figures
geom814 Angle measure in a circle graph
geom868 Classifying solids
geom348 Vertices, edges, and faces of a solid
geom830 Counting the cubes in a solid made of cubes
geom354 Volume of a rectangular prism made of unit cubes
geom311 Volume of a rectangular prism
geom305 Volume of a piecewise rectangular prism
geom890 Volume of a triangular prism
geom333 Volume of a pyramid
geom035 Volume of a cylinder
geom892 Word problem involving the rate of filling or emptying a cylinder
geom622 Volume of a cone
geom841 Volume of a sphere
geom219 Nets of solids
geom816 Side views of a solid made of cubes
geom831 Surface area of a cube or a rectangular prism
geom345 Surface area of a piecewise rectangular prism made of unit cubes
geom091 Surface area of a triangular prism
geom621 Surface area of a cylinder
geom842 Surface area of a sphere
arith016 Square root of a perfect square
arith763 Using a calculator to approximate a square root
arith602 Estimating a square root
arith601 Square root of a rational perfect square
alge407 Introduction to the Pythagorean Theorem
alge408 Word problem involving the Pythagorean Theorem
geom359 Identifying congruent shapes on a grid
geom520 Identifying and naming congruent triangles
geom360 Identifying similar or congruent shapes on a grid
geom337 Indirect measurement

Measurement and Data Analysis

mstat059 Choosing U.S. Customary measurement units
unit005 U.S. Customary unit conversion with whole number values
mstat033 Conversions involving measurements in feet and inches
mstat036 Adding measurements in feet and inches
unit006 U.S. Customary unit conversion with whole number values: Two-step conversion
unit007 U.S. Customary unit conversion with mixed number values: One-step conversion
unit008 U.S. Customary unit conversion with mixed number values: Two-step conversion
unit009 U.S. Customary area unit conversion with whole number values
mstat060 Choosing metric measurement units
unit001 Metric distance conversion with whole number values
unit002 Metric mass or capacity conversion with whole number values
unit003 Metric distance conversion with decimal values
unit004 Metric conversion with decimal values: Two-step problem
unit010 Metric area unit conversion with decimal values
unit012 Time unit conversion with whole number values
time006 Adding time
time007 Elapsed time
arith063 Word problem with clocks
mstat065 Converting between temperatures in Fahrenheit and Celsius
arith082 Simplifying a ratio of whole numbers: Problem type 2
unit034 Converting between metric and U.S. Customary unit systems
unit035 Converting between compound units: Basic
unit036 Converting between compound units: Advanced
mstat056 Interpreting a tally table
mstat005 Constructing a bar graph for non-numerical data
mstat004 Constructing a histogram for numerical data
mstat024 Interpreting a bar graph
mstat044 Interpreting a double bar graph
mstat057 Interpreting a pictograph table
mstat007 Interpreting a line graph
mstat031 Interpreting a stem-and-leaf plot
stat084 Interpreting a circle graph or pie chart
stat020 Calculating relative frequencies in a contingency table
stat085 Making a reasonable inference based on proportion statistics
mstat025 Finding if a question can be answered by the data
mstat003 Mode of a data set
mstat055 Finding the mode and range of a data set
arith013 Average of two numbers
mstat001 Mean of a data set
mstat028 Mean and median of a data set
mstat029 How changing a value affects the mean and median
mstat053 Choosing the best measure to describe data
stat082 Rejecting unreasonable claims based on average statistics
mstat066 Weighted mean
mstat027 Using back-to-back stem-and-leaf plots to compare data sets
mstat072 Five-number summary and interquartile range
mstat006 Constructing a box-and-whisker plot
mstat073 Using box-and-whisker plots to compare data sets
mstat043 Interpreting a Venn diagram of 3 sets
mstat041 Interpreting a tree diagram
mstat040 Introduction to the counting principle
mstat015 Counting principle
p calc082 Factorial expressions
mstat017 Computing permutations and combinations
mstat008 Word problem involving permutations
mstat009 Word problem involving combinations
mstat026 Introduction to the probability of an event
mstat010 Probability of an event
mstat039 Understanding likelihood
mstat048 Odds of an event
stat016 Outcomes and event probability
stat012 Probabilities involving two dice
mstat011 Area as probability
mstat046 Experimental and theoretical probability
mstat017 Introduction to expectation
mstat012 Probability of independent events
mstat013 Probability of dependent events
mstat032 Probability of the union of two events

Real Numbers

alg026 Plotting integers on a number line
arith065 Plotting rational numbers on a number line
mstat038 Reading the temperature from a thermometer
B.31. FLORIDA MATH 0022

arith699 Writing a signed number for a real-world situation
arith691 Ordering integers
arith712 Ordering real numbers
arith671 Absolute value of a number
arith200 Integer addition: Problem type 1
arith108 Integer addition: Problem type 2
arith688 Integer subtraction: Problem type 1
arith689 Integer subtraction: Problem type 2
arith690 Integer subtraction: Problem type 3
arith754 Addition and subtraction with 3 integers
arith755 Addition and subtraction with 4 or 5 integers
arith701 Word problem with addition or subtraction of integers
arith231 Integer multiplication and division
arith800 Multiplication of 3 or 4 integers
alge001 Identifying numbers as integers or non-integers
alge002 Identifying numbers as rational or irrational
arith116 Signed fraction addition or subtraction: Basic
arith864 Signed fraction subtraction involving double negation
arith106 Signed fraction addition or subtraction: Advanced
arith811 Addition and subtraction of 3 fractions involving signs
arith822 Signed fraction multiplication: Basic
arith105 Signed fraction multiplication: Advanced
arith814 Signed fraction division
arith117 Signed decimal addition and subtraction
arith234 Signed decimal addition and subtraction with 3 numbers
arith750 Signed decimal multiplication
arith751 Signed decimal division
arith104 Operations with absolute value: Problem type 2
geom525 Computing distances between decimals on the number line
unit052 Finding the absolute error and percent error of a measurement
arith702 Exponents and integers: Problem type 1
arith703 Exponents and integers: Problem type 2
arith704 Exponents and signed fractions
arith118 Order of operations with integers
arith600 Order of operations with integers and exponents
arith696 Complex fraction without variables: Problem type 2
alge005 Evaluating a linear expression: Integer multiplication with addition or subtraction
alge808 Evaluating a linear expression: Signed fraction multiplication with addition or subtraction
alge302 Evaluating a linear expression: Signed decimal addition and subtraction
alge303 Evaluating a linear expression: Signed decimal multiplication with addition or subtraction
alge004 Evaluating a quadratic expression: Integers
alge700 Combining like terms: Whole number coefficients
alge607 Combining like terms: Integer coefficients
alge187 Properties of addition
alge310 Multiplying a constant and a linear monomial
alge606 Distributive property: Whole number coefficients
alge604 Distributive property: Integer coefficients
alge188 Properties of real numbers
alge608 Using distribution and combining like terms to simplify: Univariate
alge609 Using distribution with double negation and combining like terms to simplify: Multivariate
alge293 Combining like terms in a quadratic expression
alge432 Introduction to adding fractions with variables and common denominators
alge436 Adding rational expressions with different denominators and a single occurrence of a variable

Linear Equations and Inequalities

alge801 Additive property of equality with fractions and mixed numbers
alge800 Additive property of equality with decimals
alge010 Additive property of equality with integers
alge836 Additive property of equality with signed fractions
<table>
<thead>
<tr>
<th>Syllabi in ALEKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>alge820 Multiplicative property of equality with fractions</td>
</tr>
<tr>
<td>alge825 Multiplicative property of equality with decimals</td>
</tr>
<tr>
<td>alge797 Multiplicative property of equality with integers</td>
</tr>
<tr>
<td>alge012 Multiplicative property of equality with signed fractions</td>
</tr>
<tr>
<td>alge834 Identifying solutions to a linear equation in one variable: Two-step equations</td>
</tr>
<tr>
<td>alge266 Additive property of equality with a negative coefficient</td>
</tr>
<tr>
<td>alge006 Solving a two-step equation with integers</td>
</tr>
<tr>
<td>alge200 Solving an equation to find the value of an expression</td>
</tr>
<tr>
<td>alge920 Introduction to solving an equation with parentheses</td>
</tr>
<tr>
<td>alge837 Solving a multi-step equation given in fractional form</td>
</tr>
<tr>
<td>alge986 Identifying properties used to solve a linear equation</td>
</tr>
<tr>
<td>alge824 Solving a two-step equation with signed decimals</td>
</tr>
<tr>
<td>alge838 Introduction to solving an equation with variables on the same side</td>
</tr>
<tr>
<td>alge862 Solving a linear equation with several occurrences of the variable: Variables on the same side</td>
</tr>
<tr>
<td>alge863 Solving a linear equation with several occurrences of the variable: Variables on both sides</td>
</tr>
<tr>
<td>alge011 Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution</td>
</tr>
<tr>
<td>alge013 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution</td>
</tr>
<tr>
<td>alge209 Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions</td>
</tr>
<tr>
<td>alge420 Solving a linear equation with several occurrences of the variable: Fractional forms with monomial numerators</td>
</tr>
<tr>
<td>alge208 Solving a two-step equation with signed fractions</td>
</tr>
<tr>
<td>alge061 Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients</td>
</tr>
<tr>
<td>alge179 Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators</td>
</tr>
<tr>
<td>alge742 Solving equations with zero, one, or infinitely many solutions</td>
</tr>
<tr>
<td>alge840 Solving a proportion of the form ((x-a)/b = c/d)</td>
</tr>
<tr>
<td>alge271 Solving a proportion of the form (a/(x+b) = c/x)</td>
</tr>
<tr>
<td>alge603 Introduction to solving an absolute value equation</td>
</tr>
<tr>
<td>alge864 Solving an absolute value equation: Problem type 1</td>
</tr>
<tr>
<td>alge511 Solving for a variable in terms of other variables using addition or subtraction: Basic</td>
</tr>
<tr>
<td>alge512 Solving for a variable in terms of other variables using addition or subtraction: Advanced</td>
</tr>
<tr>
<td>alge513 Solving for a variable in terms of other variables using multiplication or division: Basic</td>
</tr>
<tr>
<td>alge514 Solving for a variable in terms of other variables using multiplication or division: Advanced</td>
</tr>
<tr>
<td>alge517 Solving for a variable in terms of other variables using addition or subtraction with division</td>
</tr>
<tr>
<td>alge518 Solving for a variable inside parentheses in terms of other variables</td>
</tr>
<tr>
<td>alge507 Solving for a variable in terms of other variables in a linear equation with fractions</td>
</tr>
<tr>
<td>alge733 Writing a one-step expression for a real-world situation</td>
</tr>
<tr>
<td>alge831 Translating a phrase into a one-step expression</td>
</tr>
<tr>
<td>alge291 Translating a phrase into a two-step expression</td>
</tr>
<tr>
<td>alge016 Translating a sentence into a one-step expression</td>
</tr>
<tr>
<td>alge841 Translating a sentence into a multi-step equation</td>
</tr>
<tr>
<td>alge802 Solving a fraction word problem using a linear equation of the form (Ax = B)</td>
</tr>
<tr>
<td>alge014 Solving a word problem with two unknowns using a linear equation</td>
</tr>
<tr>
<td>alge173 Solving a decimal word problem using a linear equation of the form (Ax + B = C)</td>
</tr>
<tr>
<td>alge730 Writing a multi-step equation for a real-world situation</td>
</tr>
<tr>
<td>alge219 Solving a decimal word problem using a linear equation with the variable on both sides</td>
</tr>
<tr>
<td>alge794 Solving a fraction word problem using a linear equation with the variable on both sides</td>
</tr>
<tr>
<td>alge792 Solving a word problem with three unknowns using a linear equation</td>
</tr>
<tr>
<td>alge842 Solving a word problem involving consecutive integers</td>
</tr>
<tr>
<td>alge794 Solving a value mixture problem using a linear equation</td>
</tr>
<tr>
<td>alge218 Solving a word problem involving rates and time conversion</td>
</tr>
<tr>
<td>alge796 Solving a distance, rate, time problem using a linear equation</td>
</tr>
<tr>
<td>arith854 Computing a percent mixture</td>
</tr>
<tr>
<td>alge795 Solving a percent mixture problem using a linear equation</td>
</tr>
<tr>
<td>geom817 Finding a side length given the perimeter and side lengths with variables</td>
</tr>
<tr>
<td>geom143 Finding the perimeter or area of a rectangle given one of these values</td>
</tr>
<tr>
<td>geom218 Finding the radius or the diameter of a circle given its circumference</td>
</tr>
<tr>
<td>geom838 Circumference ratios</td>
</tr>
</tbody>
</table>
B.31. FLORIDA MATH 0022

geom530 Solving equations involving vertical angles
geom531 Solving equations involving angles and a pair of parallel lines
geom623 Finding angle measures of a triangle given angles with variables
geom502 Finding angle measures of a right or isosceles triangle given angles with variables
stat803 Finding the value for a new score that will yield a given mean
alge015 Translating a sentence by using an inequality symbol
alge845 Translating a sentence into a one-step inequality
alge846 Translating a sentence into a multi-step inequality
alge748 Writing an inequality for a real-world situation
alge017 Graphing a linear inequality on the number line
alge822 Writing an inequality given a graph on the number line
alge186 Translating a sentence into a compound inequality
alge166 Graphing a compound inequality on the number line
alge847 Writing a compound inequality given a graph on the number line
set001 Set builder notation
set004 Set builder and interval notation
set002 Union and intersection of finite sets
alge844 Identifying solutions to a two-step linear inequality in one variable
alge848 Additive property of inequality with whole numbers
alge849 Additive property of inequality with integers
alge852 Additive property of inequality with signed fractions
alge853 Additive property of inequality with signed decimals
alge854 Multiplicative property of inequality with integers
alge964 Multiplicative property of inequality with signed fractions
alge855 Solving a two-step linear inequality: Problem type 1
alge856 Solving a two-step linear inequality: Problem type 2
alge857 Solving a two-step linear inequality with a fractional coefficient
alge977 Solving a linear inequality with multiple occurrences of the variable: Problem type 1
alge858 Solving a linear inequality with multiple occurrences of the variable: Problem type 2
alge859 Solving a linear inequality with multiple occurrences of the variable: Problem type 3
alge860 Solving inequalities with no solution or all real numbers as solutions
alge746 Solving a compound linear inequality: Graph solution, basic
alge747 Solving a compound linear inequality: Interval notation
alge868 Solving an absolute value inequality: Problem type 1
alge749 Solving a decimal word problem using a two-step linear inequality
alge750 Solving a decimal word problem using a linear inequality with the variable on both sides

Lines and Functions

alge064 Reading a point in the coordinate plane
alge067 Plotting a point in the coordinate plane
alge850 Table for a linear equation
alge873 Identifying solutions to a linear equation in two variables
alge066 Finding a solution to a linear equation in two variables
alge191 Midpoint of a line segment in the plane
alge877 Graphing a linear equation of the form y = mx
alge878 Graphing a line given its equation in slope-intercept form: Integer slope
alge879 Graphing a line given its equation in slope-intercept form: Fractional slope
alge880 Graphing a line given its equation in standard form
alge198 Graphing a vertical or horizontal line
alge884 Finding x- and y-intercepts given the graph of a line on a grid
alge924 Finding x- and y-intercepts of a line given the equation: Basic
alge210 Finding x- and y-intercepts of a line given the equation: Advanced
alge197 Graphing a line given its x- and y-intercepts
alge881 Graphing a line by first finding its x- and y-intercepts
alge875 Classifying slopes given graphs of lines
alge886 Finding slope given the graph of a line on a grid
alge887 Finding slope given two points on the line
alge885 Finding the slope of horizontal and vertical lines
alge888 Finding the coordinate that yields a given slope
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>alge259</td>
<td>Graphing a line given its slope and y-intercept</td>
</tr>
<tr>
<td>alge196</td>
<td>Graphing a line through a given point with a given slope</td>
</tr>
<tr>
<td>alge876</td>
<td>Identifying linear equations: Advanced</td>
</tr>
<tr>
<td>alge874</td>
<td>Identifying linear functions given ordered pairs</td>
</tr>
<tr>
<td>alge891</td>
<td>Rewriting a linear equation in the form (Ax + By = C)</td>
</tr>
<tr>
<td>alge889</td>
<td>Finding the slope and y-intercept of a line given its equation in the form (y = mx + b)</td>
</tr>
<tr>
<td>alge890</td>
<td>Finding the slope and y-intercept of a line given its equation in the form (Ax + By = C)</td>
</tr>
<tr>
<td>alge882</td>
<td>Graphing a line by first finding its slope and y-intercept</td>
</tr>
<tr>
<td>alge258</td>
<td>Writing an equation of a line given its slope and y-intercept</td>
</tr>
<tr>
<td>alge892</td>
<td>Writing an equation and graphing a line given its slope and y-intercept</td>
</tr>
<tr>
<td>alge893</td>
<td>Writing an equation in slope-intercept form given the slope and a point</td>
</tr>
<tr>
<td>alge883</td>
<td>Graphing a line given its equation in point-slope form</td>
</tr>
<tr>
<td>alge894</td>
<td>Writing an equation in point-slope form given the slope and a point</td>
</tr>
<tr>
<td>alge070</td>
<td>Writing an equation of a line given the y-intercept and another point</td>
</tr>
<tr>
<td>alge072</td>
<td>Writing the equation of the line through two given points</td>
</tr>
<tr>
<td>alge073</td>
<td>Writing the equations of vertical and horizontal lines through a given point</td>
</tr>
<tr>
<td>geom806</td>
<td>Finding slopes of lines parallel and perpendicular to a line given in slope-intercept form</td>
</tr>
<tr>
<td>geom807</td>
<td>Finding slopes of lines parallel and perpendicular to a line given in the form (Ax + By = C)</td>
</tr>
<tr>
<td>alge895</td>
<td>Identifying parallel and perpendicular lines from equations</td>
</tr>
<tr>
<td>geom808</td>
<td>Writing equations of lines parallel and perpendicular to a given line through a point</td>
</tr>
<tr>
<td>alge897</td>
<td>Writing and evaluating a function that models a real-world situation: Advanced</td>
</tr>
<tr>
<td>alge701</td>
<td>Writing an equation and drawing its graph to model a real-world situation: Advanced</td>
</tr>
<tr>
<td>fun005</td>
<td>Writing a function rule given a table of ordered pairs: One-step rules</td>
</tr>
<tr>
<td>fun006</td>
<td>Writing a function rule given a table of ordered pairs: Two-step rules</td>
</tr>
<tr>
<td>alge992</td>
<td>Combining functions to write a new function that models a real-world situation</td>
</tr>
<tr>
<td>alge987</td>
<td>Comparing properties of linear functions given in different forms</td>
</tr>
<tr>
<td>alge989</td>
<td>Interpreting the parameters of a linear function that models a real-world situation</td>
</tr>
<tr>
<td>alge805</td>
<td>Application problem with a linear function: Finding a coordinate given the slope and a point</td>
</tr>
<tr>
<td>alge806</td>
<td>Application problem with a linear function: Finding a coordinate given two points</td>
</tr>
<tr>
<td>mstat052</td>
<td>Identifying independent and dependent variables from equations or real-world situations</td>
</tr>
<tr>
<td>alge991</td>
<td>Solving a linear equation by graphing</td>
</tr>
<tr>
<td>mstat030</td>
<td>Sketching the line of best fit</td>
</tr>
<tr>
<td>mstat023</td>
<td>Scatter plots and correlation</td>
</tr>
<tr>
<td>mstat068</td>
<td>Predictions from the line of best fit</td>
</tr>
<tr>
<td>mstat067</td>
<td>Approximating the equation of a line of best fit and making predictions</td>
</tr>
<tr>
<td>mstat069</td>
<td>Computing residuals</td>
</tr>
<tr>
<td>mstat070</td>
<td>Interpreting residual plots</td>
</tr>
<tr>
<td>mstat071</td>
<td>Linear relationship and the correlation coefficient</td>
</tr>
<tr>
<td>mstat074</td>
<td>Identifying correlation and causation</td>
</tr>
<tr>
<td>alge898</td>
<td>Translating the graph of an absolute value function: One step</td>
</tr>
<tr>
<td>alge899</td>
<td>Translating the graph of an absolute value function: Two steps</td>
</tr>
<tr>
<td>alge913</td>
<td>Graphing an absolute value equation of the form (y = A-\mid x-\mid)</td>
</tr>
<tr>
<td>alge900</td>
<td>Graphing an absolute value equation in the plane: Basic</td>
</tr>
<tr>
<td>alge184</td>
<td>Graphing an absolute value equation in the plane: Advanced</td>
</tr>
<tr>
<td>alge901</td>
<td>How the leading coefficient affects the graph of an absolute value function</td>
</tr>
<tr>
<td>fun032</td>
<td>Identifying functions from relations</td>
</tr>
<tr>
<td>fun010</td>
<td>Vertical line test</td>
</tr>
<tr>
<td>fun016</td>
<td>Domain and range from ordered pairs</td>
</tr>
<tr>
<td>fun001</td>
<td>Table for a linear function</td>
</tr>
<tr>
<td>pcalc760</td>
<td>Evaluating functions: Linear and quadratic or cubic</td>
</tr>
<tr>
<td>fun033</td>
<td>Variable expressions as inputs of functions: Problem type 1</td>
</tr>
<tr>
<td>alge294</td>
<td>Finding outputs of a one-step function that models a real-world situation: Function notation</td>
</tr>
<tr>
<td>alge295</td>
<td>Finding outputs of a two-step function with decimals that models a real-world situation: Function notation</td>
</tr>
<tr>
<td>alge296</td>
<td>Finding inputs and outputs of a two-step function that models a real-world situation: Function notation</td>
</tr>
<tr>
<td>alge990</td>
<td>Domain and range of a linear function that models a real-world situation</td>
</tr>
<tr>
<td>fun026</td>
<td>Finding an output of a function from its graph</td>
</tr>
<tr>
<td>pcalc761</td>
<td>Finding inputs and outputs of a function from its graph</td>
</tr>
<tr>
<td>fun007</td>
<td>Domain and range from the graph of a discrete relation</td>
</tr>
<tr>
<td>fun024</td>
<td>Domain and range from the graph of a continuous function</td>
</tr>
<tr>
<td>alge886</td>
<td>Graphing an integer function and finding its range for a given domain</td>
</tr>
<tr>
<td>alge570</td>
<td>Graphing a function of the form (f(x) = ax + b): Integer slope</td>
</tr>
</tbody>
</table>
alge571 Graphing a function of the form $f(x) = ax + b$: Fractional slope
alge954 Graphing a parabola of the form $y = ax^2$
alge955 Graphing a parabola of the form $y = ax^2 + c$
alge572 Graphing a function of the form $f(x) = ax^2$
alge573 Graphing a function of the form $f(x) = ax^2 + c$
pcalc750 Finding intercepts of a nonlinear function given its graph
pcalc751 Finding where a function is increasing, decreasing, or constant given the graph: Interval notation
pcalc752 Finding local maxima and minima of a function given the graph
mstat051 Choosing a graph to fit a narrative: Basic
mstat051 Choosing a graph to fit a narrative: Advanced

Systems

alge914 Identifying solutions to a system of linear equations
alge075 Classifying systems of linear equations from graphs
alge725 Graphically solving a system of linear equations
alge751 Solving a system of linear equations using substitution
alge915 Solving a system of linear equations using elimination with addition
alge076 Solving a system of linear equations using elimination with multiplication and addition
alge916 Solving a system of linear equations with fractional coefficients
alge917 Solving a system of linear equations with decimal coefficients
alge752 Solving a $2 \times 2$ system of linear equations that is inconsistent or consistent dependent
alge988 Identifying the operations used to create equivalent systems of equations
alge753 Solving a $3 \times 3$ system of linear equations: Problem type 1
alge263 Interpreting the graphs of two functions
alge078 Solving a word problem involving a sum and another basic relationship using a system of linear equations
alge919 Solving a word problem using a system of linear equations of the form $Ax + By = C$
alge918 Solving a word problem using a system of linear equations of the form $y = mx + b$
alge184 Solving a value mixture problem using a system of linear equations
alge192 Solving a percent mixture problem using a system of linear equations
alge224 Solving a distance, rate, time problem using a system of linear equations
alge172 Solving a tax rate or interest rate problem using a system of linear equations
alge703 Solving a word problem using a $3 \times 3$ system of linear equations: Problem type 1
alge912 Identifying solutions to a linear inequality in two variables
alge225 Graphing a linear inequality in the plane: Vertical or horizontal line
alge720 Graphing a linear inequality in the plane: Slope-intercept form
alge918 Graphing a linear inequality in the plane: Standard form
alge079 Graphing a system of two linear inequalities: Basic
alge921 Graphing a system of two linear inequalities: Advanced
alge922 Graphing a system of three linear inequalities
alge729 Writing a multi-step inequality for a real-world situation
pcalc093 Solving a word problem using a system of linear inequalities: Problem type 1

Exponents and Polynomials

alge821 Understanding the product rule of exponents
alge024 Introduction to the product rule of exponents
alge311 Product rule with positive exponents: Univariate
alge030 Product rule with positive exponents: Multivariate
arith029 Ordering numbers with positive exponents
alge826 Understanding the power rules of exponents
alge306 Introduction to the power of a power rule of exponents
alge305 Introduction to the power of a product rule of exponents
alge307 Power rules with positive exponents: Multivariate products
alge308 Power rules with positive exponents: Multivariate quotients
alge756 Power and product rules with positive exponents
alge451 Simplifying a ratio of multivariate monomials: Basic
alge827 Introduction to the quotient rule of exponents
alge452 Simplifying a ratio of univariate monomials
alge026 Quotient of expressions involving exponents
alge453 Simplifying a ratio of multivariate monomials: Advanced
alge927 Power and quotient rules with positive exponents
alge790 Evaluating expressions with exponents of zero
arith884 Power of 10: Negative exponent
arith729 Evaluating an expression with a negative exponent: Whole number base
arith642 Evaluating an expression with a negative exponent: Positive fraction base
arith643 Evaluating an expression with a negative exponent: Negative integer base
arith624 Ordering numbers with negative exponents
alge791 Rewriting an algebraic expression without a negative exponent
alge961 Introduction to the product rule with negative exponents
alge628 Product rule with negative exponents
alge755 Quotient rule with negative exponents: Problem type 1
alge926 Quotient rule with negative exponents: Problem type 2
alge625 Power of a power rule with negative exponents
alge799 Power rules with negative exponents
alge928 Power and quotient rules with negative exponents: Problem type 1
alge929 Power and quotient rules with negative exponents: Problem type 2
alge757 Power, product, and quotient rules with negative exponents
arith636 Scientific notation with positive exponent
arith637 Scientific notation with negative exponent
scinot012 Converting between scientific notation and standard form in a real-world situation
scinot008 Multiplying numbers written in scientific notation: Basic
scinot009 Multiplying numbers written in scientific notation: Advanced
scinot010 Dividing numbers written in scientific notation: Basic
scinot011 Dividing numbers written in scientific notation: Advanced
alge971 Table for an exponential function
alge830 Evaluating an exponential function that models a real-world situation
arith653 Introduction to compound interest
alge177 Finding a final amount in a word problem on exponential growth or decay
alge741 Finding the final amount in a word problem on compound interest
alge666 Finding the initial amount and rate of change given an exponential function
alge688 Writing an equation that models exponential growth or decay
alge301 Solving an exponential equation by finding common bases: Linear exponents
alge669 Graphing an exponential function: \( f(x) = ax \)
alge969 Graphing an exponential function: \( f(x) = a(b)x \)
alge967 Writing an exponential function rule given a table of ordered pairs
alge993 Comparing linear, polynomial, and exponential functions
alge758 Degree and leading coefficient of a univariate polynomial
alge031 Degree of a multivariate polynomial
alge798 Simplifying a sum or difference of two univariate polynomials
alge029 Simplifying a sum or difference of three univariate polynomials
alge932 Simplifying a sum or difference of multivariate polynomials
alge745 Multiplying a univariate polynomial by a monomial with a positive coefficient
alge972 Multiplying a univariate polynomial by a monomial with a negative coefficient
alge835 Multiplying a multivariate polynomial by a monomial
alge033 Multiplying binomials with leading coefficients of 1
alge983 Multiplying binomials with leading coefficients greater than 1
alge765 Multiplying binomials in two variables
alge764 Multiplying conjugate binomials: Univariate
alge081 Multiplying conjugate binomials: Multivariate
alge032 Squaring a binomial: Univariate
alge068 Squaring a binomial: Multivariate
alge973 Multiplying binomials with negative coefficients
alge935 Multiplication involving binomials and trinomials in one variable
alge180 Multiplication involving binomials and trinomials in two variables
alge759 Dividing a polynomial by a monomial: Univariate
alge760 Dividing a polynomial by a monomial: Multivariate
alge761 Polynomial long division: Problem type 1
alge762 Polynomial long division: Problem type 2
alge763 Polynomial long division: Problem type 3
alge985 Closure properties of integers and polynomials
alge605 Factoring a linear binomial
alge736 Introduction to the GCF of two monomials
alge930 Greatest common factor of three univariate monomials
alge037 Greatest common factor of two multivariate monomials
alge738 Factoring out a monomial from a polynomial: Univariate
alge739 Factoring out a monomial from a polynomial: Multivariate
alge949 Factoring out a binomial from a polynomial: GCF factoring, basic
alge923 Factoring a univariate polynomial by grouping: Problem type 1
alge950 Factoring a univariate polynomial by grouping: Problem type 2
alge951 Factoring a multivariate polynomial by grouping: Problem type 1
alge952 Factoring a multivariate polynomial by grouping: Problem type 2
alge039 Factoring a quadratic with leading coefficient 1
alge942 Factoring a quadratic in two variables with leading coefficient 1
alge936 Factoring out a constant before factoring a quadratic
alge940 Factoring a quadratic with leading coefficient greater than 1: Problem type 1
alge941 Factoring a quadratic with leading coefficient greater than 1: Problem type 2
alge978 Factoring a quadratic by the ac-method
alge265 Factoring a quadratic in two variables with leading coefficient greater than 1
alge937 Factoring a quadratic with a negative leading coefficient
alge944 Factoring a perfect square trinomial with leading coefficient 1
alge945 Factoring a perfect square trinomial with leading coefficient greater than 1
alge946 Factoring a perfect square trinomial in two variables
alge290 Factoring a difference of squares in one variable: Basic
alge947 Factoring a difference of squares in one variable: Advanced
alge839 Factoring a difference of squares in two variables
alge948 Factoring a polynomial involving a GCF and a difference of squares: Univariate
alge833 Factoring a polynomial involving a GCF and a difference of squares: Multivariate
alge041 Factoring a product of a quadratic trinomial and a monomial
alge042 Factoring with repeated use of the difference of squares formula
alge044 Factoring a sum or difference of two cubes
alge681 Solving an equation written in factored form
alge956 Finding the roots of a quadratic equation of the form ax^2 + bx = 0
alge045 Finding the roots of a quadratic equation with leading coefficient 1
alge211 Solving a quadratic equation needing simplification
alge703 Solving a word problem using a quadratic equation with rational roots
alge713 Using the Pythagorean Theorem and a quadratic equation to find side lengths of a right triangle

Rational Expressions

alge049 Restriction on a variable in a denominator: Linear
alge467 Restriction on a variable in a denominator: Quadratic
alge468 Evaluating a rational function: Problem type 1
alge469 Evaluating a rational function: Problem type 2
alge715 Domain of a rational function: Excluded values
alge454 Simplifying a ratio of factored polynomials: Linear factors
alge455 Simplifying a ratio of factored polynomials: Factors with exponents
alge456 Simplifying a ratio of polynomials using GCF factoring
alge457 Simplifying a ratio of linear polynomials: 1, -1, and no simplification
alge458 Simplifying a ratio of polynomials by factoring a quadratic with leading coefficient 1
alge710 Simplifying a ratio of polynomials: Problem type 1
alge682 Simplifying a ratio of polynomials: Problem type 2
alge459 Simplifying a ratio of polynomials: Problem type 3
alge034 Simplifying a ratio of multivariate polynomials
alge053 Multiplying rational expressions involving multivariate monomials
alge460 Multiplying rational expressions made up of linear expressions
alge620 Multiplying rational expressions involving quadratics with leading coefficients of 1
alge461 Multiplying rational expressions involving quadratics with leading coefficients greater than 1
APPENDIX B. SYLLABI IN ALEKS

alge462 Multiplying rational expressions involving multivariate quadratics
alge054 Dividing rational expressions involving multivariate monomials
alge463 Dividing rational expressions involving linear expressions
alge766 Dividing rational expressions involving quadratics with leading coefficients of 1
alge464 Dividing rational expressions involving quadratics with leading coefficients greater than 1
alge465 Dividing rational expressions involving multivariate quadratics
alge466 Multiplying and division of 3 rational expressions
alge737 Introduction to the LCM of two monomials
alge055 Least common multiple of two monomials
alge427 Finding the LCD of rational expressions with linear denominators: Relatively prime
alge428 Finding the LCD of rational expressions with linear denominators: Common factors
alge429 Finding the LCD of rational expressions with quadratic denominators
alge430 Writing equivalent rational expressions with monomial denominators
alge431 Writing equivalent rational expressions with polynomial denominators
alge432 Adding rational expressions with common denominators and monomial numerators
alge433 Adding rational expressions with common denominators and binomial numerators
alge434 Adding rational expressions with common denominators and GCF factoring
alge435 Adding rational expressions with common denominators and quadratic factoring
alge436 Adding rational expressions with denominators ax and bx: Basic
alge437 Adding rational expressions with denominators ax and bx: Advanced
alge438 Adding rational expressions with denominators ax and bx: Advanced
alge440 Adding rational expressions with multivariate monomial denominators: Basic
alge422 Adding rational expressions with multivariate monomial denominators: Advanced
alge441 Adding rational expressions with linear denominators without common factors: Basic
alge442 Adding rational expressions with linear denominators without common factors: Advanced
alge443 Adding rational expressions with linear denominators with common factors: Basic
alge444 Adding rational expressions with linear denominators with common factors: Advanced
alge445 Adding rational expressions with denominators ax-b and b-ax: Advanced
alge446 Adding rational expressions involving different quadratic denominators
alge470 Complex fraction involving univariate monomials
alge471 Complex fraction: GCF factoring
alge472 Complex fraction: Quadratic factoring
alge473 Complex fraction made of sums involving rational expressions: Problem type 1
alge474 Complex fraction made of sums involving rational expressions: Problem type 2
alge475 Complex fraction made of sums involving rational expressions: Problem type 3
alge476 Complex fraction made of sums involving rational expressions: Problem type 4
alge477 Complex fraction made of sums involving rational expressions: Problem type 5
alge478 Complex fraction made of sums involving rational expressions: Problem type 6
alge479 Complex fraction made of sums involving rational expressions: Multivariate
alge480 Complex fraction with negative exponents: Problem type 1
alge481 Complex fraction with negative exponents: Problem type 2
alge162 Complex fraction that contains a complex fraction
alge060 Solving a rational equation that simplifies to linear: Denominator x
alge205 Solving a rational equation that simplifies to linear: Denominator x+a
alge212 Solving a rational equation that simplifies to quadratic: Denominators a, x, or ax
alge421 Solving a rational equation that simplifies to linear: Denominators ax and bx
alge422 Solving a rational equation that simplifies to linear: Like binomial denominators
alge206 Solving a rational equation that simplifies to linear: Unlike binomial denominators
alge423 Solving a rational equation that simplifies to quadratic: Factorable quadratic denominator
alge424 Solving a rational equation that simplifies to quadratic: Proportional form, basic
alge425 Solving a rational equation that simplifies to quadratic: Denominator x
alge508 Solving for a variable in terms of other variables in a rational equation: Problem type 1
alge509 Solving for a variable in terms of other variables in a rational equation: Problem type 2
alge510 Solving for a variable in terms of other variables in a rational equation: Problem type 3
arithmetic Word problem involving multiple rates
Radicals and Quadratic Equations

alge413 Finding all square roots of a number
arith760 Square roots of perfect squares with signs
alge415 Introduction to simplifying a radical expression with an even exponent
alge264 Square root of a perfect square monomial
arith094 Cube root of an integer
alge549 Finding nth roots of perfect nth powers with signs
arith768 Finding the nth root of a perfect nth power fraction
alge550 Finding the nth root of a perfect nth power monomial
arith093 Simplifying the square root of a whole number less than 100
arith762 Simplifying the square root of a whole number greater than 100
alge080 Simplifying a radical expression with an even exponent
alge520 Introduction to simplifying a radical expression with an odd exponent
alge521 Simplifying a radical expression with an odd exponent
alge275 Simplifying a radical expression with two variables
alge273 Simplifying a higher root of a whole number
alge551 Introduction to simplifying a higher radical expression
alge552 Simplifying a higher radical expression: Univariate
alge811 Simplifying a higher radical expression: Multivariate
arith767 Introduction to square root addition or subtraction
arith032 Square root addition or subtraction
alge533 Square root addition or subtraction with three terms
alge531 Introduction to simplifying a sum or difference of radical expressions: Univariate
alge532 Simplifying a sum or difference of radical expressions: Univariate
alge084 Simplifying a sum or difference of radical expressions: Multivariate
alge554 Simplifying a sum or difference of higher roots
alge555 Simplifying a sum or difference of higher radical expressions
arith764 Introduction to square root multiplication
arith765 Square root multiplication: Basic
arith039 Square root multiplication: Advanced
alge522 Introduction to simplifying a product of radical expressions: Univariate
alge523 Simplifying a product of radical expressions: Univariate
alge640 Simplifying a product of radical expressions: Multivariate
alge556 Introduction to simplifying a product of higher roots
alge557 Simplifying a product of higher radical expressions
alge525 Introduction to simplifying a product involving square roots using the distributive property
alge526 Simplifying a product involving square roots using the distributive property: Basic
alge276 Simplifying a product involving square roots using the distributive property: Advanced
alge774 Special products of radical expressions: Conjugates and squaring
alge984 Classifying sums and products as rational or irrational
arith766 Simplifying a quotient of square roots
alge530 Simplifying a quotient involving a sum or difference with a square root
alge527 Rationalizing a denominator: Quotient involving square roots
APPENDIX B. SYLLABI IN ALEKS

alge528 Rationalizing a denominator: Square root of a fraction
alge529 Rationalizing a denominator: Quotient involving a monomial
alge534 Rationalizing a denominator using conjugates: Integer numerator
alge535 Rationalizing a denominator using conjugates: Square root in numerator
alge536 Rationalizing a denominator using conjugates: Variable in denominator
alge564 Rationalizing a denominator: Quotient involving a higher radical
alge400 Introduction to solving a radical equation
alge089 Solving a radical equation that simplifies to a linear equation: One radical, basic
alge402 Solving a radical equation that simplifies to a linear equation: One radical, advanced
alge090 Solving a radical equation that simplifies to a linear equation: Two radicals
alge405 Solving a radical equation with two radicals that simplifies to sqrt(x) = a
alge403 Solving a radical equation that simplifies to a quadratic equation: One radical, basic
alge404 Solving a radical equation that simplifies to a quadratic equation: One radical, advanced
alge411 Solving a radical equation with a quadratic expression under the radical
alge182 Solving a radical equation that simplifies to a quadratic equation: Two radicals
alge410 Solving an equation with a root index greater than 2: Problem type 1
alge417 Solving an equation with a root index greater than 2: Problem type 2
alge412 Algebraic symbol manipulation with radicals
alge542 Word problem involving radical equations: Basic
alge409 Word problem involving radical equations: Advanced
alge132 Distance between two points in the plane: Exact answers
alge539 Table for a square root function
alge540 Domain of a square root function: Basic
pcalc763 Domain of a square root function: Advanced
alge543 Graphing a square root function: Problem type 1
alge544 Graphing a square root function: Problem type 2
alge812 Converting between radical form and exponent form
alge560 Rational exponents: Unit fraction exponents and whole number bases
alge561 Rational exponents: Unit fraction exponents and bases involving signs
alge250 Rational exponents: Non-unit fraction exponent with a whole number base
alge251 Rational exponents: Negative exponents and fractional bases
alge558 Rational exponents: Product rule
alge559 Rational exponents: Quotient rule
alge773 Rational exponents: Products and quotients with negative exponents
alge562 Rational exponents: Power of a power rule
alge249 Rational exponents: Powers of powers with negative exponents
alge563 Simplifying products or quotients of higher radicals with different indices: Univariate
alge778 Using i to rewrite square roots of negative numbers
alge779 Simplifying a product and quotient involving square roots of negative numbers
pcalc048 Adding or subtracting complex numbers
pcalc049 Multiplying complex numbers
pcalc050 Dividing complex numbers
pcalc053 Simplifying a power of i
alge962 Solving an equation of the form x2 = a using the square root property
alge092 Solving a quadratic equation using the square root property: Exact answers, basic
alge227 Solving a quadratic equation using the square root property: Exact answers, advanced
alge094 Completing the square
alge780 Solving a quadratic equation by completing the square: Exact answers
alge095 Applying the quadratic formula: Exact answers
alge963 Applying the quadratic formula: Decimal answers
pcalc751 Solving a quadratic equation with complex roots
alge214 Discriminant of a quadratic equation
alge524 Solving a word problem using a quadratic equation with irrational roots
alge974 Finding the vertex, x-intercepts, and axis of symmetry from the graph of a parabola
alge953 Translating the graph of a parabola: One step
alge253 Graphing a parabola of the form y = (x-h)2 + k
alge569 Graphing a parabola of the form y = x2 + bx + c
pcalc746 Graphing a parabola of the form y = ax2 + bx + c: Integer coefficients
pcalc747 Graphing a parabola of the form y = ax2 + bx + c: Rational coefficients
alge277 Finding the x-intercept(s) and the vertex of a parabola
pcalc774 Rewriting a quadratic function to find the vertex of its graph
pcalc775 Finding the maximum or minimum of a quadratic function
B.32. FLORIDA MATH 0028

alge785 Word problem involving the maximum or minimum of a quadratic function
alge975 Domain and range from the graph of a parabola
pcalc762 Range of a quadratic function
alge957 Solving a quadratic equation by graphing
alge996 Comparing properties of quadratic functions given in different forms
alge702 Classifying the graph of a function
alge723 How the leading coefficient affects the shape of a parabola
alge965 Identifying linear, quadratic, and exponential functions given ordered pairs
alge262 Graphing a cubic function of the form $y = ax^3$
fun019 Sum, difference, and product of two functions
fun022 Composition of two functions: Basic
pcalc776 Expressing a function as a composition of two functions
pcalc924 Determining whether an equation defines a function: Basic
pcalc757 Determining whether an equation defines a function: Advanced

B.32 Florida Math 0028

Arithmetic Readiness

arith692 Writing expressions using exponents
arith233 Introduction to exponents
arith683 Power of 10: Positive exponent
arith600 Order of operations with whole numbers
arith601 Order of operations with whole numbers and grouping symbols
arith633 Order of operations with whole numbers and exponents: Basic
arith713 Order of operations with whole numbers and exponents: Advanced
alge265 Evaluating an algebraic expression: Whole numbers with two operations
alge832 Evaluating an algebraic expression: Whole number operations and exponents
arith656 Factors
arith634 Prime numbers
arith635 Prime factorization
arith033 Greatest common factor of 2 numbers
arith070 Least common multiple of 2 numbers
arith034 Least common multiple of 3 numbers
arith240 Word problem with common multiples
arith064 Solving a word problem on proportions using a unit rate
arith212 Equivalent fractions
arith618 Addition or subtraction of fractions with the same denominator
arith802 Addition or subtraction of fractions with the same denominator and simplification
arith801 Finding the LCD of two fractions
arith664 Introduction to addition or subtraction of fractions with different denominators
arith230 Addition or subtraction of fractions with different denominators
arith803 Addition and subtraction of 3 fractions with different denominators
arith057 Word problem involving addition or subtraction of fractions with different denominators
arith100 Fractional part of a circle
arith679 Product of a unit fraction and a whole number
arith086 Product of a fraction and a whole number: Problem type 1
arith119 Introduction to fraction multiplication
arith053 Fraction multiplication
arith812 Product of a fraction and a whole number: Problem type 2
arith813 Multiplication of 3 fractions
arith821 Exponents and fractions
arith818 Word problem involving fractions and multiplication
arith095 Multi-step word problem involving fractions and multiplication
arith088 The reciprocal of a number
arith694 Division involving a whole number and a fraction
arith022 Fraction division
APPENDIX B. SYLLABI IN ALEKS

arith819 Word problem involving fractions and division
arith859 Order of operations with fractions: Problem type 1
arith860 Order of operations with fractions: Problem type 2
arith861 Order of operations with fractions: Problem type 3
arith015 Writing an improper fraction as a mixed number
arith619 Writing a mixed number as an improper fraction
arith884 Addition of mixed numbers with the same denominator and carry
arith216 Subtraction of mixed numbers with the same denominator and borrowing
arith806 Addition or subtraction of mixed numbers with different denominators and no carry or borrow
arith808 Addition of mixed numbers with different denominators and carry
arith809 Subtraction of mixed numbers with different denominators and borrowing
arith817 Word problem involving multiplication or division with mixed numbers
arith816 Word problem involving addition or subtraction of mixed numbers with different denominators
arith815 Mixed number multiplication
arith816 Multiplication of a mixed number and a whole number
arith817 Division with a mixed number and a whole number
arith860 Mixed number division
arith820 Word problem involving multiplication or division with mixed numbers
arith110 Decimal place value: Tenths and hundredths
arith221 Rounding decimals
arith718 Converting a decimal to a proper fraction in simplest form: Basic
arith807 Converting a decimal to a proper fraction in simplest form: Advanced
arith722 Converting a decimal to a mixed number and an improper fraction in simplest form: Basic
arith724 Converting a decimal to a mixed number and an improper fraction in simplest form: Advanced
arith013 Decimal addition with 3 numbers
arith735 Decimal subtraction: Basic
arith736 Decimal subtraction: Advanced
arith737 Decimal addition and subtraction with 3 or more numbers
arith131 Estimating a decimal sum or difference
arith133 Word problem with addition of 3 or 4 decimals and whole numbers
arith134 Word problem with subtraction of a whole number and a decimal: Regrouping with zeros
arith017 Multiplication of a decimal by a whole number
arith055 Decimal multiplication: Problem type 1
arith082 Multiplication of a decimal by a power of ten
arith752 Estimating a product of decimals
arith753 Squaring decimal bases: Products greater than 0.1
arith741 Exponents and decimals: Products less than 0.1
arith137 Word problem with multiplication of two decimals
arith224 Word problem with decimal addition and multiplication
arith801 Division of a decimal by a whole number
arith743 Division of a decimal by a 1-digit decimal
arith019 Division of a decimal by a 2-digit decimal
arith803 Division of a decimal by a power of ten
arith138 Word problem with division of two decimals
arith227 Word problem with decimal subtraction and division
arith727 Converting a fraction to a terminating decimal: Basic
arith728 Converting a fraction to a terminating decimal: Advanced
arith730 Converting a fraction to a repeating decimal: Basic
arith731 Converting a fraction to a repeating decimal: Advanced
arith111 Converting a mixed number to a terminating decimal: Basic
arith112 Converting a mixed number to a terminating decimal: Advanced
arith7240 Order of operations with decimals: Problem type 1
arith746 Order of operations with decimals: Problem type 2
arith747 Order of operations with decimals: Problem type 3
arith836 Converting a fraction with a denominator of 100 to a percentage
arith837 Converting a percentage to a fraction with a denominator of 100
arith723 Introduction to converting a percentage to a decimal
arith833 Introduction to converting a decimal to a percentage
arith834 Converting between percentages and decimals
arith841 Converting a mixed number percentage to a decimal
arith845 Converting between percentages and decimals in a real-world situation
arith900 Converting a percentage to a fraction in simplest form
Real Numbers and Algebraic Expressions

arith687 Fractional position on a number line
arith829 Reading decimal position on a number line: Tenths
arith830 Reading decimal position on a number line: Hundredths
alge286 Plotting integers on a number line
arith605 Plotting rational numbers on a number line
arith699 Writing a signed number for a real-world situation
arith692 Using a common denominator to order fractions
arith129 Introduction to ordering decimals
arith608 Ordering decimals
arith609 Ordering fractions and decimals
APPENDIX B. SYLLABI IN ALEKS

arith691 Ordering integers
arith016 Square root of a perfect square
arith763 Using a calculator to approximate a square root
arith602 Estimating a square root
arith712 Ordering real numbers
arith671 Absolute value of a number
arith200 Integer addition: Problem type 1
arith108 Integer addition: Problem type 2
arith688 Integer subtraction: Problem type 1
arith689 Integer subtraction: Problem type 2
arith690 Integer subtraction: Problem type 3
arith754 Addition and subtraction with 3 integers
arith755 Addition and subtraction with 4 or 5 integers
arith701 Word problem with addition or subtraction of integers
arith231 Integer multiplication and division
arith800 Multiplication of 3 or 4 integers
arith711 Division involving zero
alge001 Identifying numbers as integers or non-integers
arith116 Signed fraction addition or subtraction: Basic
arith864 Signed fraction subtraction involving double negation
arith106 Signed fraction addition or subtraction: Advanced
arith811 Addition and subtraction of 3 fractions involving signs
arith822 Signed fraction multiplication: Basic
arith105 Signed fraction multiplication: Advanced
arith814 Signed fraction division
arithh117 Signed decimal addition and subtraction
arith234 Signed decimal addition and subtraction with 3 numbers
arith750 Signed decimal multiplication
arith751 Signed decimal division
arith104 Operations with absolute value: Problem type 2
geom525 Computing distances between decimals on the number line
arith702 Exponents and integers: Problem type 1
arith703 Exponents and integers: Problem type 2
arith704 Exponents and signed fractions
arith118 Order of operations with integers
arith600 Order of operations with integers and exponents
alge005 Evaluating a linear expression: Integer multiplication with addition or subtraction
alge004 Evaluating a quadratic expression: Integers
alge808 Evaluating a linear expression: Signed fraction multiplication with addition or subtraction
alge302 Evaluating a linear expression: Signed decimal addition and subtraction
alge303 Evaluating a linear expression: Signed decimal multiplication with addition or subtraction
alge700 Combining like terms: Whole number coefficients
alge697 Combining like terms: Integer coefficients
arithh655 Introduction to properties of addition
alge187 Properties of addition
arithh657 Understanding the distributive property
alge310 Multiplying a constant and a linear monomial
alge606 Distributive property: Whole number coefficients
alge604 Distributive property: Integer coefficients
arithh656 Introduction to properties of multiplication
alge188 Properties of real numbers
alge608 Using distribution and combining like terms to simplify: Univariate
alge609 Using distribution with double negation and combining like terms to simplify: Multivariate
alge293 Combining like terms in a quadratic expression

Linear Equations

alge009 Additive property of equality with whole numbers
alge801 Additive property of equality with fractions and mixed numbers
algebra800 Additive property of equality with decimals
algebra010 Additive property of equality with integers
algebra836 Additive property of equality with signed fractions
algebra008 Multiplicative property of equality with whole numbers
algebra820 Multiplicative property of equality with fractions
algebra825 Multiplicative property of equality with decimals
algebra797 Multiplicative property of equality with integers
algebra012 Multiplicative property of equality with signed fractions
algebra834 Identifying solutions to a linear equation in one variable: Two-step equations
algebra803 Using two steps to solve an equation with whole numbers
algebra266 Additive property of equality with a negative coefficient
algebra006 Solving a two-step equation with integers
algebra200 Solving an equation to find the value of an expression
algebra920 Introduction to solving an equation with parentheses
algebra837 Solving a multi-step equation given in fractional form
algebra986 Identifying properties used to solve a linear equation
algebra824 Solving a two-step equation with signed decimals
algebra838 Introduction to solving an equation with variables on the same side
algebra862 Solving a linear equation with several occurrences of the variable: Variables on the same side
algebra863 Solving a linear equation with several occurrences of the variable: Variables on both sides
algebra011 Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
algebra013 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
algebra209 Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions
algebra420 Solving a linear equation with several occurrences of the variable: Fractional forms with monomial numerators
algebra208 Solving a two-step equation with signed fractions
algebra061 Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
algebra179 Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators
algebra742 Solving equations with zero, one, or infinitely many solutions
algebra663 Introduction to solving an absolute value equation
algebra864 Solving an absolute value equation: Problem type 1
algebra272 Solving a proportion of the form x/a = b/c
algebra840 Solving a proportion of the form (x+a)/b = c/d
algebra511 Solving for a variable in terms of other variables using addition or subtraction: Basic
algebra512 Solving for a variable in terms of other variables using addition or subtraction: Advanced
algebra513 Solving for a variable in terms of other variables using multiplication or division: Basic
algebra514 Solving for a variable in terms of other variables using multiplication or division: Advanced
algebra517 Solving for a variable in terms of other variables using addition or subtraction with division
algebra518 Solving for a variable inside parentheses in terms of other variables
algebra507 Solving for a variable in terms of other variables in a linear equation with fractions
algebra733 Writing a one-step expression for a real-world situation
algebra831 Translating a phrase into a one-step expression
algebra291 Translating a phrase into a two-step expression
algebra016 Translating a sentence into a one-step equation
algebra841 Translating a sentence into a multi-step equation
algebra862 Solving a fraction word problem using a linear equation of the form Ax = B
algebra014 Solving a word problem with two unknowns using a linear equation
algebra173 Solving a decimal word problem using a linear equation of the form Ax + B = C
algebra219 Solving a decimal word problem using a linear equation with the variable on both sides
algebra704 Solving a fraction word problem using a linear equation with the variable on both sides
algebra792 Solving a word problem with three unknowns using a linear equation
algebra842 Solving a word problem involving consecutive integers
algebra730 Writing a multi-step equation for a real-world situation
algebra794 Solving a value mixture problem using a linear equation
algebra823 Solving a one-step word problem using the formula d = rt
algebra218 Solving a word problem involving rates and time conversion
algebra796 Solving a distance, rate, time problem using a linear equation
mstat065 Converting between temperatures in Fahrenheit and Celsius
geom217 Finding the side length of a rectangle given its perimeter or area
geom817 Finding a side length given the perimeter and side lengths with variables
geom143 Finding the perimeter or area of a rectangle given one of these values
geom218 Finding the radius or the diameter of a circle given its circumference
geom530 Solving equations involving vertical angles
geom801 Finding an angle measure of a triangle given two angles
geom823 Finding angle measures of a triangle given angles with variables
geom902 Finding angle measures of a right or isosceles triangle given angles with variables
geom812 Finding an angle measure given extended triangles
geom813 Finding an angle measure given a triangle and parallel lines
stat803 Finding the value for a new score that will yield a given mean
arith840 Finding a percentage of a whole number
arith030 Finding a percentage of a whole number without a calculator: Basic
arith844 Finding a percentage of a whole number without a calculator: Advanced
arith862 Applying the percent equation: Problem type 1
arith863 Applying the percent equation: Problem type 2
arith845 Finding a percentage of a total amount: Real-world situations
arith846 Finding a percentage of a total amount without a calculator: Sales tax, commission, discount
arith857 Estimating a tip without a calculator
arith069 Writing a ratio as a percentage without a calculator
mstat049 Computing a percentage from a table of values
arith850 Finding the rate of a tax or commission
arith849 Finding the total amount given the percentage of a partial amount
arith852 Finding the multiplier to give a final amount after a percentage increase or decrease
arith851 Finding the final amount given the original amount and a percentage increase or decrease
arith847 Finding the sale price given the original price and percent discount
arith874 Finding the sale price without a calculator given the original price and percent discount
arith848 Finding the total cost including tax or markup
arith855 Finding the original amount given the result of a percentage increase or decrease
arith031 Finding the original price given the sale price and percent discount
arith858 Finding the percentage increase or decrease: Basic
arith225 Finding the percentage increase or decrease: Advanced
unit052 Finding the absolute error and percent error of a measurement
alge795 Solving a percent mixture problem using a linear equation
stat804 Interpreting a circle graph or pie chart
arith856 Finding a percentage of a total amount in a circle graph
stat801 Computations from a circle graph
arith232 Finding simple interest without a calculator

Linear Inequalities

alge015 Translating a sentence by using an inequality symbol
alge845 Translating a sentence into a one-step inequality
alge846 Translating a sentence into a multi-step inequality
alge748 Writing an inequality for a real-world situation
alge817 Graphing a linear inequality on the number line
alge822 Writing an inequality given a graph on the number line
alge186 Translating a sentence into a compound inequality
alge166 Graphing a compound inequality on the number line
alge847 Writing a compound inequality given a graph on the number line
set001 Set builder notation
set004 Set builder and interval notation
set002 Union and intersection of finite sets
alge844 Identifying solutions to a two-step linear inequality in one variable
alge848 Additive property of inequality with whole numbers
alge849 Additive property of inequality with integers
alge852 Additive property of inequality with signed fractions
alge853 Additive property of inequality with signed decimals
alge854 Multiplicative property of inequality with integers  
alge964 Multiplicative property of inequality with signed fractions  
alge855 Solving a two-step linear inequality: Problem type 1  
alge856 Solving a two-step linear inequality: Problem type 2  
alge857 Solving a two-step linear inequality with a fractional coefficient  
alge977 Solving a linear inequality with multiple occurrences of the variable: Problem type 1  
alge858 Solving a linear inequality with multiple occurrences of the variable: Problem type 2  
alge859 Solving a linear inequality with multiple occurrences of the variable: Problem type 3  
alge746 Solving a compound linear inequality: Graph solution, basic  
alge747 Solving a compound linear inequality: Interval notation  
alge868 Solving an absolute value inequality: Problem type 1  
alge749 Solving a decimal word problem using a two-step linear inequality  
alge750 Solving a decimal word problem using a linear inequality with the variable on both sides

Lines and Functions

alge064 Reading a point in the coordinate plane  
alge067 Plotting a point in the coordinate plane  
alge850 Table for a linear equation  
alge873 Identifying solutions to a linear equation in two variables  
alge996 Finding a solution to a linear equation in two variables  
alge191 Midpoint of a line segment in the plane  
alge877 Graphing a linear equation of the form y = mx  
alge878 Graphing a line given its equation in slope-intercept form: Integer slope  
alge879 Graphing a line given its equation in slope-intercept form: Fractional slope  
alge880 Graphing a line given its equation in standard form  
alge198 Graphing a vertical or horizontal line  
alge884 Finding x- and y-intercepts given the graph of a line on a grid  
alge924 Finding x- and y-intercepts of a line given the equation: Basic  
alge210 Finding x- and y-intercepts of a line given the equation: Advanced  
alge197 Graphing a line given its x- and y-intercepts  
alge881 Graphing a line by first finding its x- and y-intercepts  
alge875 Classifying slopes given graphs of lines  
alge886 Finding slope given the graph of a line on a grid  
alge887 Finding slope given two points on the line  
alge885 Finding the slope of horizontal and vertical lines  
alge888 Finding the coordinate that yields a given slope  
alge259 Graphing a line given its slope and y-intercept  
alge196 Graphing a line through a given point with a given slope  
alge876 Identifying linear equations: Advanced  
alge874 Identifying linear functions given ordered pairs  
alge891 Rewriting a linear equation in the form Ax + By = C  
alge889 Finding the slope and y-intercept of a line given its equation in the form y = mx + b  
alge890 Finding the slope and y-intercept of a line given its equation in the form Ax + By = C  
alge882 Graphing a line by first finding its slope and y-intercept  
alge258 Writing an equation of a line given its slope and y-intercept  
alge892 Writing an equation and graphing a line given its slope and y-intercept  
alge883 Writing an equation in slope-intercept form given the slope and a point  
alge894 Writing an equation in point-slope form given the slope and a point  
alge070 Writing an equation of a line given the y-intercept and another point  
alge072 Writing the equation of the line through two given points  
alge073 Writing the equations of vertical and horizontal lines through a given point  
geom806 Finding slopes of lines parallel and perpendicular to a line given in slope-intercept form  
geom807 Finding slopes of lines parallel and perpendicular to a line given in the form Ax + By = C  
alge895 Identifying parallel and perpendicular lines from equations  
geom808 Writing equations of lines parallel and perpendicular to a given line through a point  
alge897 Writing and evaluating a function that models a real-world situation: Advanced  
alge701 Writing an equation and drawing its graph to model a real-world situation: Advanced
APPENDIX B. SYLLABI IN ALEKS

fun005 Writing a function rule given a table of ordered pairs: One-step rules
fun006 Writing a function rule given a table of ordered pairs: Two-step rules
alge992 Combining functions to write a new function that models a real-world situation
alge987 Comparing properties of linear functions given in different forms
alge989 Interpreting the parameters of a linear function that models a real-world situation
alge805 Application problem with a linear function: Finding a coordinate given the slope and a point
alge806 Application problem with a linear function: Finding a coordinate given two points
mstat052 Identifying independent and dependent variables from equations or real-world situations
alge991 Solving a linear equation by graphing
mstat039 Sketching the line of best fit
mstat023 Scatter plots and correlation
mstat068 Predictions from the line of best fit
mstat067 Approximating the equation of a line of best fit and making predictions
mstat069 Computing residuals
mstat070 Interpreting residual plots
mstat071 Linear relationship and the correlation coefficient
mstat074 Identifying correlation and causation
alge898 Translating the graph of an absolute value function: One step
alge899 Translating the graph of an absolute value function: Two steps
alge913 Graphing an absolute value equation of the form $y = A - x$ —
alge900 Graphing an absolute value equation in the plane: Basic
alge168 Graphing an absolute value equation in the plane: Advanced
alge901 How the leading coefficient affects the graph of an absolute value function
fun032 Identifying functions from relations
fun010 Vertical line test
fun016 Domain and range from ordered pairs
fun001 Table for a linear function
pcalc760 Evaluating functions: Linear and quadratic or cubic
fun033 Variable expressions as inputs of functions: Problem type 1
alge294 Finding outputs of a one-step function that models a real-world situation: Function notation
alge295 Finding outputs of a two-step function with decimals that models a real-world situation: Function notation
alge296 Finding inputs and outputs of a two-step function that models a real-world situation: Function notation
alge990 Domain and range of a linear function that models a real-world situation
fun026 Finding an output of a function from its graph
pcalc761 Finding inputs and outputs of a function from its graph
fun007 Domain and range from the graph of a discrete relation
fun024 Domain and range from the graph of a continuous function
alge896 Graphing an integer function and finding its range for a given domain
alge570 Graphing a function of the form $f(x) = ax + b$: Integer slope
alge571 Graphing a function of the form $f(x) = ax + b$: Fractional slope
alge954 Graphing a parabola of the form $y = ax^2$
alge955 Graphing a parabola of the form $y = ax^2 + c$
alge572 Graphing a function of the form $f(x) = ax^2$
alge573 Graphing a function of the form $f(x) = ax^2 + c$
pcalc750 Finding intercepts of a nonlinear function given its graph
pcalc751 Finding where a function is increasing, decreasing, or constant given the graph: Interval notation
pcalc752 Finding local maxima and minima of a function given the graph
mstat018 Choosing a graph to fit a narrative: Basic
mstat051 Choosing a graph to fit a narrative: Advanced

Systems

alge914 Identifying solutions to a system of linear equations
alge075 Classifying systems of linear equations from graphs
alge725 Graphically solving a system of linear equations
alge751 Solving a system of linear equations using substitution
alge915 Solving a system of linear equations using elimination with addition
alge076 Solving a system of linear equations using elimination with multiplication and addition
alge916 Solving a system of linear equations with fractional coefficients
Exponents

alge821 Understanding the product rule of exponents
alge024 Introduction to the product rule of exponents
alge311 Product rule with positive exponents: Univariate
alge630 Product rule with positive exponents: Multivariate
arith029 Ordering numbers with positive exponents
alge826 Understanding the power rules of exponents
alge306 Introduction to the power of a power rule of exponents
alge305 Introduction to the power of a product rule of exponents
alge307 Power rules with positive exponents: Multivariate products
alge308 Power rules with positive exponents: Multivariate quotients
alge756 Power and product rules with positive exponents
alge451 Simplifying a ratio of multivariate monomials: Basic
alge827 Introduction to the quotient rule of exponents
alge452 Simplifying a ratio of univariate monomials
alge026 Quotient of expressions involving exponents
alge453 Simplifying a ratio of multivariate monomials: Advanced
alge927 Power and quotient rules with positive exponents
alge790 Evaluating expressions with exponents of zero
arith684 Power of 10: Negative exponent
arith729 Evaluating an expression with a negative exponent: Whole number base
arith642 Evaluating an expression with a negative exponent: Positive fraction base
arith643 Evaluating an expression with a negative exponent: Negative integer base
arith024 Ordering numbers with negative exponents
alge791 Rewriting an algebraic expression without a negative exponent
alge961 Introduction to the product rule with negative exponents
alge028 Product rule with negative exponents
alge755 Quotient rule with negative exponents: Problem type 1
alge926 Quotient rule with negative exponents: Problem type 2
alge025 Power of a power rule with negative exponents
alge799 Power rules with negative exponents
alge928 Power and quotient rules with negative exponents: Problem type 1
alge929 Power and quotient rules with negative exponents: Problem type 2
alge757 Power, product, and quotient rules with negative exponents
arith036 Scientific notation with positive exponent
arith037 Scientific notation with negative exponent
APPENDIX B. SYLLABI IN ALEKS

scinot012 Converting between scientific notation and standard form in a real-world situation
scinot008 Multiplying numbers written in scientific notation: Basic
scinot009 Multiplying numbers written in scientific notation: Advanced
scinot010 Dividing numbers written in scientific notation: Basic
scinot011 Dividing numbers written in scientific notation: Advanced
alge971 Table for an exponential function
alge830 Evaluating an exponential function that models a real-world situation
arith853 Introduction to compound interest
alge177 Finding a final amount in a word problem on exponential growth or decay
alge741 Finding the final amount in a word problem on compound interest
alge966 Finding the initial amount and rate of change given an exponential function
alge968 Writing an equation that models exponential growth or decay
alge301 Solving an exponential equation by finding common bases: Linear exponents
alge969 Graphing an exponential function: f(x) = ax
alge970 Graphing an exponential function: f(x) = a(b)x
alge967 Writing an exponential function rule given a table of ordered pairs
alge993 Comparing linear, polynomial, and exponential functions

Polynomials and Factoring

alge758 Degree and leading coefficient of a univariate polynomial
alge031 Degree of a multivariate polynomial
alge798 Simplifying a sum or difference of two univariate polynomials
alge029 Simplifying a sum or difference of three univariate polynomials
alge032 Simplifying a sum or difference of multivariate polynomials
alge735 Multiplying a univariate polynomial by a monomial with a positive coefficient
alge972 Multiplying a univariate polynomial by a monomial with a negative coefficient
alge835 Multiplying a multivariate polynomial by a monomial
alge033 Multiplying binomials with leading coefficients of 1
alge983 Multiplying binomials with leading coefficients greater than 1
alge765 Multiplying binomials in two variables
alge764 Multiplying conjugate binomials: Univariate
alge081 Multiplying conjugate binomials: Multivariate
alge032 Squaring a binomial: Univariate
alge068 Squaring a binomial: Multivariate
alge973 Multiplying binomials with negative coefficients
alge935 Multiplication involving binomials and trinomials in one variable
alge180 Multiplication involving binomials and trinomials in two variables
alge759 Dividing a polynomial by a monomial: Univariate
alge760 Dividing a polynomial by a monomial: Multivariate
alge761 Polynomial long division: Problem type 1
alge762 Polynomial long division: Problem type 2
alge763 Polynomial long division: Problem type 3
alge985 Closure properties of integers and polynomials
alge605 Factoring a linear binomial
alge736 Introduction to the GCF of two monomials
alge930 Greatest common factor of three univariate monomials
alge637 Greatest common factor of two multivariate monomials
alge738 Factoring out a monomial from a polynomial: Univariate
alge749 Factoring out a binomial from a polynomial: Multivariate
alge949 Factoring out a binomial from a polynomial: GCF factoring, basic
alge923 Factoring a univariate polynomial by grouping: Problem type 1
alge950 Factoring a univariate polynomial by grouping: Problem type 2
alge951 Factoring a multivariate polynomial by grouping: Problem type 1
alge952 Factoring a multivariate polynomial by grouping: Problem type 2
alge639 Factoring a quadratic with leading coefficient 1
alge942 Factoring a quadratic in two variables with leading coefficient 1
alge936 Factoring out a constant before factoring a quadratic
alge939 Factoring a quadratic with leading coefficient greater than 1: Problem type 1
alge940 Factoring a quadratic with leading coefficient greater than 1: Problem type 2
alge941 Factoring a quadratic with leading coefficient greater than 1: Problem type 3
alge978 Factoring a quadratic by the ac-method
alge265 Factoring a quadratic in two variables with leading coefficient greater than 1
alge937 Factoring a quadratic with a negative leading coefficient
alge944 Factoring a perfect square trinomial with leading coefficient 1
alge945 Factoring a perfect square trinomial with leading coefficient greater than 1
alge946 Factoring a perfect square trinomial in two variables
alge290 Factoring a difference of squares in one variable: Basic
alge947 Factoring a difference of squares in one variable: Advanced
alge839 Factoring a difference of squares in two variables
alge948 Factoring a polynomial involving a GCF and a difference of squares: Univariate
alge833 Factoring a polynomial involving a GCF and a difference of squares: Multivariate
alge041 Factoring a product of a quadratic trinomial and a monomial
alge042 Factoring with repeated use of the difference of squares formula
alge044 Factoring a sum or difference of two cubes
alge681 Solving an equation written in factored form
alge956 Finding the roots of a quadratic equation of the form ax^2 + bx = 0
alge045 Finding the roots of a quadratic equation with leading coefficient 1
alge048 Finding the roots of a quadratic equation with leading coefficient greater than 1
alge211 Solving a quadratic equation needing simplification
alge703 Solving a word problem using a quadratic equation with rational roots
alge407 Introduction to the Pythagorean Theorem
geom044 Pythagorean Theorem
alge408 Word problem involving the Pythagorean Theorem
alge713 Using the Pythagorean Theorem and a quadratic equation to find side lengths of a right triangle

**Rational Expressions**

alge049 Restriction on a variable in a denominator: Linear
alge467 Restriction on a variable in a denominator: Quadratic
alge468 Evaluating a rational function: Problem type 1
alge715 Domain of a rational function: Excluded values
alge454 Simplifying a ratio of factored polynomials: Linear factors
alge455 Simplifying a ratio of factored polynomials: Factors with exponents
alge456 Simplifying a ratio of polynomials using GCF factoring
alge457 Simplifying a ratio of linear polynomials: 1, -1, and no simplification
alge458 Simplifying a ratio of polynomials by factoring a quadratic with leading coefficient 1
alge710 Simplifying a ratio of polynomials: Problem type 1
alge682 Simplifying a ratio of polynomials: Problem type 2
alge459 Simplifying a ratio of polynomials: Problem type 3
alge034 Simplifying a ratio of multivariate polynomials
alge053 Multiplying rational expressions involving multivariate monomials
alge460 Multiplying rational expressions made up of linear expressions
alge620 Multiplying rational expressions involving quadratics with leading coefficients of 1
alge461 Multiplying rational expressions involving quadratics with leading coefficients greater than 1
alge462 Multiplying rational expressions involving multivariate quadratics
alge054 Dividing rational expressions involving multivariate monomials
alge463 Dividing rational expressions involving linear expressions
alge766 Dividing rational expressions involving quadratics with leading coefficients of 1
alge464 Dividing rational expressions involving quadratics with leading coefficients greater than 1
alge465 Dividing rational expressions involving multivariate quadratics
alge466 Multiplication and division of 3 rational expressions
alge737 Introduction to the LCM of two monomials
alge055 Least common multiple of two monomials
alge427 Finding the LCD of rational expressions with linear denominators: Relatively prime
alge428 Finding the LCD of rational expressions with linear denominators: Common factors
alge429 Finding the LCD of rational expressions with quadratic denominators
alge430 Writing equivalent rational expressions with monomial denominators
alge431 Writing equivalent rational expressions with polynomial denominators
APPENDIX B. SYLLABI IN ALEKS

alg304 Writing equivalent rational expressions involving opposite factors
alg432 Introduction to adding fractions with variables and common denominators
alg433 Adding rational expressions with common denominators and monomial numerators
alg056 Adding rational expressions with common denominators and binomial numerators
alg434 Adding rational expressions with common denominators and GCF factoring
alg435 Adding rational expressions with common denominators and quadratic factoring
alg436 Adding rational expressions with different denominators and a single occurrence of a variable
alg437 Adding rational expressions with denominators ax and bx: Basic
alg438 Adding rational expressions with denominators ax and bx: Advanced
alg439 Adding rational expressions with denominators axn and bxm
alg440 Adding rational expressions with multivariate monomial denominators: Basic
alg226 Adding rational expressions with multivariate monomial denominators: Advanced
alg441 Adding rational expressions with linear denominators without common factors: Basic
alg442 Adding rational expressions with linear denominators without common factors: Advanced
alg443 Adding rational expressions with linear denominators with common factors: Basic
alg444 Adding rational expressions with linear denominators with common factors: Advanced
alg445 Adding rational expressions with denominators ax-b and b-ax
alg661 Adding rational expressions involving different quadratic denominators
alg446 Adding 3 rational expressions with different quadratic denominators
arith695 Complex fraction without variables: Problem type 1
arith696 Complex fraction without variables: Problem type 2
alg470 Complex fraction involving univariate monomials
alg058 Complex fraction involving multivariate monomials
alg471 Complex fraction: GCF factoring
alg472 Complex fraction: Quadratic factoring
alg473 Complex fraction made of sums involving rational expressions: Problem type 1
alg474 Complex fraction made of sums involving rational expressions: Problem type 2
alg475 Complex fraction made of sums involving rational expressions: Problem type 3
alg476 Complex fraction made of sums involving rational expressions: Problem type 4
alg477 Complex fraction made of sums involving rational expressions: Problem type 5
alg478 Complex fraction made of sums involving rational expressions: Problem type 6
alg479 Complex fraction made of sums involving rational expressions: Multivariate
alg480 Complex fraction with negative exponents: Problem type 1
alg481 Complex fraction with negative exponents: Problem type 2
alg162 Complex fraction that contains a complex fraction
alg271 Solving a proportion of the form a/(x+b) = c/x
alg060 Solving a rational equation that simplifies to linear: Denominator x
alg205 Solving a rational equation that simplifies to linear: Denominator x+a
alg769 Solving a rational equation that simplifies to linear: Denominators a, x, or ax
alg421 Solving a rational equation that simplifies to linear: Denominators ax and bx
alg422 Solving a rational equation that simplifies to linear: Like binomial denominators
alg206 Solving a rational equation that simplifies to linear: Unlike binomial denominators
alg423 Solving a rational equation that simplifies to linear: Factorable quadratic denominator
alg424 Solving a rational equation that simplifies to quadratic: Proportional form, basic
alg425 Solving a rational equation that simplifies to quadratic: Denominator x
alg212 Solving a rational equation that simplifies to quadratic: Binomial denominators, constant numerators
alg062 Solving a rational equation that simplifies to quadratic: Binomial denominators and numerators
alg426 Solving a rational equation that simplifies to quadratic: Factorable quadratic denominator
alg047 Solving a rational equation that simplifies to quadratic: Proportional form, advanced
arith823 Writing ratios using different notations
arith663 Writing ratios for real-world situations
arith824 Simplifying a ratio of whole numbers: Problem type 1
arith826 Simplifying a ratio of whole numbers: Problem type 2
arith825 Simplifying a ratio of decimals
arith827 Finding a unit price
arith828 Computing unit prices to find the better buy
arith228 Word problem on unit rates associated with ratios of whole numbers: Decimal answers
unit005 U.S. Customary unit conversion with whole number values
unit001 Metric distance conversion with whole number values
unit034 Converting between metric and U.S. Customary unit systems
unit035 Converting between compound units: Basic
unit036 Converting between compound units: Advanced
B.32. FLORIDA MATH 0028

alge508 Solving for a variable in terms of other variables in a rational equation: Problem type 1
alge509 Solving for a variable in terms of other variables in a rational equation: Problem type 2
alge510 Solving for a variable in terms of other variables in a rational equation: Problem type 3
arith610 Word problem on proportions: Problem type 1
arith611 Word problem on proportions: Problem type 2
geom037 Similar polygons
geom038 Similar right triangles
geom337 Indirect measurement
gem038 Circumference ratios
arith612 Word problem involving multiple rates
alge770 Solving a work problem using a rational equation
alge450 Solving a distance, rate, time problem using a rational equation
alge059 Ordering fractions with variables
alge982 Identifying direct variation equations
alge938 Identifying direct variation from ordered pairs and writing equations
alge901 Writing a direct variation equation
alge175 Word problem on direct variation
alge828 Interpreting direct variation from a graph
alge905 Writing an inverse variation equation
alge903 Identifying direct and inverse variation equations
alge902 Identifying direct and inverse variation from ordered pairs and writing equations
alge176 Word problem on inverse variation
alge220 Word problem on inverse proportions
pcalc681 Writing an equation that models variation
alge772 Word problem on combined variation

Radicals

alge413 Finding all square roots of a number
arith761 Square root of a rational perfect square
arith760 Square roots of perfect squares with signs
alge415 Introduction to simplifying a radical expression with an even exponent
alge264 Square root of a perfect square monomial
arith94 Cube root of an integer
alge549 Finding nth roots of perfect nth powers with signs
arith768 Finding the nth root of a perfect nth power fraction
alge550 Finding the nth root of a perfect nth power monomial
arith93 Simplifying the square root of a whole number less than 100
arith762 Simplifying the square root of a whole number greater than 100
alge980 Simplifying a radical expression with an even exponent
alge800 Introduction to simplifying a radical expression with an odd exponent
alge521 Simplifying a radical expression with an odd exponent
alge275 Simplifying a radical expression with two variables
alge273 Simplifying a higher root of a whole number
alge551 Introduction to simplifying a higher radical expression
alge552 Simplifying a higher radical expression: Univariate
alge811 Simplifying a higher radical expression: Multivariate
arith767 Introduction to square root addition or subtraction
arith932 Square root addition or subtraction
alge533 Square root addition or subtraction with three terms
alge531 Introduction to simplifying a sum or difference of radical expressions: Univariate
alge532 Simplifying a sum or difference of radical expressions: Univariate
alge984 Simplifying a sum or difference of radical expressions: Multivariate
alge554 Simplifying a sum or difference of higher roots
alge555 Simplifying a sum or difference of higher radical expressions
arith764 Introduction to square root multiplication
arith765 Square root multiplication: Basic
arith939 Square root multiplication: Advanced
alge522 Introduction to simplifying a product of radical expressions: Univariate
alge523 Simplifying a product of radical expressions: Univariate
APPENDIX B. SYLLABI IN ALEKS

alge640 Simplifying a product of radical expressions: Multivariate
alge556 Introduction to simplifying a product of higher roots
alge557 Simplifying a product of higher radical expressions
alge525 Introduction to simplifying a product involving square roots using the distributive property
alge526 Simplifying a product involving square roots using the distributive property: Basic
alge276 Simplifying a product involving square roots using the distributive property: Advanced
alge774 Special products of radical expressions: Conjugates and squaring
alge984 Classifying sums and products as rational or irrational
ariz766 Simplifying a quotient of square roots
alge530 Simplifying a quotient involving a sum or difference with a square root
alge527 Rationalizing a denominator: Quotient involving square roots
alge528 Rationalizing a denominator: Square root of a fraction
alge529 Rationalizing a denominator: Quotient involving a monomial
alge534 Rationalizing a denominator using conjugates: Integer numerator
alge535 Rationalizing a denominator using conjugates: Square root in numerator
alge536 Rationalizing a denominator using conjugates: Variable in denominator
alge564 Rationalizing a denominator: Quotient involving a higher radical
alge400 Introduction to solving a radical equation
alge089 Solving a radical equation that simplifies to a linear equation: One radical, basic
alge402 Solving a radical equation that simplifies to a linear equation: One radical, advanced
alge090 Solving a radical equation that simplifies to a linear equation: Two radicals
alge405 Solving a radical equation with two radicals that simplifies to $\sqrt{x} = a$
alge403 Solving a radical equation that simplifies to a quadratic equation: One radical, basic
alge404 Solving a radical equation that simplifies to a quadratic equation: One radical, advanced
alge411 Solving a radical equation with a quadratic expression under the radical
alge182 Solving a radical equation that simplifies to a quadratic equation: Two radicals
alge410 Solving an equation with a root index greater than 2: Problem type 1
alge417 Solving an equation with a root index greater than 2: Problem type 2
alge412 Algebraic symbol manipulation with radicals
alge542 Word problem involving radical equations: Basic
alge409 Word problem involving radical equations: Advanced
alge132 Distance between two points in the plane: Exact answers
alge539 Table for a square root function
alge540 Domain of a square root function: Basic
pcalc763 Domain of a square root function: Advanced
alge543 Graphing a square root function: Problem type 1
alge544 Graphing a square root function: Problem type 2
alge812 Converting between radical form and exponent form
alge560 Rational exponents: Unit fraction exponents and whole number bases
alge561 Rational exponents: Unit fraction exponents and bases involving signs
alge250 Rational exponents: Non-unit fraction exponent with a whole number base
alge251 Rational exponents: Negative exponents and fractional bases
alge558 Rational exponents: Product rule
alge559 Rational exponents: Quotient rule
alge773 Rational exponents: Products and quotients with negative exponents
alge562 Rational exponents: Power of a power rule
alge249 Rational exponents: Powers of powers with negative exponents
alge563 Simplifying products or quotients of higher radicals with different indices: Univariate

Complex Numbers and Quadratic Equations

alge778 Using $i$ to rewrite square roots of negative numbers
alge779 Simplifying a product and quotient involving square roots of negative numbers
pcalc048 Adding or subtracting complex numbers
pcalc049 Multiplying complex numbers
pcalc050 Dividing complex numbers
pcalc053 Simplifying a power of $i$
alge962 Solving an equation of the form $x^2 = a$ using the square root property
alge092 Solving a quadratic equation using the square root property: Exact answers, basic
alge227 Solving a quadratic equation using the square root property: Exact answers, advanced
B.33. **NCCCS DEVELOPMENTAL MATH MODULE 010**

**Whole Numbers**

- arith124 Whole number place value: Problem type 1
- arith125 Whole number place value: Problem type 2
- arith866 Expanded form
- arith643 Expanded form with zeros
- arith028 Numeral translation: Problem type 1
- arith060 Numeral translation: Problem type 2
- arith633 One-digit addition with carry
- arith634 Addition of 3 or 4 one-digit numbers
- arith001 Addition without carry
- arith635 Adding a 2-digit number and a 1-digit number with carry
- arith650 Addition with carry
- arith630 Addition with carry to the hundreds place
- arith012 Addition of large numbers
- arith636 Subtracting a 1-digit number from a 2-digit number
- arith007 Subtraction without borrowing
- arith128 Adding or subtracting 10, 100, or 1000
- arith006 Subtraction with borrowing
- arith682 Subtraction with multiple regrouping steps
- arith637 Subtraction and regrouping with zeros
- arith613 Word problem with addition or subtraction of whole numbers
- arith655 Introduction to properties of addition
- arith126 Multiplication as repeated addition
- arith008 One-digit multiplication
APPENDIX B. SYLLABI IN ALEKS

arith679 Multiplication by 10, 100, and 1000
arith003 Multiplication without carry
arith004 Multiplication with carry
arith632 Multiplication with trailing zeros: Problem type 1
arith615 Introduction to multiplication of large numbers
arith638 Multiplication with trailing zeros: Problem type 2
arith014 Multiplication of large numbers
arith641 Multiples: Problem type 1
arith642 Multiples: Problem type 2
arith656 Introduction to properties of multiplication
arith075 Division facts
arith614 Word problem with multiplication or division of whole numbers
arith130 Word problem with multiplication and addition or subtraction of whole numbers
arith243 Division of whole numbers given in fractional form
arith711 Division involving zero
arith652 Division without carry
arith005 Division with carry
arith680 Division with trailing zeros: Problem type 1
arith649 Division with trailing zeros: Problem type 2
arith616 Quotient and remainder: Problem type 1
arith644 Word problem on quotient and remainder
arith617 Quotient and remainder: Problem type 2
arith631 Quotient and remainder: Problem type 3
arith650 Division involving quotients with intermediate zeros
arith623 Word problem with division of whole numbers and rounding
arith651 Introduction to inequalities
arith677 Ordering large numbers
arith078 Rounding to tens or hundreds
arith123 Rounding to hundreds or thousands
arith061 Rounding to thousands, ten thousands, or hundred thousands
arith101 Estimating a sum of whole numbers
arith102 Estimating a difference of whole numbers
arith604 Estimating a product or quotient of whole numbers
arith692 Writing expressions using exponents
arith233 Introduction to exponents
arith683 Power of 10: Positive exponent
arith645 Introduction to parentheses
arith681 Introduction to order of operations
arith651 Order of operations with whole numbers
arith693 Order of operations with whole numbers and exponents: Basic
arith713 Order of operations with whole numbers and exponents: Advanced
arith657 Understanding the distributive property
alge284 Evaluating an algebraic expression: Whole number addition or subtraction
alge683 Evaluating an algebraic expression: Whole number multiplication or division
alge295 Evaluating an algebraic expression: Whole numbers with two operations
alge832 Evaluating an algebraic expression: Whole number operations and exponents
alge809 Additive property of equality with whole numbers
alge008 Multiplicative property of equality with whole numbers
alge803 Using two steps to solve an equation with whole numbers
arith646 Even and odd numbers
arith647 Divisibility rules for 2, 5, and 10
arith648 Divisibility rules for 3 and 9
arith056 Factors
arith034 Prime numbers
arith035 Prime factorization
arith633 Greatest common factor of 2 numbers
arith670 Least common multiple of 2 numbers
arith804 Least common multiple of 3 numbers
arith240 Word problem with common multiples
alge925 Finding the next terms of an arithmetic sequence with whole numbers
alge933 Finding the next terms of a geometric sequence with whole numbers
Fractions

- arith665 Understanding equivalent fractions
- arith612 Equivalent fractions
- arith666 Introduction to simplifying a fraction
- arith607 Simplifying a fraction
- arith687 Fractional position on a number line
- arith667 Plotting fractions on a number line
- arith644 Ordering fractions with the same denominator
- arith691 Ordering fractions with the same numerator
- arith692 Using a common denominator to order fractions
- arith686 Product of a fraction and a whole number: Problem type 1
- arith119 Introduction to fraction multiplication
- arith653 Fraction multiplication
- arith812 Product of a fraction and a whole number: Problem type 2
- arith813 Multiplication of 3 fractions
- arith818 Word problem involving fractions and multiplication
- arith695 Multi-step word problem involving fractions and multiplication
- arith688 The reciprocal of a number
- arith694 Division involving a whole number and a fraction
- arith622 Fraction division
- arith819 Word problem involving fractions and division
- arith618 Addition or subtraction of fractions with the same denominator
- arith802 Addition or subtraction of fractions with the same denominator and simplification
- arith801 Finding the LCD of two fractions
- arith109 Addition or subtraction of unit fractions
- arith664 Introduction to addition or subtraction of fractions with different denominators
- arith230 Addition or subtraction of fractions with different denominators
- arith863 Addition and subtraction of 3 fractions with different denominators
- arith805 Word problem involving addition or subtraction of fractions with different denominators
- arith100 Fractional part of a circle
- arith662 Writing a mixed number and an improper fraction for a shaded region
- arith015 Writing an improper fraction as a mixed number
- arith619 Writing a mixed number as an improper fraction
- arith215 Addition or subtraction of mixed numbers with the same denominator
- arith684 Addition of mixed numbers with the same denominator and carry
- arith216 Subtraction of mixed numbers with the same denominator and borrowing
- arith606 Addition or subtraction of mixed numbers with different denominators and no carry or borrow
- arith808 Addition of mixed numbers with different denominators and carry
- arith809 Subtraction of mixed numbers with different denominators and borrowing
- arith807 Addition and subtraction of 3 mixed numbers with different denominators
- arith810 Word problem involving addition or subtraction of mixed numbers with different denominators
- arith815 Mixed number multiplication
- arith816 Multiplication of a mixed number and a whole number
- arith817 Division with a mixed number and a whole number
- arith608 Mixed number division
- arith820 Word problem involving multiplication or division with mixed numbers
- arith821 Exponents and fractions
- arith859 Order of operations with fractions: Problem type 1
- arith860 Order of operations with fractions: Problem type 2
- arith861 Order of operations with fractions: Problem type 3
- arith695 Complex fraction without variables: Problem type 1

Decimals, Proportions, and Percents

- arith127 Writing a decimal and a fraction for a shaded region
- arith220 Decimal place value: Hundreds to ten thousandths
APPENDIX B. SYLLABI IN ALEKS

- arith714 Writing a decimal number less than 1 given its name
- arith715 Writing a decimal number greater than 1 given its name
- arith716 Writing a decimal number given its name: Advanced
- arith829 Reading decimal position on a number line: Tenths
- arith830 Reading decimal position on a number line: Hundredths
- arith831 Understanding decimal position on a number line using zoom: Hundredths
- arith832 Understanding decimal position on a number line using zoom: Thousandths
- arith129 Introduction to ordering decimals
- arith608 Ordering decimals
- arith717 Converting a decimal to a proper fraction without simplifying: Basic
- arith719 Converting a decimal to a proper fraction without simplifying: Advanced
- arith718 Converting a decimal to a proper fraction in simplest form: Basic
- arith087 Converting a decimal to a proper fraction in simplest form: Advanced
- arith721 Converting a decimal to a mixed number and an improper fraction without simplifying
- arith722 Converting a decimal to a mixed number and an improper fraction in simplest form: Basic
- arith724 Converting a decimal to a mixed number and an improper fraction in simplest form: Advanced
- arith013 Decimal addition with 3 numbers
- arith734 Subtraction of aligned decimals
- arith735 Decimal subtraction: Basic
- arith736 Decimal subtraction: Advanced
- arith737 Decimal addition and subtraction with 3 or more numbers
- arith131 Estimating a decimal sum or difference
- arith132 Word problem with addition or subtraction of 2 decimals
- arith133 Word problem with addition of 3 or 4 decimals and whole numbers
- arith134 Word problem with subtraction of a whole number and a decimal: Regrouping with zeros
- arith739 Introduction to decimal multiplication
- arith017 Multiplication of a decimal by a whole number
- arith055 Decimal multiplication: Problem type 1
- arith046 Decimal multiplication: Problem type 2
- arith082 Multiplication of a decimal by a power of ten
- arith738 Multiplication of a decimal by a power of 0.1
- arith740 Multiplication of decimals that have a product less than 0.1
- arith752 Estimating a product of decimals
- arith135 Word problem with multiplication of a decimal and a whole number
- arith136 Word problem with multiplication of two decimals
- arith224 Word problem with decimal addition and multiplication
- arith744 Whole number division with decimal answers
- arith081 Division of a decimal by a whole number
- arith743 Division of a decimal by a 1-digit decimal
- arith019 Division of a decimal by a 2-digit decimal
- arith083 Division of a decimal by a power of ten
- arith742 Division of a decimal by a power of 0.1
- arith745 Decimal division with rounding
- arith136 Word problem with division of a decimal and a whole number
- arith138 Word problem with division of two decimals
- arith227 Word problem with decimal subtraction and division
- arith823 Solving a one-step word problem using the formula d = rt
- arith725 Converting a fraction with a denominator of 10 or 100 to a decimal
- arith726 Converting a fraction with a denominator of 100 or 1000 to a decimal
- arith609 Ordering fractions and decimals
- arith727 Converting a fraction to a terminating decimal: Basic
- arith728 Converting a fraction to a terminating decimal: Advanced
- arith730 Converting a fraction to a repeating decimal: Basic
- arith731 Converting a fraction to a repeating decimal: Advanced
- arith733 Using a calculator to convert a fraction to a rounded decimal
- arith111 Converting a mixed number to a terminating decimal: Basic
- arith112 Converting a mixed number to a terminating decimal: Advanced
- arith732 Converting a fraction or mixed number to a rounded decimal
- arith753 Squaring decimal bases: Products greater than 0.1
- arith741 Exponents and decimals: Products less than 0.1
- arith720 Order of operations with decimals: Problem type 1
- arith746 Order of operations with decimals: Problem type 2
B.33. NCCCS DEVELOPMENTAL MATH MODULE 010

arith747 Order of operations with decimals: Problem type 3
arith748 Addition or subtraction with a decimal and a mixed number
arith749 Multiplication with a decimal and a fraction
arith823 Writing ratios using different notations
arith663 Writing ratios for real-world situations
arith824 Simplifying a ratio of whole numbers: Problem type 1
arith825 Simplifying a ratio of decimals
arith827 Finding a unit price
arith828 Computing unit prices to find the better buy
arith064 Solving a word problem on proportions using a unit rate
arith228 Word problem on unit rates associated with ratios of whole numbers: Decimal answers
alge272 Solving a proportion of the form $x/a = b/c$
arith610 Word problem on proportions: Problem type 1
arith611 Word problem on proportions: Problem type 2
alge063 Word problem on mixed number proportions
arith834 Converting between percentages and decimals
arith841 Converting a mixed number percentage to a decimal
arith835 Converting between percentages and decimals in a real-world situation
arith890 Converting a percentage to a fraction in simplest form
arith839 Converting a decimal percentage to a fraction
arith838 Converting a fraction to a percentage: Denominator of 4, 5, or 10
arith802 Converting a fraction to a percentage: Denominator of 20, 25, or 50
arith843 Using a calculator to convert a fraction to a rounded percentage
arith842 Converting a fraction to a percentage in a real-world situation
arith840 Finding a percentage of a whole number
arith830 Finding a percentage of a whole number without a calculator: Basic
arith844 Finding a percentage of a whole number without a calculator: Advanced
arith862 Applying the percent equation: Problem type 1
arith863 Applying the percent equation: Problem type 2
arith845 Finding a percentage of a total amount: Real-world situations
arith846 Finding a percentage of a total amount without a calculator: Sales tax, commission, discount
arith857 Estimating a tip without a calculator
arith069 Writing a ratio as a percentage without a calculator
mstat049 Computing a percentage from a table of values
arith850 Finding the rate of a tax or commission
arith849 Finding the total amount given the percentage of a partial amount
arith852 Finding the multiplier to give a final amount after a percentage increase or decrease
arith851 Finding the final amount given the original amount and a percentage increase or decrease
arith847 Finding the sale price given the original price and percent discount
arith874 Finding the sale price without a calculator given the original price and percent discount
arith848 Finding the total cost including tax or markup
arith855 Finding the original amount given the result of a percentage increase or decrease
arith831 Finding the original price given the sale price and percent discount
arith858 Finding the percentage increase or decrease: Basic
arith225 Finding the percentage increase or decrease: Advanced
arith832 Finding simple interest without a calculator
arith856 Finding a percentage of a total amount in a circle graph
stat801 Computations from a circle graph

Geometry

arith823 Introduction to fractions
arith079 Product of a unit fraction and a whole number
arith110 Decimal place value: Tenths and hundredths
arith221 Rounding decimals
arith624 Addition of aligned decimals
geom339 Perimeter of a polygon
geom300 Perimeter of a square or a rectangle
geom618 Perimeter of a polygon involving mixed numbers and fractions
geom078 Sides of polygons having the same perimeter
geom221 Finding the missing length in a figure
geom353 Perimeter of a piecewise rectangular figure
geom358 Identifying parallel and perpendicular lines
geom349 Naming segments, rays, and lines
geom151 Measuring an angle with the protractor
geom152 Drawing an angle with the protractor
geom303 Acute, obtuse, and right angles
geom039 Finding supplementary and complementary angles
geom305 Identifying supplementary and vertical angles
geom304 Identifying corresponding and alternate angles
geom306 Acute, obtuse, and right triangles
geom307 Classifying scalene, isosceles, and equilateral triangles by side lengths or angles
geom001 Finding an angle measure of a triangle given two angles
geom908 Finding an angle measure for a triangle with an extended side
geom812 Finding an angle measure given extended triangles
geom813 Finding an angle measure given a triangle and parallel lines
geom361 Naming polygons
mstat042 Interpreting a Venn diagram of 2 sets
geom867 Identifying parallelograms, rectangles, and squares
geom310 Properties of quadrilaterals
geom352 Classifying parallelograms
geom019 Area of a square or a rectangle
geom866 Perimeter and area on a grid
geom620 Area of a rectangle involving fractions
geom619 Area of a rectangle involving mixed numbers and fractions
geom350 Distinguishing between the area and perimeter of a rectangle
geom351 Areas of rectangles with the same perimeter
geom217 Finding the side length of a rectangle given its perimeter or area
geom340 Area of a piecewise rectangular figure
geom142 Word problem involving the area between two rectangles
geom801 Area of a triangle
geom344 Area involving rectangles and triangles
geom922 Area of a parallelogram
geom923 Area of a trapezoid
geom347 Introduction to a circle: Diameter, radius, and chord
geom016 Circumference of a circle
geom301 Perimeter involving rectangles and circles
geom802 Circumference and area of a circle
geom202 Area involving rectangles and circles
geom036 Word problem involving the area between two concentric circles
geom214 Area involving inscribed figures
geom814 Angle measure in a circle graph
geom868 Classifying solids
geom348 Vertices, edges, and faces of a solid
geom830 Counting the cubes in a solid made of cubes
geom354 Volume of a rectangular prism made of unit cubes
geom211 Volume of a rectangular prism
geom505 Volume of a piecewise rectangular prism
geom909 Volume of a triangular prism
geom033 Volume of a pyramid
geom035 Volume of a cylinder
geom092 Word problem involving the rate of filling or emptying a cylinder
geom622 Volume of a cone
geom841 Volume of a sphere
geom219 Nets of solids
geom816 Side views of a solid made of cubes
Measurement and Data Analysis

mstat059 Choosing U.S. Customary measurement units
unit005 U.S. Customary unit conversion with whole number values
mstat035 Conversions involving measurements in feet and inches
mstat036 Adding measurements in feet and inches
unit006 U.S. Customary unit conversion with whole number values: Two-step conversion
unit007 U.S. Customary unit conversion with mixed number values: One-step conversion
unit008 U.S. Customary unit conversion with mixed number values: Two-step conversion
unit009 U.S. Customary area unit conversion with whole number values
mstat060 Choosing metric measurement units
unit001 Metric distance conversion with whole number values
unit002 Metric mass or capacity conversion with whole number values
unit003 Metric distance conversion with decimal values
unit004 Metric conversion with decimal values: Two-step problem
unit010 Metric area unit conversion with decimal values
unit012 Time unit conversion with whole number values
time006 Adding time
time007 Elapsed time
arith003 Word problem with clocks
mstat065 Converting between temperatures in Fahrenheit and Celsius
arith826 Simplifying a ratio of whole numbers: Problem type 2
unit034 Converting between metric and U.S. Customary unit systems
unit035 Converting between compound units: Basic
unit036 Converting between compound units: Advanced
mstat056 Interpreting a tally table
mstat037 Constructing a line plot
mstat005 Constructing a bar graph for non-numerical data
mstat004 Constructing a histogram for numerical data
mstat024 Interpreting a bar graph
mstat044 Interpreting a double bar graph
mstat057 Interpreting a pictograph table
mstat007 Interpreting a line graph
mstat031 Interpreting a stem-and-leaf plot
stat004 Interpreting a circle graph or pie chart
stat020 Calculating relative frequencies in a contingency table
stat085 Making a reasonable inference based on proportion statistics
mstat025 Finding if a question can be answered by the data
mstat003 Mode of a data set
mstat055 Finding the mode and range of a data set
arith103 Average of two numbers
mstat001 Mean of a data set
mstat028 Mean and median of a data set
mstat029 How changing a value affects the mean and median
mstat053 Choosing the best measure to describe data
stat802 Rejecting unreasonable claims based on average statistics
mstat066 Weighted mean
mstat027 Using back-to-back stem-and-leaf plots to compare data sets
mstat072 Five-number summary and interquartile range
mstat006 Constructing a box-and-whisker plot
mstat073 Using box-and-whisker plots to compare data sets
mstat043 Interpreting a Venn diagram of 3 sets
mstat041 Interpreting a tree diagram
mstat040 Introduction to the counting principle
mstat015 Counting principle
pcalc082 Factorial expressions
mstat017 Computing permutations and combinations
mstat008 Word problem involving permutations
mstat009 Word problem involving combinations
mstat026 Introduction to the probability of an event
mstat010 Probability of an event
mstat039 Understanding likelihood
mstat048 Odds of an event
stat106 Outcomes and event probability
stat112 Probabilities involving two dice
mstat011 Area as probability
mstat046 Experimental and theoretical probability
mstat047 Introduction to expectation
mstat012 Probability of independent events
mstat013 Probability of dependent events
mstat032 Probability of the union of two events

Integers

alge286 Plotting integers on a number line
arith605 Plotting rational numbers on a number line
mstat038 Reading the temperature from a thermometer
arith699 Writing a signed number for a real-world situation
arith691 Ordering integers
arith712 Ordering real numbers
arith671 Absolute value of a number
arith200 Integer addition: Problem type 1
arith108 Integer addition: Problem type 2
arith688 Integer subtraction: Problem type 1
arith689 Integer subtraction: Problem type 2
arith690 Integer subtraction: Problem type 3
arith754 Addition and subtraction with 3 integers
arith755 Addition and subtraction with 4 or 5 integers
arith701 Word problem with addition or subtraction of integers
arith231 Integer multiplication and division
arith800 Multiplication of 3 or 4 integers
alge001 Identifying numbers as integers or non-integers
algx002 Identifying numbers as rational or irrational
arith116 Signed fraction addition or subtraction: Basic
arith864 Signed fraction subtraction involving double negation
arith106 Signed fraction addition or subtraction: Advanced
arith811 Addition and subtraction of 3 fractions involving signs
arith922 Signed fraction multiplication: Basic
arith105 Signed fraction multiplication: Advanced
arith814 Signed fraction division
arith117 Signed decimal addition and subtraction
B.33. NCCCS DEVELOPMENTAL MATH MODULE 010

arith234 Signed decimal addition and subtraction with 3 numbers
arith750 Signed decimal multiplication
arith751 Signed decimal division
arith104 Operations with absolute value: Problem type 2
gem525 Computing distances between decimals on the number line
unit052 Finding the absolute error and percent error of a measurement
arith702 Exponents and integers: Problem type 1
arith703 Exponents and integers: Problem type 2
arith704 Exponents and signed fractions
arith118 Order of operations with integers
arith600 Order of operations with integers and exponents
arith696 Complex fraction without variables: Problem type 2
alg005 Evaluating a linear expression: Integer multiplication with addition or subtraction
alg808 Evaluating a linear expression: Signed fraction multiplication with addition or subtraction
alg302 Evaluating a linear expression: Signed decimal addition and subtraction
alg600 Evaluating a linear expression: Signed decimal multiplication with addition or subtraction
alg601 Evaluating a linear expression: Signed decimal division
alg700 Combining like terms: Whole number coefficients
alg607 Combining like terms: Integer coefficients
alg187 Properties of addition
alg310 Multiplying a constant and a linear monomial
alg606 Distributive property: Whole number coefficients
alg604 Distributive property: Integer coefficients
alg188 Properties of real numbers
alg608 Using distribution and combining like terms to simplify: Univariate
alg834 Identifying solutions to a linear equation in one variable: Two-step equations
alg820 Multiplicative property of equality with fractions
alg825 Multiplicative property of equality with decimals
alg797 Multiplicative property of equality with integers
alg612 Multiplicative property of equality with signed fractions
alg834 Identifying solutions to a linear equation in one variable: Univariate
alg293 Combining like terms in a quadratic expression
alg432 Introduction to adding fractions with variables and common denominators
alg436 Adding rational expressions with different denominators and a single occurrence of a variable

Linear Equations and Inequalities

alg801 Additive property of equality with fractions and mixed numbers
alg800 Additive property of equality with decimals
alg010 Additive property of equality with integers
alg836 Additive property of equality with signed fractions
alg820 Multiplicative property of equality with fractions
alg825 Multiplicative property of equality with decimals
alg797 Multiplicative property of equality with integers
alg012 Multiplicative property of equality with signed fractions
alg834 Identifying solutions to a linear equation in one variable: Two-step equations
alg266 Additive property of equality with a negative coefficient
alg096 Solving a two-step equation with integers
alg200 Solving an equation to find the value of an expression
alg920 Introduction to solving an equation with parentheses
alg837 Solving a multi-step equation given in fractional form
alg986 Identifying properties used to solve a linear equation
alg824 Solving a two-step equation with signed decimals
alg838 Introduction to solving an equation with variables on the same side
alg862 Solving a linear equation with several occurrences of the variable: Variables on the same side
alg863 Solving a linear equation with several occurrences of the variable: Variables on both sides
alg011 Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
alg013 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
alg209 Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions
alg420 Solving a linear equation with several occurrences of the variable: Fractional forms with monomial numerators
alg208 Solving a two-step equation with signed fractions
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>alge061</td>
<td>Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients</td>
</tr>
<tr>
<td>alge179</td>
<td>Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators</td>
</tr>
<tr>
<td>alge742</td>
<td>Solving equations with zero, one, or infinitely many solutions</td>
</tr>
<tr>
<td>alge840</td>
<td>Solving a proportion of the form ((x+a)/b = c/d)</td>
</tr>
<tr>
<td>alge271</td>
<td>Solving a proportion of the form (a/(x+b) = c/x)</td>
</tr>
<tr>
<td>alge603</td>
<td>Introduction to solving an absolute value equation</td>
</tr>
<tr>
<td>alge511</td>
<td>Solving for a variable in terms of other variables using addition or subtraction: Basic</td>
</tr>
<tr>
<td>alge512</td>
<td>Solving for a variable in terms of other variables using addition or subtraction: Advanced</td>
</tr>
<tr>
<td>alge513</td>
<td>Solving for a variable in terms of other variables using multiplication or division: Basic</td>
</tr>
<tr>
<td>alge514</td>
<td>Solving for a variable in terms of other variables using multiplication or division: Advanced</td>
</tr>
<tr>
<td>alge517</td>
<td>Solving for a variable in terms of other variables using addition or subtraction with division</td>
</tr>
<tr>
<td>alge518</td>
<td>Solving for a variable inside parentheses in terms of other variables</td>
</tr>
<tr>
<td>alge607</td>
<td>Solving for a variable in terms of other variables in a linear equation with fractions</td>
</tr>
<tr>
<td>alge730</td>
<td>Writing a one-step expression for a real-world situation</td>
</tr>
<tr>
<td>alge831</td>
<td>Translating a phrase into a one-step expression</td>
</tr>
<tr>
<td>alge507</td>
<td>Solving for a variable in terms of other variables in a linear equation with fractions</td>
</tr>
<tr>
<td>alge841</td>
<td>Translating a sentence into a one-step equation</td>
</tr>
<tr>
<td>alge842</td>
<td>Translating a sentence into a multi-step equation</td>
</tr>
<tr>
<td>alge802</td>
<td>Solving a fraction word problem using a linear equation of the form (Ax = B)</td>
</tr>
<tr>
<td>alge014</td>
<td>Solving a word problem with two unknowns using a linear equation</td>
</tr>
<tr>
<td>alge173</td>
<td>Solving a decimal word problem using a linear equation of the form (Ax + B = C)</td>
</tr>
<tr>
<td>alge730</td>
<td>Writing a multi-step equation for a real-world situation</td>
</tr>
<tr>
<td>alge219</td>
<td>Solving a decimal word problem using a linear equation with the variable on both sides</td>
</tr>
<tr>
<td>alge704</td>
<td>Solving a fraction word problem using a linear equation with the variable on both sides</td>
</tr>
<tr>
<td>alge792</td>
<td>Solving a word problem with three unknowns using a linear equation</td>
</tr>
<tr>
<td>alge842</td>
<td>Solving a word problem involving consecutive integers</td>
</tr>
<tr>
<td>alge794</td>
<td>Solving a value mixture problem using a linear equation</td>
</tr>
<tr>
<td>alge218</td>
<td>Solving a word problem involving rates and time conversion</td>
</tr>
<tr>
<td>alge796</td>
<td>Solving a distance, rate, time problem using a linear equation</td>
</tr>
<tr>
<td>arith854</td>
<td>Computing a percent mixture</td>
</tr>
<tr>
<td>alge795</td>
<td>Solving a percent mixture problem using a linear equation</td>
</tr>
<tr>
<td>geom143</td>
<td>Finding the perimeter or area of a rectangle given one of these values</td>
</tr>
<tr>
<td>geom218</td>
<td>Finding the radius or the diameter of a circle given its circumference</td>
</tr>
<tr>
<td>geom838</td>
<td>Circumference ratios</td>
</tr>
<tr>
<td>geom530</td>
<td>Solving equations involving vertical angles</td>
</tr>
<tr>
<td>geom531</td>
<td>Solving equations involving angles and a pair of parallel lines</td>
</tr>
<tr>
<td>geom623</td>
<td>Finding angle measures of a triangle given angles with variables</td>
</tr>
<tr>
<td>geom507</td>
<td>Finding angle measures of a right or isosceles triangle given angles with variables</td>
</tr>
<tr>
<td>stat803</td>
<td>Finding the value for a new score that will yield a given mean</td>
</tr>
<tr>
<td>alge015</td>
<td>Translating a sentence by using an inequality symbol</td>
</tr>
<tr>
<td>alge845</td>
<td>Translating a sentence into a one-step inequality</td>
</tr>
<tr>
<td>alge846</td>
<td>Translating a sentence into a multi-step inequality</td>
</tr>
<tr>
<td>alge748</td>
<td>Writing an inequality for a real-world situation</td>
</tr>
<tr>
<td>alge017</td>
<td>Graphing a linear inequality on the number line</td>
</tr>
<tr>
<td>alge822</td>
<td>Writing an inequality given a graph on the number line</td>
</tr>
<tr>
<td>alge186</td>
<td>Translating a sentence into a compound inequality</td>
</tr>
<tr>
<td>alge166</td>
<td>Graphing a compound inequality on the number line</td>
</tr>
<tr>
<td>alge847</td>
<td>Writing a compound inequality given a graph on the number line</td>
</tr>
<tr>
<td>set001</td>
<td>Set builder notation</td>
</tr>
<tr>
<td>set004</td>
<td>Set builder and interval notation</td>
</tr>
<tr>
<td>set002</td>
<td>Union and intersection of finite sets</td>
</tr>
<tr>
<td>alge844</td>
<td>Identifying solutions to a two-step linear inequality in one variable</td>
</tr>
<tr>
<td>alge848</td>
<td>Additive property of inequality with whole numbers</td>
</tr>
<tr>
<td>alge849</td>
<td>Additive property of inequality with integers</td>
</tr>
<tr>
<td>alge852</td>
<td>Additive property of inequality with signed fractions</td>
</tr>
<tr>
<td>alge853</td>
<td>Additive property of inequality with signed decimals</td>
</tr>
<tr>
<td>alge854</td>
<td>Multiplicative property of inequality with integers</td>
</tr>
<tr>
<td>alge964</td>
<td>Multiplicative property of inequality with signed fractions</td>
</tr>
</tbody>
</table>
B.33. NCCCS DEVELOPMENTAL MATH MODULE 010

Terms:
- alge855 Solving a two-step linear inequality: Problem type 1
- alge856 Solving a two-step linear inequality: Problem type 2
- alge857 Solving a two-step linear inequality with a fractional coefficient
- alge977 Solving a linear inequality with multiple occurrences of the variable: Problem type 1
- alge858 Solving a linear inequality with multiple occurrences of the variable: Problem type 2
- alge859 Solving a linear inequality with multiple occurrences of the variable: Problem type 3
- alge860 Solving inequalities with no solution or all real numbers as solutions
- alge746 Solving a compound linear inequality: Graph solution, basic
- alge747 Solving a compound linear inequality: Interval notation
- alge868 Solving an absolute value inequality: Problem type 1
- alge749 Solving a decimal word problem using a two-step linear inequality
- alge750 Solving a decimal word problem using a linear inequality with the variable on both sides

**Lines and Functions**

- alge064 Reading a point in the coordinate plane
- alge067 Plotting a point in the coordinate plane
- alge850 Table for a linear equation
- alge873 Identifying solutions to a linear equation in two variables
- alge066 Finding a solution to a linear equation in two variables
- alge191 Midpoint of a line segment in the plane
- alge877 Graphing a linear equation of the form \( y = mx \)
- alge878 Graphing a line given its equation in slope-intercept form: Integer slope
- alge879 Graphing a line given its equation in slope-intercept form: Fractional slope
- alge880 Graphing a line given its equation in standard form
- alge198 Graphing a vertical or horizontal line
- alge884 Finding \( x \)- and \( y \)-intercepts given the graph of a line on a grid
- alge924 Finding \( x \)- and \( y \)-intercepts of a line given the equation: Basic
- alge210 Finding \( x \)- and \( y \)-intercepts of a line given the equation: Advanced
- alge197 Graphing a line given its \( x \)- and \( y \)-intercepts
- alge881 Graphing a line by first finding its \( x \)- and \( y \)-intercepts
- alge875 Classifying slopes given graphs of lines
- alge886 Finding slope given the graph of a line on a grid
- alge887 Finding slope given two points on the line
- alge885 Finding the slope of horizontal and vertical lines
- alge888 Finding the coordinate that yields a given slope
- alge259 Graphing a line given its slope and \( y \)-intercept
- alge196 Graphing a line through a given point with a given slope
- alge876 Identifying linear equations: Advanced
- alge874 Identifying linear functions given ordered pairs
- alge891 Rewriting a linear equation in the form \( Ax + By = C \)
- alge889 Finding the slope and \( y \)-intercept of a line given its equation in the form \( y = mx + b \)
- alge890 Finding the slope and \( y \)-intercept of a line given its equation in the form \( Ax + By = C \)
- alge882 Graphing a line by first finding its slope and \( y \)-intercept
- alge258 Writing an equation of a line given its slope and \( y \)-intercept
- alge892 Writing an equation and graphing a line given its slope and \( y \)-intercept
- alge893 Writing an equation in slope-intercept form given the slope and a point
- alge883 Graphing a line given its equation in point-slope form
- alge894 Writing an equation in point-slope form given the slope and a point
- alge870 Writing an equation of a line given the \( y \)-intercept and another point
- alge872 Writing the equation of the line through two given points
- alge873 Writing the equations of vertical and horizontal lines through a given point
- geom806 Finding slopes of lines parallel and perpendicular to a line given in slope-intercept form
- geom807 Finding slopes of lines parallel and perpendicular to a line given in the form \( Ax + By = C \)
- alge895 Identifying parallel and perpendicular lines from equations
- geom808 Writing equations of lines parallel and perpendicular to a given line through a point
- alge897 Writing and evaluating a function that models a real-world situation: Advanced
- alge701 Writing an equation and drawing its graph to model a real-world situation: Advanced
- fun005 Writing a function rule given a table of ordered pairs: One-step rules
- fun006 Writing a function rule given a table of ordered pairs: Two-step rules
APPENDIX B. SYLLABI IN ALEKS

alge992 Combining functions to write a new function that models a real-world situation
alge987 Comparing properties of linear functions given in different forms
alge989 Interpreting the parameters of a linear function that models a real-world situation
alge805 Application problem with a linear function: Finding a coordinate given the slope and a point
alge806 Application problem with a linear function: Finding a coordinate given two points
mstat052 Identifying independent and dependent variables from equations or real-world situations
alge991 Solving a linear equation by graphing
mstat030 Sketching the line of best fit
mstat023 Scatter plots and correlation
mstat068 Predictions from the line of best fit
mstat067 Approximating the equation of a line of best fit and making predictions
mstat069 Computing residuals
mstat070 Interpreting residual plots
mstat071 Linear relationship and the correlation coefficient
mstat074 Identifying correlation and causation
alge898 Translating the graph of an absolute value function: One step
alge899 Translating the graph of an absolute value function: Two steps
alge913 Graphing an absolute value equation of the form \( y = A - x \)
alge900 Graphing an absolute value equation in the plane: Basic
alge168 Graphing an absolute value equation in the plane: Advanced
alge901 How the leading coefficient affects the graph of an absolute value function
fun032 Identifying functions from relations
fun010 Vertical line test
fun016 Domain and range from ordered pairs
fun001 Table for a linear function
pcalc760 Evaluating functions: Linear and quadratic or cubic
fun033 Variable expressions as inputs of functions: Problem type 1
alge294 Finding outputs of a one-step function that models a real-world situation: Function notation
alge295 Finding outputs of a two-step function with decimals that models a real-world situation: Function notation
alge296 Finding inputs and outputs of a two-step function that models a real-world situation: Function notation
alge990 Domain and range of a linear function that models a real-world situation
fun026 Finding an output of a function from its graph
pcalc761 Finding inputs and outputs of a function from its graph
fun007 Domain and range from the graph of a discrete relation
fun024 Domain and range from the graph of a continuous function
alge896 Graphing an integer function and finding its range for a given domain
alge570 Graphing a function of the form \( f(x) = ax + b \): Integer slope
alge571 Graphing a function of the form \( f(x) = ax + b \): Fractional slope
alge954 Graphing a parabola of the form \( y = ax^2 \)
alge955 Graphing a parabola of the form \( y = ax^2 + c \)
alge572 Graphing a function of the form \( f(x) = ax^2 \)
alge573 Graphing a function of the form \( f(x) = ax^2 + c \)
pcalc750 Finding intercepts of a nonlinear function given its graph
pcalc751 Finding where a function is increasing, decreasing, or constant given the graph: Interval notation
pcalc752 Finding local maxima and minima of a function given the graph
mstat018 Choosing a graph to fit a narrative: Basic
mstat051 Choosing a graph to fit a narrative: Advanced

Systems

alge914 Identifying solutions to a system of linear equations
alge075 Classifying systems of linear equations from graphs
alge725 Graphically solving a system of linear equations
alge751 Solving a system of linear equations using substitution
alge915 Solving a system of linear equations using elimination with addition
alge076 Solving a system of linear equations using elimination with multiplication and addition
alge916 Solving a system of linear equations with fractional coefficients
alge917 Solving a system of linear equations with decimal coefficients
alge752 Solving a 2x2 system of linear equations that is inconsistent or consistent dependent
B.33. NCCCS DEVELOPMENTAL MATH MODULE 010

Exponents and Polynomials

alge988 Identifying the operations used to create equivalent systems of equations
alge753 Solving a 3x3 system of linear equations: Problem type 1
alge263 Interpreting the graphs of two functions
alge078 Solving a word problem involving a sum and another basic relationship using a system of linear equations
alge919 Solving a word problem using a system of linear equations of the form Ax + By = C
alge918 Solving a word problem using a system of linear equations of the form y = mx + b
alge184 Solving a value mixture problem using a system of linear equations
alge192 Solving a percent mixture problem using a system of linear equations
alge224 Solving a distance, rate, time problem using a system of linear equations
alge172 Solving a tax rate or interest rate problem using a system of linear equations
alge793 Solving a word problem using a 3x3 system of linear equations: Problem type 1
alge912 Identifying solutions to a linear inequality in two variables
alge225 Graphing a linear inequality in the plane: Vertical or horizontal line
alge729 Writing a multi-step inequality for a real-world situation
pcalc093 Solving a word problem using a system of linear inequalities: Problem type 1

Exponents and Polynomials

alge821 Understanding the product rule of exponents
alge024 Introduction to the product rule of exponents
alge311 Product rule with positive exponents: Univariate
alge030 Product rule with positive exponents: Multivariate
arith029 Ordering numbers with positive exponents
alge826 Understanding the power rules of exponents
alge306 Introduction to the power of a power rule of exponents
alge305 Introduction to the power of a product rule of exponents
alge307 Power rules with positive exponents: Multivariate products
alge308 Power rules with positive exponents: Multivariate quotients
alge756 Power and product rules with positive exponents
alge451 Simplifying a ratio of multivariate monomials: Basic
alge827 Introduction to the quotient rule of exponents
alge452 Simplifying a ratio of univariate monomials
alge453 Simplifying a ratio of multivariate monomials: Advanced
alge927 Power and quotient rules with positive exponents
alge790 Evaluating expressions with exponents of zero
arith084 Power of 10: Negative exponent
arith729 Evaluating an expression with a negative exponent: Whole number base
arith042 Evaluating an expression with a negative exponent: Positive fraction base
arith043 Evaluating an expression with a negative exponent: Negative integer base
arith024 Ordering numbers with negative exponents
alge791 Rewriting an algebraic expression without a negative exponent
alge961 Introduction to the product rule with negative exponents
alge028 Product rule with negative exponents
alge755 Quotient rule with negative exponents: Problem type 1
alge926 Quotient rule with negative exponents: Problem type 2
alge025 Power of a power rule with negative exponents
alge799 Power rules with negative exponents
alge928 Power and quotient rules with negative exponents: Problem type 1
alge929 Power and quotient rules with negative exponents: Problem type 2
alge757 Power, product, and quotient rules with negative exponents
arith036 Scientific notation with positive exponent
arith037 Scientific notation with negative exponent
scinot012 Converting between scientific notation and standard form in a real-world situation
scinot008 Multiplying numbers written in scientific notation: Basic
Appendix B. Syllabi in ALEKS

scinot009 Multiplying numbers written in scientific notation: Advanced
scinot010 Dividing numbers written in scientific notation: Basic
scinot011 Dividing numbers written in scientific notation: Advanced
alge971 Table for an exponential function
alge830 Evaluating an exponential function that models a real-world situation
arith853 Introduction to compound interest
alge177 Finding a final amount in a word problem on exponential growth or decay
alge741 Finding the final amount in a word problem on compound interest
alge966 Finding the initial amount and rate of change given an exponential function
alge968 Writing an equation that models exponential growth or decay
alge301 Solving an exponential equation by finding common bases: Linear exponents
alge969 Graphing an exponential function: \( f(x) = ax \)
alge970 Graphing an exponential function: \( f(x) = a(b)x \)
alge967 Writing an exponential function rule given a table of ordered pairs
alge993 Comparing linear, polynomial, and exponential functions
alge758 Degree and leading coefficient of a univariate polynomial
alge601 Degree of a multivariate polynomial
alge798 Simplifying a sum or difference of two univariate polynomials
alge029 Simplifying a sum or difference of three univariate polynomials
alge932 Simplifying a sum or difference of multivariate polynomials
alge735 Multiplying a univariate polynomial by a monomial with a positive coefficient
alge972 Multiplying a univariate polynomial by a monomial with a negative coefficient
alge835 Multiplying a multivariate polynomial by a monomial
alge983 Multiplying binomials with leading coefficients of 1
alge985 Multiplying binomials with leading coefficients greater than 1
alge765 Multiplying binomials in two variables
alge764 Multiplying conjugate binomials: Univariate
alge081 Multiplying conjugate binomials: Multivariate
alge932 Squaring a binomial: Univariate
alge968 Squaring a binomial: Multivariate
alge973 Multiplying binomials with negative coefficients
alge935 Multiplication involving binomials and trinomials in one variable
alge180 Multiplication involving binomials and trinomials in two variables
alge180 Dividing a polynomial by a monomial: Univariate
alge760 Dividing a polynomial by a monomial: Multivariate
alge761 Polynomial long division: Problem type 1
alge762 Polynomial long division: Problem type 2
alge763 Polynomial long division: Problem type 3
alge985 Closure properties of integers and polynomials
alge605 Factoring a linear binomial
alge736 Introduction to the GCF of two monomials
alge930 Greatest common factor of three univariate monomials
alge607 Greatest common factor of two multivariate monomials
alge737 Factoring out a monomial from a polynomial: Univariate
alge739 Factoring out a monomial from a polynomial: Multivariate
alge949 Factoring out a binomial from a polynomial: GCF factoring, basic
alge923 Factoring a univariate polynomial by grouping: Problem type 1
alge950 Factoring a univariate polynomial by grouping: Problem type 2
alge951 Factoring a multivariate polynomial by grouping: Problem type 1
alge952 Factoring a multivariate polynomial by grouping: Problem type 2
alge609 Factoring a quadratic with leading coefficient 1
alge942 Factoring a quadratic in two variables with leading coefficient 1
alge936 Factoring out a constant before factoring a quadratic
alge939 Factoring a quadratic with leading coefficient greater than 1: Problem type 1
alge940 Factoring a quadratic with leading coefficient greater than 1: Problem type 2
alge941 Factoring a quadratic with leading coefficient greater than 1: Problem type 3
alge978 Factoring a quadratic by the ac-method
alge205 Factoring a quadratic in two variables with leading coefficient greater than 1
alge937 Factoring a quadratic with a negative leading coefficient
alge944 Factoring a perfect square trinomial with leading coefficient 1
alge945 Factoring a perfect square trinomial with leading coefficient greater than 1
alge946 Factoring a perfect square trinomial in two variables
Rational Expressions

alg049 Restriction on a variable in a denominator: Linear
alg467 Restriction on a variable in a denominator: Quadratic
alg468 Evaluating a rational function: Problem type 1
alg469 Evaluating a rational function: Problem type 2
alg715 Domain of a rational function: Excluded values
alg454 Simplifying a ratio of factored polynomials: Linear factors
alg455 Simplifying a ratio of factored polynomials: Factors with exponents
alg456 Simplifying a ratio of polynomials using GCF factoring
alg457 Simplifying a ratio of linear polynomials: 1, -1, and no simplification
alg458 Simplifying a ratio of polynomials by factoring a quadratic with leading coefficient 1
alg710 Simplifying a ratio of polynomials: Problem type 1
alg682 Simplifying a ratio of polynomials: Problem type 2
alg459 Simplifying a ratio of polynomials: Problem type 3
alg034 Simplifying a ratio of multivariate polynomials
alg460 Multiplying rational expressions made up of linear expressions
alg461 Multiplying rational expressions involving quadratics with leading coefficients greater than 1
alg462 Multiplying rational expressions involving multivariate quadratics
alg054 Dividing rational expressions involving multivariate monomials
alg463 Dividing rational expressions involving linear expressions
alg766 Dividing rational expressions involving quadratics with leading coefficients of 1
alg464 Dividing rational expressions involving quadratics with leading coefficients greater than 1
alg465 Dividing rational expressions involving multivariate quadratics
alg466 Multiplication and division of 3 rational expressions
alg737 Introduction to the LCM of two monomials
alg055 Least common multiple of two monomials
alg427 Finding the LCD of rational expressions with linear denominators: Relatively prime
alg428 Finding the LCD of rational expressions with linear denominators: Common factors
alg429 Finding the LCD of rational expressions with quadratic denominators
alg430 Writing equivalent rational expressions with monomial denominators
alg431 Writing equivalent rational expressions with polynomial denominators
alg304 Writing equivalent rational expressions involving opposite factors
alg433 Adding rational expressions with common denominators and monomial numerators
alg056 Adding rational expressions with common denominators and binomial numerators
alg434 Adding rational expressions with common denominators and GCF factoring
alg435 Adding rational expressions with common denominators and quadratic factoring
alg436 Adding rational expressions with denominators ax and bx: Basic
alg437 Adding rational expressions with denominators ax and bx: Advanced
alg438 Adding rational expressions with denominators ax and bx: Advanced
alg439 Adding rational expressions with denominators ax and bx: Advanced
alg440 Adding rational expressions with multivariate monomial denominators: Basic
alg226 Adding rational expressions with multivariate monomial denominators: Advanced
### APPENDIX B. SYLLABI IN ALEKS

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>alge441</td>
<td>Adding rational expressions with linear denominators without common factors: Basic</td>
</tr>
<tr>
<td>alge442</td>
<td>Adding rational expressions with linear denominators without common factors: Advanced</td>
</tr>
<tr>
<td>alge443</td>
<td>Adding rational expressions with linear denominators with common factors: Basic</td>
</tr>
<tr>
<td>alge444</td>
<td>Adding rational expressions with linear denominators with common factors: Advanced</td>
</tr>
<tr>
<td>alge445</td>
<td>Adding rational expressions with denominators ax-b and b-ax</td>
</tr>
<tr>
<td>alge661</td>
<td>Adding rational expressions involving different quadratic denominators</td>
</tr>
<tr>
<td>alge446</td>
<td>Adding 3 rational expressions with different quadratic denominators</td>
</tr>
<tr>
<td>alge470</td>
<td>Complex fraction involving univariate monomials</td>
</tr>
<tr>
<td>alge471</td>
<td>Complex fraction involving multivariate monomials</td>
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<tr>
<td>alge472</td>
<td>Complex fraction: Quadratic factoring</td>
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<tr>
<td>alge473</td>
<td>Complex fraction made of sums involving rational expressions: Problem type 1</td>
</tr>
<tr>
<td>alge474</td>
<td>Complex fraction made of sums involving rational expressions: Problem type 2</td>
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<tr>
<td>alge475</td>
<td>Complex fraction made of sums involving rational expressions: Problem type 3</td>
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<td>alge476</td>
<td>Complex fraction made of sums involving rational expressions: Problem type 4</td>
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<td>alge477</td>
<td>Complex fraction made of sums involving rational expressions: Problem type 5</td>
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<td>alge478</td>
<td>Complex fraction made of sums involving rational expressions: Problem type 6</td>
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<tr>
<td>alge479</td>
<td>Complex fraction made of sums involving rational expressions: Multivariate</td>
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<tr>
<td>alge480</td>
<td>Complex fraction with negative exponents: Problem type 1</td>
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<tr>
<td>alge481</td>
<td>Complex fraction with negative exponents: Problem type 2</td>
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<tr>
<td>alge162</td>
<td>Complex fraction that contains a complex fraction</td>
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<tr>
<td>alge205</td>
<td>Solving a rational equation that simplifies to linear: Denominator x</td>
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<tr>
<td>alge206</td>
<td>Solving a rational equation that simplifies to linear: Denominator x+a</td>
</tr>
<tr>
<td>alge212</td>
<td>Solving a rational equation that simplifies to quadratic: Denominator x</td>
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<tr>
<td>alge214</td>
<td>Solving a rational equation that simplifies to quadratic: Denominator x</td>
</tr>
<tr>
<td>alge264</td>
<td>Solving a rational equation that simplifies to quadratic: Binomial denominators, constant numerators</td>
</tr>
<tr>
<td>alge407</td>
<td>Solving a rational equation that simplifies to quadratic: Binomial denominators and numerators</td>
</tr>
<tr>
<td>alge421</td>
<td>Solving a rational equation that simplifies to quadratic: Factorable quadratic denominator</td>
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<tr>
<td>alge422</td>
<td>Solving a rational equation that simplifies to quadratic: Like binomial denominators</td>
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<tr>
<td>alge423</td>
<td>Solving a rational equation that simplifies to quadratic: Unlike binomial denominators</td>
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<tr>
<td>alge424</td>
<td>Solving a rational equation that simplifies to quadratic: Proportional form, basic</td>
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<tr>
<td>alge425</td>
<td>Solving a rational equation that simplifies to quadratic: Proportional form, advanced</td>
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<td>alge508</td>
<td>Solving for a variable in terms of other variables in a rational equation: Problem type 1</td>
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<tr>
<td>alge509</td>
<td>Solving for a variable in terms of other variables in a rational equation: Problem type 2</td>
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<td>alge175</td>
<td>Word problem on direct variation</td>
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<tr>
<td>alge828</td>
<td>Interpreting direct variation from a graph</td>
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<tr>
<td>alge905</td>
<td>Writing an inverse variation equation</td>
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<tr>
<td>alge903</td>
<td>Identifying direct and inverse variation equations</td>
</tr>
<tr>
<td>alge902</td>
<td>Identifying direct and inverse variation from ordered pairs and writing equations</td>
</tr>
<tr>
<td>alge176</td>
<td>Word problem on inverse variation</td>
</tr>
<tr>
<td>alge220</td>
<td>Word problem on inverse proportions</td>
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<tr>
<td>pcalc681</td>
<td>Writing an equation that models variation</td>
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<tr>
<td>alge772</td>
<td>Word problem on combined variation</td>
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### Radicals and Quadratic Equations

<table>
<thead>
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<th>Course Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>alge413</td>
<td>Finding all square roots of a number</td>
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<tr>
<td>arith760</td>
<td>Square roots of perfect squares with signs</td>
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<tr>
<td>alge415</td>
<td>Introduction to simplifying a radical expression with an even exponent</td>
</tr>
<tr>
<td>alge264</td>
<td>Square root of a perfect square monomial</td>
</tr>
</tbody>
</table>
B.33. NCCCS DEVELOPMENTAL MATH MODULE 010

arith094 Cube root of an integer
alge549 Finding nth roots of perfect nth powers with signs
arith768 Finding the nth root of a perfect nth power fraction
alge550 Finding the nth root of a perfect nth power monomial
arith093 Simplifying the square root of a whole number less than 100
arith762 Simplifying the square root of a whole number greater than 100
alge080 Simplifying a radical expression with an even exponent
alge520 Introduction to simplifying a radical expression with an odd exponent
alge275 Simplifying a radical expression with two variables
alge273 Simplifying a higher root of a whole number
alge551 Introduction to simplifying a higher radical expression
alge552 Simplifying a higher radical expression: Univariate
alge811 Simplifying a higher radical expression: Multivariate
arith767 Introduction to square root addition or subtraction
arith032 Square root addition or subtraction
alge533 Square root addition or subtraction with three terms
alge531 Introduction to simplifying a sum or difference of radical expressions: Univariate
alge532 Simplifying a sum or difference of radical expressions: Univariate
alge084 Simplifying a sum or difference of radical expressions: Multivariate
alge554 Simplifying a sum or difference of higher roots
alge555 Simplifying a sum or difference of higher radical expressions
arith764 Introduction to square root multiplication
arith765 Square root multiplication: Basic
arith639 Square root multiplication: Advanced
alge522 Introduction to simplifying a product of radical expressions: Univariate
alge523 Simplifying a product of radical expressions: Univariate
alge640 Simplifying a product of radical expressions: Multivariate
alge556 Introduction to simplifying a product of higher roots
alge557 Simplifying a product of higher radical expressions
alge525 Introduction to simplifying a product involving square roots using the distributive property
alge526 Simplifying a product involving square roots using the distributive property: Basic
alge276 Simplifying a product involving square roots using the distributive property: Advanced
alge774 Special products of radical expressions: Conjugates and squaring
alge984 Classifying sums and products as rational or irrational
arith766 Simplifying a quotient of square roots
alge530 Simplifying a quotient involving a sum or difference with a square root
alge527 Rationalizing a denominator: Quotient involving square roots
alge528 Rationalizing a denominator: Square root of a fraction
alge529 Rationalizing a denominator: Quotient involving a monomial
alge534 Rationalizing a denominator using conjugates: Integer numerator
alge535 Rationalizing a denominator using conjugates: Square root in numerator
alge536 Rationalizing a denominator using conjugates: Variable in denominator
alge564 Rationalizing a denominator: Quotient involving a higher radical
alge400 Introduction to solving a radical equation
alge089 Solving a radical equation that simplifies to a linear equation: One radical, basic
alge402 Solving a radical equation that simplifies to a linear equation: One radical, advanced
alge090 Solving a radical equation that simplifies to a linear equation: Two radicals
alge405 Solving a radical equation with two radicals that simplifies to sqrt(x) = a
alge403 Solving a radical equation that simplifies to a quadratic equation: One radical, basic
alge404 Solving a radical equation that simplifies to a quadratic equation: One radical, advanced
alge411 Solving a radical equation with a quadratic expression under the radical
alge182 Solving a radical equation that simplifies to a quadratic equation: Two radicals
alge410 Solving an equation with a root index greater than 2: Problem type 1
alge417 Solving an equation with a root index greater than 2: Problem type 2
alge412 Algebraic symbol manipulation with radicals
alge542 Word problem involving radical equations: Basic
alge409 Word problem involving radical equations: Advanced
alge132 Distance between two points in the plane: Exact answers
alge539 Table for a square root function
alge540 Domain of a square root function: Basic
pcalc763 Domain of a square root function: Advanced
alge543 Graphing a square root function: Problem type 1
alge544 Graphing a square root function: Problem type 2
alge812 Converting between radical form and exponent form
alge560 Rational exponents: Unit fraction exponents and whole number bases
alge561 Rational exponents: Unit fraction exponents and bases involving signs
alge250 Rational exponents: Non-unit fraction exponent with a whole number base
alge451 Rational exponents: Negative exponents and fractional bases
alge558 Rational exponents: Product rule
alge559 Rational exponents: Quotient rule
alge773 Rational exponents: Products and quotients with negative exponents
alge562 Rational exponents: Power of a power rule
alge249 Rational exponents: Powers of powers with negative exponents
alge563 Simplifying products or quotients of higher radicals with different indices: Univariate
alge778 Using \( i \) to rewrite square roots of negative numbers
alge779 Simplifying a product and quotient involving square roots of negative numbers
pcalc048 Adding or subtracting complex numbers
pcalc049 Multiplying complex numbers
pcalc050 Dividing complex numbers
pcalc053 Simplifying a power of \( i \)
alge962 Solving an equation of the form \( x^2 = a \) using the square root property
alge092 Solving a quadratic equation using the square root property: Exact answers, basic
alge227 Solving a quadratic equation using the square root property: Exact answers, advanced
alge094 Completing the square
alge780 Solving a quadratic equation by completing the square: Exact answers
alge095 Applying the quadratic formula: Exact answers
alge963 Applying the quadratic formula: Decimal answers
pcalc051 Solving a quadratic equation with complex roots
alge214 Discriminant of a quadratic equation
alge524 Solving a word problem using a quadratic equation with irrational roots
alge974 Finding the vertex, x-intercepts, and axis of symmetry from the graph of a parabola
alge953 Translating the graph of a parabola: One step
alge253 Graphing a parabola of the form \( y = (x-h)^2 + k \)
alge569 Graphing a parabola of the form \( y = x^2 + bx + c \)
pcalc746 Graphing a parabola of the form \( y = ax^2 + bx + c \): Integer coefficients
pcalc747 Graphing a parabola of the form \( y = ax^2 + bx + c \): Rational coefficients
alge277 Finding the x-intercept(s) and the vertex of a parabola
pcalc774 Rewriting a quadratic function to find the vertex of its graph
pcalc775 Finding the maximum or minimum of a quadratic function
alge785 Word problem involving the maximum or minimum of a quadratic function
alge975 Domain and range from the graph of a parabola
pcalc762 Range of a quadratic function
alge957 Solving a quadratic equation by graphing
alge996 Comparing properties of quadratic functions given in different forms
alge792 Classifying the graph of a function
alge723 How the leading coefficient affects the shape of a parabola
alge965 Identifying linear, quadratic, and exponential functions given ordered pairs
alge262 Graphing a cubic function of the form \( y = ax^3 \)
fun019 Sum, difference, and product of two functions
fun022 Composition of two functions: Basic
pcalc776 Expressing a function as a composition of two functions
pcalc924 Determining whether an equation defines a function: Basic
pcalc757 Determining whether an equation defines a function: Advanced

B.34 NCCCS Developmental Math Module 020

Whole Numbers

arith124 Whole number place value: Problem type 1
arith125 Whole number place value: Problem type 2
arith066 Expanded form
arith643 Expanded form with zeros
arith028 Numerical translation: Problem type 1
arith060 Numerical translation: Problem type 2
arith633 One-digit addition with carry
arith634 Addition of 3 or 4 one-digit numbers
arith001 Addition without carry
arith635 Adding a 2-digit number and a 1-digit number with carry
arith650 Addition with carry
arith630 Addition with carry to the hundreds place
arith012 Addition of large numbers
arith636 Subtracting a 1-digit number from a 2-digit number
arith007 Subtraction without borrowing
arith128 Adding or subtracting 10, 100, or 1000
arith637 Subtraction and regrouping with zeros
arith613 Word problem with addition or subtraction of whole numbers
arith655 Introduction to properties of addition
arith126 Multiplication as repeated addition
arith008 One-digit multiplication
arith679 Multiplication by 10, 100, and 1000
arith632 Multiplication with trailing zeros: Problem type 1
arith615 Introduction to multiplication of large numbers
arith638 Multiplication with trailing zeros: Problem type 2
arith614 Multiplication of large numbers
arith641 Multiples: Problem type 1
arith642 Multiples: Problem type 2
arith656 Introduction to properties of multiplication
arith075 Division facts
arith614 Word problem with multiplication or division of whole numbers
arith130 Word problem with multiplication and addition or subtraction of whole numbers
arith243 Division of whole numbers given in fractional form
arith711 Division involving zero
arith652 Division without carry
arith605 Division with carry
arith680 Division with trailing zeros: Problem type 1
arith649 Division with trailing zeros: Problem type 2
arith616 Quotient and remainder: Problem type 1
arith644 Word problem on quotient and remainder
arith617 Quotient and remainder: Problem type 2
arith631 Quotient and remainder: Problem type 3
arith650 Division involving quotients with intermediate zeros
arith023 Word problem with division of whole numbers and rounding
arith651 Introduction to inequalities
arith077 Ordering large numbers
arith681 Rounding to tens or hundreds
arith123 Rounding to hundreds or thousands
arith061 Rounding to thousands, ten thousands, or hundred thousands
arith101 Estimating a sum of whole numbers
arith102 Estimating a difference of whole numbers
arith604 Estimating a product or quotient of whole numbers
arith692 Writing expressions using exponents
arith233 Introduction to exponents
arith645 Introduction to parentheses
arith681 Introduction to order of operations
arith648 Order of operations with whole numbers
arith651 Order of operations with whole numbers and grouping symbols
arith693 Order of operations with whole numbers and exponents: Basic
APPENDIX B. SYLLABI IN ALEKS

arith713 Order of operations with whole numbers and exponents: Advanced
arith657 Understanding the distributive property
alge284 Evaluating an algebraic expression: Whole number addition or subtraction
alge683 Evaluating an algebraic expression: Whole number multiplication or division
alge285 Evaluating an algebraic expression: Whole numbers with two operations
alge832 Evaluating an algebraic expression: Whole number operations and exponents
alge609 Additive property of equality with whole numbers
alge608 Multiplicative property of equality with whole numbers
alge803 Using two steps to solve an equation with whole numbers
arith646 Even and odd numbers
arith647 Divisibility rules for 2, 5, and 10
arith648 Divisibility rules for 3 and 9
arith656 Factors
arith634 Prime numbers
arith635 Prime factorization
arith633 Greatest common factor of 2 numbers
arith670 Least common multiple of 2 numbers
arith804 Least common multiple of 3 numbers
arith240 Word problem with common multiples
alge925 Finding the next terms of an arithmetic sequence with whole numbers
alge903 Finding the next terms of a geometric sequence with whole numbers
alge732 Finding patterns in shapes

Fractions

arith623 Introduction to fractions
arith665 Understanding equivalent fractions
arith212 Equivalent fractions
arith666 Introduction to simplifying a fraction
arith667 Simplifying a fraction
arith687 Fractional position on a number line
arith667 Plotting fractions on a number line
arith644 Ordering fractions with the same denominator
arith691 Ordering fractions with the same numerator
arith692 Using a common denominator to order fractions
arith679 Product of a unit fraction and a whole number
arith686 Product of a fraction and a whole number: Problem type 1
arith119 Introduction to fraction multiplication
arith653 Fraction multiplication
arith812 Product of a fraction and a whole number: Problem type 2
arith813 Multiplication of 3 fractions
arith818 Word problem involving fractions and multiplication
arith905 Multi-step word problem involving fractions and multiplication
arith888 The reciprocal of a number
arith694 Division involving a whole number and a fraction
arith822 Fraction division
arith819 Word problem involving fractions and division
arith618 Addition or subtraction of fractions with the same denominator
arith802 Addition or subtraction of fractions with the same denominator and simplification
arith801 Finding the LCD of two fractions
arith109 Addition or subtraction of unit fractions
arith664 Introduction to addition or subtraction of fractions with different denominators
arith230 Addition or subtraction of fractions with different denominators
arith803 Addition and subtraction of 3 fractions with different denominators
arith805 Word problem involving addition or subtraction of fractions with different denominators
arith100 Fractional part of a circle
arith662 Writing a mixed number and an improper fraction for a shaded region
arith915 Writing an improper fraction as a mixed number
arith619 Writing a mixed number as an improper fraction
arith215 Addition or subtraction of mixed numbers with the same denominator
arithmetic34 Addition of mixed numbers with the same denominator and carry
arithmetic216 Subtraction of mixed numbers with the same denominator and borrowing
arithmetic806 Addition or subtraction of mixed numbers with different denominators and no carry or borrow
arithmetic808 Addition of mixed numbers with different denominators and carry
arithmetic809 Subtraction of mixed numbers with different denominators and borrowing
arithmetic807 Addition and subtraction of 3 mixed numbers with different denominators
arithmetic810 Word problem involving addition or subtraction of mixed numbers with different denominators
arithmetic815 Mixed number multiplication
arithmetic816 Multiplication of a mixed number and a whole number
arithmetic817 Division with a mixed number and a whole number
arithmetic068 Mixed number division
arithmetic820 Word problem involving multiplication or division with mixed numbers
arithmetic821 Exponents and fractions
arithmetic859 Order of operations with fractions: Problem type 1
arithmetic860 Order of operations with fractions: Problem type 2
arithmetic861 Order of operations with fractions: Problem type 3
arithmetic695 Complex fraction without variables: Problem type 1

Decimals

arithmetic127 Writing a decimal and a fraction for a shaded region
arithmetic110 Decimal place value: Tenths and hundredths
arithmetic220 Decimal place value: Hundreds to ten thousandths
arithmetic714 Writing a decimal number less than 1 given its name
arithmetic715 Writing a decimal number greater than 1 given its name
arithmetic716 Writing a decimal number given its name: Advanced
arithmetic829 Reading decimal position on a number line: Tenths
arithmetic830 Reading decimal position on a number line: Hundredths
arithmetic831 Understanding decimal position on a number line using zoom: Hundredths
arithmetic832 Understanding decimal position on a number line using zoom: Thousandths
arithmetic129 Introduction to ordering decimals
arithmetic088 Ordering decimals
arithmetic221 Rounding decimals
arithmetic717 Converting a decimal to a proper fraction without simplifying: Basic
arithmetic719 Converting a decimal to a proper fraction without simplifying: Advanced
arithmetic718 Converting a decimal to a proper fraction in simplest form: Basic
arithmetic807 Converting a decimal to a proper fraction in simplest form: Advanced
arithmetic721 Converting a decimal to a mixed number and an improper fraction without simplifying
arithmetic722 Converting a decimal to a mixed number and an improper fraction in simplest form: Basic
arithmetic724 Converting a decimal to a mixed number and an improper fraction in simplest form: Advanced
arithmetic624 Addition of aligned decimals
arithmetic608 Ordering decimals
arithmetic013 Decimal addition with 3 numbers
arithmetic734 Subtraction of aligned decimals
arithmetic735 Decimal subtraction: Basic
arithmetic736 Decimal subtraction: Advanced
arithmetic737 Decimal addition and subtraction with 3 or more numbers
arithmetic131 Estimating a decimal sum or difference
arithmetic132 Word problem with addition or subtraction of 2 decimals
arithmetic133 Word problem with addition of 3 or 4 decimals and whole numbers
arithmetic134 Word problem with subtraction of a whole number and a decimal: Regrouping with zeros
arithmetic739 Introduction to decimal multiplication
arithmetic017 Multiplication of a decimal by a whole number
arithmetic055 Decimal multiplication: Problem type 1
arithmetic046 Decimal multiplication: Problem type 2
arithmetic082 Multiplication of a decimal by a power of ten
arithmetic738 Multiplication of a decimal by a power of 0.1
arithmetic740 Multiplication of decimals that have a product less than 0.1
arithmetic752 Estimating a product of decimals
arithmetic135 Word problem with multiplication of a decimal and a whole number
arithmetic137 Word problem with multiplication of two decimals
arith224 Word problem with decimal addition and multiplication
arith744 Whole number division with decimal answers
arith081 Division of a decimal by a whole number
arith743 Division of a decimal by a 1-digit decimal
arith019 Division of a decimal by a 2-digit decimal
arith083 Division of a decimal by a power of ten
arith742 Division of a decimal by a power of 0.1
arith745 Decimal division with rounding
arith136 Word problem with division of a decimal and a whole number
arith138 Word problem with division of two decimals
alge823 Solving a one-step word problem using the formula d = rt
arith725 Converting a fraction with a denominator of 10 or 100 to a decimal
arith726 Converting a fraction with a denominator of 100 or 1000 to a decimal
arith609 Ordering fractions and decimals
arith727 Converting a fraction to a terminating decimal: Basic
arith728 Converting a fraction to a terminating decimal: Advanced
arith730 Converting a fraction to a repeating decimal: Basic
arith731 Converting a fraction to a repeating decimal: Advanced
arith733 Using a calculator to convert a fraction to a rounded decimal
arith111 Converting a mixed number to a terminating decimal: Basic
arith112 Converting a mixed number to a terminating decimal: Advanced
arith732 Converting a fraction or mixed number to a rounded decimal
arith753 Squaring decimal bases: Products greater than 0.1
arith741 Exponents and decimals: Products less than 0.1
arith729 Order of operations with decimals: Problem type 1
arith746 Order of operations with decimals: Problem type 2
arith747 Order of operations with decimals: Problem type 3
arith749 Addition or subtraction with a decimal and a mixed number
arith740 Multiplication with a decimal and a fraction
arith823 Writing ratios using different notations
arith663 Writing ratios for real-world situations
arith824 Simplifying a ratio of whole numbers: Problem type 1
arith825 Simplifying a ratio of decimals
arith827 Finding a unit price
arith828 Computing unit prices to find the better buy
arith064 Solving a word problem on proportions using a unit rate
arith228 Word problem on unit rates associated with ratios of whole numbers: Decimal answers
alge272 Solving a proportion of the form x/a = b/c
arith610 Word problem on proportions: Problem type 1
arith611 Word problem on proportions: Problem type 2
alge063 Word problem on mixed number proportions
arith045 Word problem with powers of ten
arith836 Converting a fraction with a denominator of 100 to a percentage
arith837 Converting a percentage to a fraction with a denominator of 100
arith833 Introduction to converting a percentage to a fraction
arith834 Introduction to converting a decimal to a percentage
arith841 Converting a mixed number percentage to a decimal
arith835 Converting between percentages and decimals in a real-world situation
arith839 Converting a decimal percentage to a fraction
arith838 Converting a fraction to a percentage: Denominator of 4, 5, or 10
arith802 Converting a fraction to a percentage: Denominator of 20, 25, or 50
arith843 Using a calculator to convert a fraction to a rounded percentage
arith842 Converting a fraction to a percentage in a real-world situation
arith840 Finding a percentage of a whole number
arith600 Finding a percentage of a whole number without a calculator: Basic
arith844 Finding a percentage of a whole number without a calculator: Advanced
arith862 Applying the percent equation: Problem type 1
arith863 Applying the percent equation: Problem type 2
Geometry

geom339 Perimeter of a polygon
geom300 Perimeter of a square or a rectangle
geom618 Perimeter of a polygon involving mixed numbers and fractions
geom078 Sides of polygons having the same perimeter
geom221 Finding the missing length in a figure
geom353 Perimeter of a piecewise rectangular figure
geom358 Identifying parallel and perpendicular lines
geom349 Naming segments, rays, and lines
geom151 Measuring an angle with the protractor
geom152 Drawing an angle with the protractor
geom303 Acute, obtuse, and right angles
geom039 Finding supplementary and complementary angles
geom305 Identifying supplementary and vertical angles
geom304 Identifying corresponding and alternate angles
geom306 Acute, obtuse, and right triangles
geom307 Classifying scalene, isosceles, and equilateral triangles by side lengths or angles
geom001 Finding an angle measure of a triangle given two angles
geom908 Finding an angle measure for a triangle with an extended side
geom912 Finding an angle measure given extended triangles
geom813 Finding an angle measure given a triangle and parallel lines
geom361 Naming polygons
mstat042 Interpreting a Venn diagram of 2 sets
geom867 Identifying parallelograms, rectangles, and squares
geom310 Properties of quadrilaterals
geom532 Classifying parallelograms
geom019 Area of a square or a rectangle
geom866 Perimeter and area on a grid
geom020 Area of a rectangle involving fractions
geom619 Area of a rectangle involving mixed numbers and fractions
geom350 Distinguishing between the area and perimeter of a rectangle
geom351 Areas of rectangles with the same perimeter
geom217 Finding the side length of a rectangle given its perimeter or area
geom340 Area of a piecewise rectangular figure
geom142 Word problem involving the area between two rectangles
geom801 Area of a triangle
geom344 Area involving rectangles and triangles
geom022 Area of a parallelogram
geom023 Area of a trapezoid
APPENDIX B. SYLLABI IN ALEKS

geom347 Introduction to a circle: Diameter, radius, and chord
geom016 Circumference of a circle
geom301 Perimeter involving rectangles and circles
geom802 Circumference and area of a circle
geom302 Area involving rectangles and circles
geom836 Word problem involving the area between two concentric circles
geom214 Area involving inscribed figures
geom814 Angle measure in a circle graph
geom868 Classifying solids
geom348 Vertices, edges, and faces of a solid
geom830 Counting the cubes in a solid made of cubes
geom354 Volume of a rectangular prism made of unit cubes
geom311 Volume of a rectangular prism
geom505 Volume of a piecewise rectangular prism
geom890 Volume of a triangular prism
geom633 Volume of a pyramid
geom635 Volume of a cylinder
geom892 Word problem involving the rate of filling or emptying a cylinder
geom622 Volume of a cone
geom841 Volume of a sphere
geom219 Nets of solids
geom816 Side views of a solid made of cubes
geom831 Surface area of a cube or a rectangular prism
geom345 Surface area of a piecewise rectangular prism made of unit cubes
geom891 Surface area of a triangular prism
geom821 Surface area of a cylinder
geom842 Surface area of a sphere
arith016 Square root of a perfect square
arith763 Using a calculator to approximate a square root
arith602 Estimating a square root
arith601 Square root of a rational perfect square
alge407 Introduction to the Pythagorean Theorem
geom344 Pythagorean Theorem
alge408 Word problem involving the Pythagorean Theorem
geom359 Identifying congruent shapes on a grid
geom520 Identifying and naming congruent triangles
geom360 Identifying similar or congruent shapes on a grid
geom307 Similar polygons
geom308 Similar right triangles
geom337 Indirect measurement

Measurement and Data Analysis

mstat059 Choosing U.S. Customary measurement units
unit005 U.S. Customary unit conversion with whole number values
mstat033 Conversions involving measurements in feet and inches
mstat036 Adding measurements in feet and inches
unit006 U.S. Customary unit conversion with whole number values: Two-step conversion
unit007 U.S. Customary unit conversion with mixed number values: One-step conversion
unit008 U.S. Customary unit conversion with mixed number values: Two-step conversion
unit009 U.S. Customary area unit conversion with whole number values
mstat060 Choosing metric measurement units
unit001 Metric distance conversion with whole number values
unit002 Metric mass or capacity conversion with whole number values
unit003 Metric distance conversion with decimal values
unit004 Metric conversion with decimal values: Two-step problem
unit010 Metric area unit conversion with decimal values
unit012 Time unit conversion with whole number values
time006 Adding time
time007 Elapsed time
Signed Numbers

alge286 Plotting integers on a number line
arith605 Plotting rational numbers on a number line
mstat038 Reading the temperature from a thermometer
arith699 Writing a signed number for a real-world situation
arith691 Ordering integers
APPENDIX B. SYLLABI IN ALEKS

arith712 Ordering real numbers
arith071 Absolute value of a number
arith200 Integer addition: Problem type 1
arith108 Integer addition: Problem type 2
arith688 Integer subtraction: Problem type 1
arith689 Integer subtraction: Problem type 2
arith690 Integer subtraction: Problem type 3
arith754 Addition and subtraction with 3 integers
arith755 Addition and subtraction with 4 or 5 integers
arith701 Word problem with addition or subtraction of integers
arith231 Integer multiplication and division
arith800 Multiplication of 3 or 4 integers
alge001 Identifying numbers as integers or non-integers
alge002 Identifying numbers as rational or irrational
arith116 Signed fraction addition or subtraction: Basic
arith864 Signed fraction subtraction involving double negation
arith106 Signed fraction addition or subtraction: Advanced
arith811 Addition and subtraction of 3 fractions involving signs
arith822 Signed fraction multiplication: Basic
arith105 Signed fraction multiplication: Advanced
arith814 Signed fraction division
arith234 Signed decimal addition and subtraction with 3 numbers
arith750 Signed decimal multiplication
arith751 Signed decimal division
arith104 Operations with absolute value: Problem type 2
geom525 Computing distances between decimals on the number line
unit052 Finding the absolute error and percent error of a measurement
arith702 Exponents and integers: Problem type 1
arith703 Exponents and integers: Problem type 2
arith704 Exponents and signed fractions
arith118 Order of operations with integers
arith600 Order of operations with integers and exponents
arith696 Complex fraction without variables: Problem type 2
alge005 Evaluating a linear expression: Integer multiplication with addition or subtraction
alge808 Evaluating a linear expression: Signed fraction multiplication with addition or subtraction
alge302 Evaluating a linear expression: Signed decimal addition and subtraction
alge303 Evaluating a linear expression: Signed decimal multiplication with addition or subtraction
alge004 Evaluating a quadratic expression: Integers
alge700 Combining like terms: Whole number coefficients
alge607 Combining like terms: Integer coefficients
alge187 Properties of addition
alge310 Multiplying a constant and a linear monomial
alge606 Distributive property: Whole number coefficients
alge604 Distributive property: Integer coefficients
alge188 Properties of real numbers
alge608 Using distribution and combining like terms to simplify: Univariate
alge609 Using distribution with double negation and combining like terms to simplify: Multivariate
alge293 Combining like terms in a quadratic expression
alge432 Introduction to adding fractions with variables and common denominators
alge436 Adding rational expressions with different denominators and a single occurrence of a variable
arith683 Power of 10: Positive exponent
arith684 Power of 10: Negative exponent
arith036 Scientific notation with positive exponent
arith037 Scientific notation with negative exponent

Linear Equations and Inequalities

alge801 Additive property of equality with fractions and mixed numbers
alge800 Additive property of equality with decimals
alge010 Additive property of equality with integers
alge836 Additive property of equality with signed fractions
alge820 Multiplicative property of equality with fractions
alge825 Multiplicative property of equality with decimals
alge797 Multiplicative property of equality with integers
alge012 Multiplicative property of equality with signed fractions
alge834 Identifying solutions to a linear equation in one variable: Two-step equations
alge266 Additive property of equality with a negative coefficient
alge006 Solving a two-step equation with integers
alge200 Solving an equation to find the value of an expression
alge920 Introduction to solving an equation with parentheses
alge837 Solving a multi-step equation given in fractional form
alge986 Identifying properties used to solve a linear equation
alge824 Solving a two-step equation with signed decimals
alge838 Introduction to solving an equation with variables on the same side
alge862 Solving a linear equation with several occurrences of the variable: Variables on the same side
alge863 Solving a linear equation with several occurrences of the variable: Variables on both sides
alge011 Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
alge013 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
alge209 Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions
alge420 Solving a linear equation with several occurrences of the variable: Fractional forms with monomial numerators
alge208 Solving a two-step equation with signed fractions
alge061 Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
alge179 Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators
alge742 Solving equations with zero, one, or infinitely many solutions
alge840 Solving a proportion of the form \( \frac{x-a}{c} = \frac{d}{x} \)
alge271 Solving a proportion of the form \( \frac{a}{x+b} = \frac{c}{x} \)
alge603 Introduction to solving an absolute value equation
alge864 Solving an absolute value equation: Problem type 1
alge511 Solving for a variable in terms of other variables using addition or subtraction: Basic
alge512 Solving for a variable in terms of other variables using addition or subtraction: Advanced
alge513 Solving for a variable in terms of other variables using multiplication or division: Basic
alge514 Solving for a variable in terms of other variables using multiplication or division: Advanced
alge517 Solving for a variable in terms of other variables using addition or subtraction with division
alge518 Solving for a variable inside parentheses in terms of other variables
alge507 Solving for a variable in terms of other variables in a linear equation with fractions
alge743 Writing a one-step expression for a real-world situation
alge831 Translating a phrase into a one-step expression
alge291 Translating a phrase into a two-step expression
alge016 Translating a sentence into a one-step equation
alge841 Translating a sentence into a multi-step equation
alge802 Solving a fraction word problem using a linear equation of the form \( Ax = B \)
alge014 Solving a word problem with two unknowns using a linear equation
alge173 Solving a decimal word problem using a linear equation of the form \( Ax + B = C \)
alge730 Writing a multi-step equation for a real-world situation
alge219 Solving a decimal word problem using a linear equation with the variable on both sides
alge704 Solving a fraction word problem using a linear equation with the variable on both sides
alge792 Solving a word problem with three unknowns using a linear equation
alge842 Solving a word problem involving consecutive integers
alge794 Solving a value mixture problem using a linear equation
alge218 Solving a word problem involving rates and time conversion
alge796 Solving a distance, rate, time problem using a linear equation
arith854 Computing a percent mixture
alge795 Solving a percent mixture problem using a linear equation
geom817 Finding a side length given the perimeter and side lengths with variables
geom143 Finding the perimeter or area of a rectangle given one of these values
geom218 Finding the radius or the diameter of a circle given its circumference
geom838 Circumference ratios
geom530 Solving equations involving vertical angles
geom531 Solving equations involving angles and a pair of parallel lines
geom623 Finding angle measures of a triangle given angles with variables
geom502 Finding angle measures of a right or isosceles triangle given angles with variables
stat803 Finding the value for a new score that will yield a given mean
alge015 Translating a sentence by using an inequality symbol
alge845 Translating a sentence into a one-step inequality
alge846 Translating a sentence into a multi-step inequality
alge748 Writing an inequality for a real-world situation
alge017 Graphing a linear inequality on the number line
alge822 Writing an inequality given a graph on the number line
alge186 Translating a sentence into a compound inequality
alge166 Graphing a compound inequality on the number line
alge847 Writing a compound inequality given a graph on the number line
set001 Set builder notation
set004 Set builder and interval notation
set002 Union and intersection of finite sets
alge844 Identifying solutions to a two-step linear inequality in one variable
alge848 Additive property of inequality with whole numbers
alge849 Additive property of inequality with integers
alge852 Additive property of inequality with signed fractions
alge853 Additive property of inequality with signed decimals
alge854 Multiplicative property of inequality with integers
alge964 Multiplicative property of inequality with signed fractions
alge855 Solving a two-step linear inequality: Problem type 1
alge856 Solving a two-step linear inequality: Problem type 2
alge857 Solving a two-step linear inequality with a fractional coefficient
alge977 Solving a linear inequality with multiple occurrences of the variable: Problem type 1
alge858 Solving a linear inequality with multiple occurrences of the variable: Problem type 2
alge859 Solving a linear inequality with multiple occurrences of the variable: Problem type 3
alge860 Solving inequalities with no solution or all real numbers as solutions
alge746 Solving a compound linear inequality: Graph solution, basic
alge747 Solving a compound linear inequality: Interval notation
alge868 Solving an absolute value inequality: Problem type 1
alge749 Solving a decimal word problem using a two-step linear inequality
alge750 Solving a decimal word problem using a linear inequality with the variable on both sides

Lines and Functions

alge064 Reading a point in the coordinate plane
alge067 Plotting a point in the coordinate plane
alge850 Table for a linear equation
alge873 Identifying solutions to a linear equation in two variables
alge066 Finding a solution to a linear equation in two variables
alge191 Midpoint of a line segment in the plane
alge877 Graphing a linear equation of the form \( y = mx \)
alge878 Graphing a line given its equation in slope-intercept form: Integer slope
alge879 Graphing a line given its equation in slope-intercept form: Fractional slope
alge880 Graphing a line given its equation in standard form
alge198 Graphing a vertical or horizontal line
alge884 Finding x- and y-intercepts given the graph of a line on a grid
alge924 Finding x- and y-intercepts of a line given the equation: Basic
alge210 Finding x- and y-intercepts of a line given the equation: Advanced
alge197 Graphing a line given its x- and y-intercepts
alge881 Graphing a line by first finding its x- and y-intercepts
alge875 Classifying slopes given graphs of lines
alge886 Finding slope given the graph of a line on a grid
alge887 Finding slope given two points on the line
alge885 Finding the slope of horizontal and vertical lines
alge888 Finding the coordinate that yields a given slope
alge259 Graphing a line given its slope and y-intercept
alge196 Graphing a line through a given point with a given slope
alge876 Identifying linear equations: Advanced
alge874 Identifying linear functions given ordered pairs
alge891 Rewriting a linear equation in the form $Ax + By = C$
alge889 Finding the slope and y-intercept of a line given its equation in the form $y = mx + b$
alge890 Finding the slope and y-intercept of a line given its equation in the form $Ax+By=C$
alge882 Graphing a line by first finding its slope and y-intercept
alge258 Writing an equation of a line given its slope and y-intercept
alge892 Writing an equation and graphing a line given its slope and y-intercept
alge893 Writing an equation in slope-intercept form given the slope and a point
alge883 Graphing a line given its equation in point-slope form
alge894 Writing an equation in point-slope form given the slope and a point
alge070 Writing an equation of a line given the y-intercept and another point
alge072 Writing the equation of the line through two given points
alge073 Writing the equations of vertical and horizontal lines through a given point
geom806 Finding slopes of lines parallel and perpendicular to a line given in slope-intercept form
geom807 Finding slopes of lines parallel and perpendicular to a line given in the form $Ax + By = C$
alge895 Identifying parallel and perpendicular lines from equations
geom808 Writing equations of lines parallel and perpendicular to a given line through a point
alge897 Writing and evaluating a function that models a real-world situation: Advanced
alge701 Writing an equation and drawing its graph to model a real-world situation: Advanced
fun005 Writing a function rule given a table of ordered pairs: One-step rules
fun006 Writing a function rule given a table of ordered pairs: Two-step rules
alge992 Combining functions to write a new function that models a real-world situation
alge987 Comparing properties of linear functions given in different forms
alge989 Interpreting the parameters of a linear function that models a real-world situation
alge805 Application problem with a linear function: Finding a coordinate given the slope and a point
alge806 Application problem with a linear function: Finding a coordinate given two points
mstat052 Identifying independent and dependent variables from equations or real-world situations
alge991 Solving a linear equation by graphing
mstat030 Sketching the line of best fit
mstat023 Scatter plots and correlation
mstat068 Predictions from the line of best fit
mstat067 Approximating the equation of a line of best fit and making predictions
mstat069 Computing residuals
mstat070 Interpreting residual plots
mstat071 Linear relationship and the correlation coefficient
mstat074 Identifying correlation and causation
alge898 Translating the graph of an absolute value function: One step
alge899 Translating the graph of an absolute value function: Two steps
alge913 Graphing an absolute value equation of the form $y = A−x$—
alge900 Graphing an absolute value equation in the plane: Basic
alge168 Graphing an absolute value equation in the plane: Advanced
alge901 How the leading coefficient affects the graph of an absolute value function
fun032 Identifying functions from relations
fun010 Vertical line test
fun016 Domain and range from ordered pairs
fun001 Table for a linear function
pcalc760 Evaluating functions: Linear and quadratic or cubic
fun033 Variable expressions as inputs of functions: Problem type 1
alge294 Finding outputs of a one-step function that models a real-world situation: Function notation
alge295 Finding outputs of a two-step function with decimals that models a real-world situation: Function notation
alge296 Finding inputs and outputs of a two-step function that models a real-world situation: Function notation
alge990 Domain and range of a linear function that models a real-world situation
fun026 Finding an output of a function from its graph
pcalc761 Finding inputs and outputs of a function from its graph
fun027 Domain and range from the graph of a discrete relation
fun024 Domain and range from the graph of a continuous function
APPENDIX B. SYLLABI IN ALEKS

alge896 Graphing an integer function and finding its range for a given domain
alge570 Graphing a function of the form \( f(x) = ax + b \); Integer slope
alge571 Graphing a function of the form \( f(x) = ax + b \); Fractional slope
alge954 Graphing a parabola of the form \( y = ax^2 \)
alge955 Graphing a parabola of the form \( y = ax^2 + c \)
alge572 Graphing a function of the form \( f(x) = ax^2 \)
alge573 Graphing a function of the form \( f(x) = ax^2 + c \)
pcalc750 Finding intercepts of a nonlinear function given its graph
pcalc751 Finding where a function is increasing, decreasing, or constant given the graph: Interval notation
pcalc752 Finding local maxima and minima of a function given the graph
mstat018 Choosing a graph to fit a narrative: Basic
mstat051 Choosing a graph to fit a narrative: Advanced

Systems

alge914 Identifying solutions to a system of linear equations
alge075 Classifying systems of linear equations from graphs
alge725 Graphically solving a system of linear equations
alge751 Solving a system of linear equations using substitution
alge915 Solving a system of linear equations using elimination with addition
alge916 Solving a system of linear equations using elimination with multiplication and addition
alge184 Solving a value mixture problem using a system of linear equations
alge192 Solving a percent mixture problem using a system of linear equations
alge224 Solving a distance, rate, time problem using a system of linear equations
alge172 Solving a tax rate or interest rate problem using a system of linear equations
alge793 Solving a word problem using a 3x3 system of linear equations: Problem type 1
alge912 Identifying solutions to a linear inequality in two variables
alge225 Graphing a linear inequality in the plane: Vertical or horizontal line
alge720 Graphing a linear inequality in the plane: Slope-intercept form
alge018 Graphing a linear inequality in the plane: Standard form
alge079 Graphing a system of two linear inequalities: Basic
alge921 Graphing a system of two linear inequalities: Advanced
alge922 Graphing a system of three linear inequalities
alge729 Writing a multi-step inequality for a real-world situation
pcalc093 Solving a word problem using a system of linear inequalities: Problem type 1

Exponents and Polynomials

alge024 Introduction to the product rule of exponents
alge311 Product rule with positive exponents: Univariate
alge030 Product rule with positive exponents: Multivariate
arith029 Ordering numbers with positive exponents
alge826 Understanding the power rules of exponents
alge306 Introduction to the power of a power rule of exponents
alge305 Introduction to the power of a product rule of exponents
alge307 Power rules with positive exponents: Multivariate products
alge308 Power rules with positive exponents: Multivariate quotients
alge756 Power and product rules with positive exponents
alge451 Simplifying a ratio of multivariate monomials: Basic
alge827 Introduction to the quotient rule of exponents
alge452 Simplifying a ratio of univariate monomials
alge026 Quotient of expressions involving exponents
alge453 Simplifying a ratio of multivariate monomials: Advanced
alge927 Power and quotient rules with positive exponents
alge790 Evaluating expressions with exponents of zero
arith729 Evaluating an expression with a negative exponent: Whole number base
arith042 Evaluating an expression with a negative exponent: Positive fraction base
arith043 Evaluating an expression with a negative exponent: Negative integer base
arith924 Ordering numbers with negative exponents
alge791 Rewriting an algebraic expression without a negative exponent
alge961 Introduction to the product rule with negative exponents
alge028 Product rule with negative exponents
alge755 Quotient rule with negative exponents: Problem type 1
alge926 Quotient rule with negative exponents: Problem type 2
alge625 Power of a power rule with negative exponents
alge799 Power rules with negative exponents
alge928 Power and quotient rules with negative exponents: Problem type 1
alge929 Power and quotient rules with negative exponents: Problem type 2
alge757 Power, product, and quotient rules with negative exponents
scinot012 Converting between scientific notation and standard form in a real-world situation
scinot008 Multiplying numbers written in scientific notation: Basic
scinot009 Multiplying numbers written in scientific notation: Advanced
scinot010 Dividing numbers written in scientific notation: Basic
scinot011 Dividing numbers written in scientific notation: Advanced
alge971 Table for an exponential function
alge830 Evaluating an exponential function that models a real-world situation
arith853 Introduction to compound interest
alge741 Finding the final amount in a word problem on exponential growth or decay
alge966 Finding the initial amount and rate of change given an exponential function
alge968 Writing an equation that models exponential growth or decay
alge301 Solving an exponential equation by finding common bases: Linear exponents
alge969 Graphing an exponential function: \( f(x) = ax \)
alge970 Graphing an exponential function: \( f(x) = a(b)x \)
alge967 Writing an exponential function rule given a table of ordered pairs
alge993 Comparing linear, polynomial, and exponential functions
alge758 Degree and leading coefficient of a univariate polynomial
alge601 Degree of a multivariate polynomial
alge798 Simplifying a sum or difference of two univariate polynomials
alge029 Simplifying a sum or difference of three univariate polynomials
alge902 Simplifying a sum or difference of multivariate polynomials
alge752 Multiplying a univariate polynomial by a monomial with a positive coefficient
alge972 Multiplying a univariate polynomial by a monomial with a negative coefficient
alge835 Multiplying a multivariate polynomial by a monomial
alge033 Multiplying binomials with leading coefficients of 1
alge983 Multiplying binomials with leading coefficients greater than 1
alge765 Multiplying binomials in two variables
alge764 Multiplying conjugate binomials: Univariate
alge081 Multiplying conjugate binomials: Multivariate
alge002 Squaring a binomial: Univariate
alge068 Squaring a binomial: Multivariate
alge973 Multiplying binomials with negative coefficients
alge935 Multiplication involving binomials and trinomials in one variable
alge180 Multiplication involving binomials and trinomials in two variables
alge759 Dividing a polynomial by a monomial: Univariate
alge760 Dividing a polynomial by a monomial: Multivariate
alge761 Polynomial long division: Problem type 1
alge762 Polynomial long division: Problem type 2
alge763 Polynomial long division: Problem type 3
alge985 Closure properties of integers and polynomials
### APPENDIX B. SYLLABI IN ALEKS

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>algde05</td>
<td>Factoring a linear binomial</td>
</tr>
<tr>
<td>alg736</td>
<td>Introduction to the GCF of two monomials</td>
</tr>
<tr>
<td>alg930</td>
<td>Greatest common factor of three univariate monomials</td>
</tr>
<tr>
<td>alg037</td>
<td>Greatest common factor of two multivariate monomials</td>
</tr>
<tr>
<td>alg738</td>
<td>Factoring out a monomial from a polynomial: Univariate</td>
</tr>
<tr>
<td>alg739</td>
<td>Factoring out a monomial from a polynomial: Multivariate</td>
</tr>
<tr>
<td>alg949</td>
<td>Factoring out a binomial from a polynomial: GCF factoring, basic</td>
</tr>
<tr>
<td>alg923</td>
<td>Factoring a univariate polynomial by grouping: Problem type 1</td>
</tr>
<tr>
<td>alg950</td>
<td>Factoring a univariate polynomial by grouping: Problem type 2</td>
</tr>
<tr>
<td>alg951</td>
<td>Factoring a multivariate polynomial by grouping: Problem type 1</td>
</tr>
<tr>
<td>alg952</td>
<td>Factoring a multivariate polynomial by grouping: Problem type 2</td>
</tr>
<tr>
<td>alg039</td>
<td>Factoring a quadratic with leading coefficient 1</td>
</tr>
<tr>
<td>alg942</td>
<td>Factoring a quadratic in two variables with leading coefficient 1</td>
</tr>
<tr>
<td>alg936</td>
<td>Factoring out a constant before factoring a quadratic</td>
</tr>
<tr>
<td>alg940</td>
<td>Factoring a quadratic with leading coefficient greater than 1: Problem type 1</td>
</tr>
<tr>
<td>alg941</td>
<td>Factoring a quadratic with leading coefficient greater than 1: Problem type 2</td>
</tr>
<tr>
<td>alg978</td>
<td>Factoring a quadratic by the ac-method</td>
</tr>
<tr>
<td>alg265</td>
<td>Factoring a quadratic in two variables with leading coefficient greater than 1</td>
</tr>
<tr>
<td>alg937</td>
<td>Factoring a quadratic with a negative leading coefficient</td>
</tr>
<tr>
<td>alg944</td>
<td>Factoring a perfect square trinomial with leading coefficient 1</td>
</tr>
<tr>
<td>alg945</td>
<td>Factoring a perfect square trinomial with leading coefficient greater than 1</td>
</tr>
<tr>
<td>alg946</td>
<td>Factoring a perfect square trinomial in two variables</td>
</tr>
<tr>
<td>alg290</td>
<td>Factoring a difference of squares in one variable: Basic</td>
</tr>
<tr>
<td>alg947</td>
<td>Factoring a difference of squares in one variable: Advanced</td>
</tr>
<tr>
<td>alg839</td>
<td>Factoring a difference of squares in two variables</td>
</tr>
<tr>
<td>alg948</td>
<td>Factoring a polynomial involving a GCF and a difference of squares: Univariate</td>
</tr>
<tr>
<td>alg833</td>
<td>Factoring a polynomial involving a GCF and a difference of squares: Multivariate</td>
</tr>
<tr>
<td>alg041</td>
<td>Factoring a product of a quadratic trinomial and a monomial</td>
</tr>
<tr>
<td>alg042</td>
<td>Factoring with repeated use of the difference of squares formula</td>
</tr>
<tr>
<td>alg044</td>
<td>Factoring a sum or difference of two cubes</td>
</tr>
<tr>
<td>alg681</td>
<td>Solving an equation written in factored form</td>
</tr>
<tr>
<td>alg956</td>
<td>Finding the roots of a quadratic equation of the form ax^2 + bx = 0</td>
</tr>
<tr>
<td>alg045</td>
<td>Finding the roots of a quadratic equation with leading coefficient 1</td>
</tr>
<tr>
<td>alg048</td>
<td>Finding the roots of a quadratic equation with leading coefficient greater than 1</td>
</tr>
<tr>
<td>alg211</td>
<td>Solving a quadratic equation needing simplification</td>
</tr>
<tr>
<td>alg703</td>
<td>Solving a word problem using a quadratic equation with rational roots</td>
</tr>
<tr>
<td>alg713</td>
<td>Using the Pythagorean Theorem and a quadratic equation to find side lengths of a right triangle</td>
</tr>
</tbody>
</table>

### Rational Expressions

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>alg049</td>
<td>Restriction on a variable in a denominator: Linear</td>
</tr>
<tr>
<td>alg467</td>
<td>Restriction on a variable in a denominator: Quadratic</td>
</tr>
<tr>
<td>alg468</td>
<td>Evaluating a rational function: Problem type 1</td>
</tr>
<tr>
<td>alg469</td>
<td>Evaluating a rational function: Problem type 2</td>
</tr>
<tr>
<td>alg715</td>
<td>Domain of a rational function: Excluded values</td>
</tr>
<tr>
<td>alg454</td>
<td>Simplifying a ratio of factored polynomials: Linear factors</td>
</tr>
<tr>
<td>alg455</td>
<td>Simplifying a ratio of factored polynomials: Factors with exponents</td>
</tr>
<tr>
<td>alg456</td>
<td>Simplifying a ratio of polynomials using GCF factoring</td>
</tr>
<tr>
<td>alg457</td>
<td>Simplifying a ratio of linear polynomials: 1, -1, and no simplification</td>
</tr>
<tr>
<td>alg458</td>
<td>Simplifying a ratio of polynomials by factoring a quadratic with leading coefficient 1</td>
</tr>
<tr>
<td>alg710</td>
<td>Simplifying a ratio of polynomials: Problem type 1</td>
</tr>
<tr>
<td>alg682</td>
<td>Simplifying a ratio of polynomials: Problem type 2</td>
</tr>
<tr>
<td>alg459</td>
<td>Simplifying a ratio of polynomials: Problem type 3</td>
</tr>
<tr>
<td>alg034</td>
<td>Simplifying a ratio of multivariate polynomials</td>
</tr>
<tr>
<td>alg053</td>
<td>Multiplying rational expressions involving multivariate monomials</td>
</tr>
<tr>
<td>alg460</td>
<td>Multiplying rational expressions made up of linear expressions</td>
</tr>
<tr>
<td>alg620</td>
<td>Multiplying rational expressions involving quadratics with leading coefficients of 1</td>
</tr>
<tr>
<td>alg461</td>
<td>Multiplying rational expressions involving quadratics with leading coefficients greater than 1</td>
</tr>
<tr>
<td>alg462</td>
<td>Multiplying rational expressions involving multivariate quadratics</td>
</tr>
</tbody>
</table>
alge054 Dividing rational expressions involving multivariate monomials
alge463 Dividing rational expressions involving linear expressions
alge766 Dividing rational expressions involving quadratics with leading coefficients of 1
alge464 Dividing rational expressions involving quadratics with leading coefficients greater than 1
alge465 Dividing rational expressions involving multivariate quadratics
alge466 Multiplication and division of 3 rational expressions
alge737 Introduction to the LCM of two monomials
alge055 Least common multiple of two monomials
alge428 Finding the LCD of rational expressions with linear denominators: Common factors
alge429 Finding the LCD of rational expressions with quadratic denominators
alge430 Writing equivalent rational expressions with monomial denominators
alge431 Writing equivalent rational expressions with polynomial denominators
alge304 Writing equivalent rational expressions involving opposite factors
alge433 Adding rational expressions with common denominators and monomial numerators
alge456 Adding rational expressions with common denominators and binomial numerators
alge434 Adding rational expressions with common denominators and GCF factoring
alge435 Adding rational expressions with common denominators and quadratic factoring
alge437 Adding rational expressions with denominators ax and bx: Basic
alge438 Adding rational expressions with denominators ax and bx: Advanced
alge439 Adding rational expressions with denominators axn and bxm
alge440 Adding rational expressions with multivariate monomial denominators: Basic
alge426 Adding rational expressions with multivariate monomial denominators: Advanced
alge441 Adding rational expressions with linear denominators without common factors: Basic
alge442 Adding rational expressions with linear denominators without common factors: Advanced
alge443 Adding rational expressions with linear denominators with common factors: Basic
alge444 Adding rational expressions with linear denominators with common factors: Advanced
alge445 Adding rational expressions with denominators ax-b and b-ax
alge661 Adding rational expressions involving different quadratic denominators
alge446 Adding 3 rational expressions with different quadratic denominators
alge470 Complex fraction involving univariate monomials
alge058 Complex fraction involving multivariate monomials
alge471 Complex fraction: GCF factoring
alge472 Complex fraction: Quadratic factoring
alge473 Complex fraction made of sums involving rational expressions: Problem type 1
alge474 Complex fraction made of sums involving rational expressions: Problem type 2
alge475 Complex fraction made of sums involving rational expressions: Problem type 3
alge476 Complex fraction made of sums involving rational expressions: Problem type 4
alge477 Complex fraction made of sums involving rational expressions: Problem type 5
alge478 Complex fraction made of sums involving rational expressions: Problem type 6
alge479 Complex fraction made of sums involving rational expressions: Multivariate
alge480 Complex fraction with negative exponents: Problem type 1
alge481 Complex fraction with negative exponents: Problem type 2
alge482 Complex fraction a complex fraction that contains a complex fraction
alge060 Solving a rational equation that simplifies to linear: Denominator x
alge205 Solving a rational equation that simplifies to linear: Denominator x+a
alge769 Solving a rational equation that simplifies to linear: Denominators a, x, or ax
alge421 Solving a rational equation that simplifies to linear: Denominators ax and bx
alge422 Solving a rational equation that simplifies to linear: Like binomial denominators
alge206 Solving a rational equation that simplifies to linear: Unlike binomial denominators
alge423 Solving a rational equation that simplifies to linear: Factorable quadratic denominator
alge424 Solving a rational equation that simplifies to quadratic: Proportional form, basic
alge425 Solving a rational equation that simplifies to quadratic: Denominator x
alge212 Solving a rational equation that simplifies to quadratic: Binomial denominators, constant numerators
alge062 Solving a rational equation that simplifies to quadratic: Binomial denominators and numerators
alge426 Solving a rational equation that simplifies to quadratic: Factorable quadratic denominator
alge047 Solving a rational equation that simplifies to quadratic: Proportional form, advanced
alge508 Solving for a variable in terms of other variables in a rational equation: Problem type 1
alge509 Solving for a variable in terms of other variables in a rational equation: Problem type 2
alge510 Solving for a variable in terms of other variables in a rational equation: Problem type 3
arith612 Word problem involving multiple rates
alge770 Solving a work problem using a rational equation
APPENDIX B. SYLLABI IN ALEKS

alge450 Solving a distance, rate, time problem using a rational equation
alge059 Ordering fractions with variables
alge982 Identifying direct variation equations
alge938 Identifying direct variation from ordered pairs and writing equations
alge904 Writing a direct variation equation
alge175 Word problem on direct variation
alge828 Interpreting direct variation from a graph
alge905 Writing an inverse variation equation
alge903 Identifying direct and inverse variation equations
alge902 Identifying direct and inverse variation from ordered pairs and writing equations
alge176 Word problem on inverse variation
alge220 Word problem on inverse proportions
pcalc681 Writing an equation that models variation
alge772 Word problem on combined variation

Radicals and Quadratic Equations

alge413 Finding all square roots of a number
arith760 Square roots of perfect squares with signs
alge415 Introduction to simplifying a radical expression with an even exponent
alge264 Square root of a perfect square monomial
arith769 Cube root of an integer
alge549 Finding nth roots of perfect nth powers with signs
arith768 Finding the nth root of a perfect nth power fraction
alge550 Finding the nth root of a perfect nth power monomial
arith769 Simplifying the square root of a whole number
arith789 Simplifying the square root of a whole number greater than 100
alge580 Simplifying a radical expression with an even exponent
alge520 Introduction to simplifying a radical expression with an odd exponent
alge521 Simplifying a radical expression with an odd exponent
alge275 Simplifying a radical expression with two variables
alge273 Simplifying a higher root of a whole number
alge551 Introduction to simplifying a higher radical expression
alge552 Simplifying a higher radical expression: Univariate
alge811 Simplifying a higher radical expression: Multivariate
arith766 Introduction to square root addition or subtraction
arith622 Square root addition or subtraction
alge533 Square root addition or subtraction with three terms
alge531 Introduction to simplifying a sum or difference of radical expressions: Univariate
alge532 Simplifying a sum or difference of radical expressions: Univariate
alge534 Simplifying a sum or difference of radical expressions: Multivariate
alge554 Simplifying a sum or difference of higher roots
alge555 Simplifying a sum or difference of higher radical expressions
arith764 Introduction to square root multiplication
arith765 Square root multiplication: Basic
arith603 Square root multiplication: Advanced
alge522 Introduction to simplifying a product of radical expressions: Univariate
alge523 Simplifying a product of radical expressions: Univariate
alge520 Simplifying a product of radical expressions: Multivariate
alge556 Introduction to simplifying a product of higher roots
alge557 Simplifying a product of higher radical expressions
alge525 Introduction to simplifying a product involving square roots using the distributive property
alge526 Simplifying a product involving square roots using the distributive property: Basic
alge276 Simplifying a product involving square roots using the distributive property: Advanced
alge774 Special products of radical expressions: Conjugates and squaring
alge504 Classifying sums and products as rational or irrational
arith766 Simplifying a quotient of square roots
alge530 Simplifying a quotient involving a sum or difference with a square root
alge527 Rationalizing a denominator: Quotient involving square roots
alge528 Rationalizing a denominator: Square root of a fraction
B.34. NCCCS DEVELOPMENTAL MATH MODULE 020

alge529 Rationalizing a denominator: Quotient involving a monomial
alge534 Rationalizing a denominator using conjugates: Integer numerator
alge535 Rationalizing a denominator using conjugates: Square root in numerator
alge536 Rationalizing a denominator using conjugates: Variable in denominator
alge564 Rationalizing a denominator: Quotient involving a higher radical
alge400 Introduction to solving a radical equation
alge089 Solving a radical equation that simplifies to a linear equation: One radical, basic
alge402 Solving a radical equation that simplifies to a linear equation: One radical, advanced
alge090 Solving a radical equation that simplifies to a linear equation: Two radicals
alge405 Solving a radical equation with two radicals that simplifies to $\sqrt{x} = a$
alge403 Solving a radical equation that simplifies to a quadratic equation: One radical, basic
alge404 Solving a radical equation that simplifies to a quadratic equation: One radical, advanced
alge411 Solving a radical equation with a quadratic expression under the radical
alge182 Solving a radical equation that simplifies to a quadratic equation: Two radicals
alge410 Solving an equation with a root index greater than 2: Problem type 1
alge417 Solving an equation with a root index greater than 2: Problem type 2
alge412 Algebraic symbol manipulation with radicals
alge542 Word problem involving radical equations: Basic
alge409 Word problem involving radical equations: Advanced
alge132 Distance between two points in the plane: Exact answers
alge539 Table for a square root function
alge540 Domain of a square root function: Basic
pcalc763 Domain of a square root function: Advanced
alge543 Graphing a square root function: Problem type 1
alge544 Graphing a square root function: Problem type 2
alge812 Converting between radical form and exponent form
alge560 Rational exponents: Unit fraction exponents and whole number bases
alge561 Rational exponents: Unit fraction exponents and bases involving signs
alge250 Rational exponents: Non-unit fraction exponent with a whole number base
alge251 Rational exponents: Negative exponents and fractional bases
alge558 Rational exponents: Product rule
alge559 Rational exponents: Quotient rule
alge773 Rational exponents: Products and quotients with negative exponents
alge562 Rational exponents: Power of a power rule
alge249 Rational exponents: Negative exponents and fractional bases
alge563 Rational exponents: Power of a power rule
alge778 Using $i$ to rewrite square roots of negative numbers
alge779 Solving a product and quotient involving square roots of negative numbers
pcalc048 Adding or subtracting complex numbers
pcalc049 Multiplying complex numbers
pcalc050 Dividing complex numbers
pcalc053 Simplifying a power of $i$
alge962 Solving an equation of the form $x^2 = a$ using the square root property
alge962 Solving a quadratic equation using the square root property: Exact answers, basic
alge227 Solving a quadratic equation using the square root property: Exact answers, advanced
alge904 Completing the square
alge780 Solving a quadratic equation by completing the square: Exact answers
alge095 Applying the quadratic formula: Exact answers
alge963 Applying the quadratic formula: Decimal answers
pcalc751 Solving a quadratic equation with complex roots
alge214 Discriminant of a quadratic equation
alge524 Solving a word problem using a quadratic equation with irrational roots
alge974 Finding the vertex, $x$-intercepts, and axis of symmetry from the graph of a parabola
alge953 Translating the graph of a parabola: One step
alge253 Graphing a parabola of the form $y = (x-h)^2 + k$
alge569 Graphing a parabola of the form $y = x^2 + bx + c$
pcalc746 Graphing a parabola of the form $y = ax^2 + bx + c$: Integer coefficients
pcalc747 Graphing a parabola of the form $y = ax^2 + bx + c$: Rational coefficients
alge277 Finding the $x$-intercept(s) and the vertex of a parabola
pcalc774 Rewriting a quadratic function to find the vertex of its graph
pcalc775 Finding the maximum or minimum of a quadratic function
alge785 Word problem involving the maximum or minimum of a quadratic function
APPENDIX B. SYLLABI IN ALEKS

ALGEBRA

alge975 Domain and range from the graph of a parabola
pcalc762 Range of a quadratic function
alge957 Solving a quadratic equation by graphing
alge996 Comparing properties of quadratic functions given in different forms
alge702 Classifying the graph of a function
alge723 How the leading coefficient affects the shape of a parabola
alge695 Identifying linear, quadratic, and exponential functions given ordered pairs
alge262 Graphing a cubic function of the form y = ax^3
fun019 Sum, difference, and product of two functions
fun022 Composition of two functions: Basic
pcalc776 Expressing a function as a composition of two functions
pcalc924 Determining whether an equation defines a function: Basic
pcalc757 Determining whether an equation defines a function: Advanced

B.35 NCCCS Developmental Math Module 030

Whole Numbers

arith124 Whole number place value: Problem type 1
arith125 Whole number place value: Problem type 2
arith066 Expanded form
arith643 Expanded form with zeros
arith028 Numerical translation: Problem type 1
arith060 Numerical translation: Problem type 2
arith633 One-digit addition with carry
arith634 Addition of 3 or 4 one-digit numbers
arith601 Addition without carry
arith635 Adding a 2-digit number and a 1-digit number with carry
arith650 Addition with carry
arith630 Addition with carry to the hundreds place
arith612 Addition of large numbers
arith636 Subtracting a 1-digit number from a 2-digit number
arith007 Subtraction without borrowing
arith128 Adding or subtracting 10, 100, or 1000
arith606 Subtraction with borrowing
arith682 Subtraction with multiple regrouping steps
arith637 Subtraction and regrouping with zeros
arith613 Word problem with addition or subtraction of whole numbers
arith655 Introduction to properties of addition
arith126 Multiplication as repeated addition
arith008 One-digit multiplication
arith679 Multiplication by 10, 100, and 1000
arith003 Multiplication without carry
arith604 Multiplication with carry
arith632 Multiplication with trailing zeros: Problem type 1
arith615 Introduction to multiplication of large numbers
arith638 Multiplication with trailing zeros: Problem type 2
arith614 Multiplication of large numbers
arith641 Multiples: Problem type 1
arith642 Multiples: Problem type 2
arith656 Introduction to properties of multiplication
arith675 Division facts
arith614 Word problem with multiplication or division of whole numbers
arith130 Word problem with multiplication and addition or subtraction of whole numbers
arith243 Division of whole numbers given in fractional form
arith711 Division involving zero
arith652 Division without carry
arith005 Division with carry
Fractions and Decimals

arith623 Introduction to fractions
arith665 Understanding equivalent fractions
arith212 Equivalent fractions
arith666 Introduction to simplifying a fraction
arith067 Simplifying a fraction
arith687 Fractional position on a number line
arith667 Plotting fractions on a number line
arith644 Ordering fractions with the same denominator
arith091 Ordering fractions with the same numerator
arith092 Using a common denominator to order fractions
arith079 Product of a unit fraction and a whole number
arith086 Product of a fraction and a whole number: Problem type 1
arith119 Introduction to fraction multiplication
arith053 Fraction multiplication
arith812 Product of a fraction and a whole number: Problem type 2
arith813 Multiplication of 3 fractions
arith818 Word problem involving fractions and multiplication
arith95 Multi-step word problem involving fractions and multiplication
arith888 The reciprocal of a number
arith694 Division involving a whole number and a fraction
arith022 Fraction division
arith819 Word problem involving fractions and division
arith618 Addition or subtraction of fractions with the same denominator
arith802 Addition or subtraction of fractions with the same denominator and simplification
arith801 Finding the LCD of two fractions
arith109 Addition or subtraction of unit fractions
arith664 Introduction to addition or subtraction of fractions with different denominators
arith230 Addition or subtraction of fractions with different denominators
arith803 Addition and subtraction of 3 fractions with different denominators
arith805 Word problem involving addition or subtraction of fractions with different denominators
arith100 Fractional part of a circle
arith662 Writing a mixed number and an improper fraction for a shaded region
arith015 Writing an improper fraction as a mixed number
arith619 Writing a mixed number as an improper fraction
arith215 Addition or subtraction of mixed numbers with the same denominator
arith804 Addition of mixed numbers with the same denominator and carry
arith216 Subtraction of mixed numbers with the same denominator and borrowing
arith806 Addition or subtraction of mixed numbers with different denominators and no carry or borrow
arith808 Addition of mixed numbers with different denominators and carry
arith809 Subtraction of mixed numbers with different denominators and borrowing
arith807 Addition and subtraction of 3 mixed numbers with different denominators
arith810 Word problem involving addition or subtraction of mixed numbers with different denominators
arith815 Mixed number multiplication
arith816 Multiplication of a mixed number and a whole number
arith817 Division with a mixed number and a whole number
arith618 Mixed number division
arith820 Word problem involving multiplication or division with mixed numbers
arith821 Exponents and fractions
arith859 Order of operations with fractions: Problem type 1
arith860 Order of operations with fractions: Problem type 2
arith861 Order of operations with fractions: Problem type 3
arith865 Complex fraction without variables: Problem type 1
arith127 Writing a decimal and a fraction for a shaded region
arith110 Decimal place value: Tenths and hundredths
arith20 Decimal place value: Hundreds to ten thousandths
arith714 Writing a decimal number less than 1 given its name
arith715 Writing a decimal number greater than 1 given its name: Advanced
arith716 Writing a decimal number given its name: Advanced
arith829 Reading decimal position on a number line: Tenths
arith830 Reading decimal position on a number line: Hundredths
arith831 Understanding decimal position on a number line using zoom: Hundredths
arith832 Understanding decimal position on a number line using zoom: Thousandths
arith129 Introduction to ordering decimals
arith608 Ordering decimals
arith221 Rounding decimals
arith717 Converting a decimal to a proper fraction without simplifying: Basic
arith719 Converting a decimal to a proper fraction without simplifying: Advanced
arith718 Converting a decimal to a proper fraction in simplest form: Basic
arith887 Converting a decimal to a proper fraction in simplest form: Advanced
arith721 Converting a decimal to a mixed number and an improper fraction without simplifying
arith722 Converting a decimal to a mixed number and an improper fraction in simplest form: Basic
arith724 Converting a decimal to a mixed number and an improper fraction in simplest form: Advanced
arith624 Addition of aligned decimals
Proportions and Percents

arith823 Writing ratios using different notations
arith663 Writing ratios for real-world situations
arith824 Simplifying a ratio of whole numbers: Problem type 1
arith825 Simplifying a ratio of decimals
arith827 Finding a unit price
arith828 Computing unit prices to find the better buy
arith864 Solving a word problem on proportions using a unit rate
arith228 Word problem on unit rates associated with ratios of whole numbers: Decimal answers
APPENDIX B. SYLLABI IN ALEKS

alg218 Solving a word problem involving rates and time conversion
alg272 Solving a proportion of the form \( x/a = b/c \)
arith610 Word problem on proportions: Problem type 1
arith611 Word problem on proportions: Problem type 2
alg063 Word problem on mixed number proportions
arith045 Word problem with powers of ten
geom359 Identifying congruent shapes on a grid
geom320 Identifying and naming congruent triangles
geom360 Identifying similar or congruent shapes on a grid
geom037 Similar polygons
geom038 Similar right triangles
geom337 Indirect measurement
arith836 Converting a fraction with a denominator of 100 to a percentage
arith837 Converting a percentage to a fraction with a denominator of 100
arith674 Finding the percentage of a grid that is shaded
arith723 Introduction to converting a percentage to a decimal
arith833 Introduction to converting a decimal to a percentage
arith834 Converting between percentages and decimals
arith841 Converting a mixed number percentage to a decimal
arith835 Converting between percentages and decimals in a real-world situation
arith870 Converting a percentage to a fraction in simplest form
arith839 Converting a decimal percentage to a fraction
arith838 Converting a fraction to a percentage: Denominator of 4, 5, or 10
arith802 Converting a fraction to a percentage: Denominator of 20, 25, or 50
arith843 Using a calculator to convert a fraction to a rounded percentage
arith842 Converting a fraction to a percentage in a real-world situation
arith840 Finding a percentage of a whole number without a calculator: Basic
arith844 Finding a percentage of a whole number without a calculator: Advanced
arith862 Applying the percent equation: Problem type 1
arith863 Applying the percent equation: Problem type 2
arith845 Finding a percentage of a total amount: Real-world situations
arith846 Finding a percentage of a total amount without a calculator: Sales tax, commission, discount
arith857 Estimating a tip without a calculator
arith809 Computing a percentage from a table of values
arith850 Finding the rate of a tax or commission
arith859 Finding the total amount given the percentage of a partial amount
arith851 Finding the final amount given the original amount and a percentage increase or decrease
arith847 Finding the sale price given the original price and percent discount
arith874 Finding the sale price without a calculator given the original price and percent discount
arith848 Finding the total cost including tax or markup
arith855 Finding the original amount given the result of a percentage increase or decrease
arith831 Finding the original price given the sale price and percent discount
arith858 Finding the percentage increase or decrease: Basic
arith225 Finding the percentage increase or decrease: Advanced
arith222 Finding simple interest without a calculator
arith856 Finding a percentage of a total amount in a circle graph
stat801 Computations from a circle graph

Geometry

geom339 Perimeter of a polygon
geom390 Perimeter of a square or a rectangle
geom618 Perimeter of a polygon involving mixed numbers and fractions
geom708 Sides of polygons having the same perimeter
geom221 Finding the missing length in a figure
geom353 Perimeter of a piecewise rectangular figure
geom358 Identifying parallel and perpendicular lines
geom349 Naming segments, rays, and lines
geom151 Measuring an angle with the protractor
geom152 Drawing an angle with the protractor
geom303 Acute, obtuse, and right angles
geom010 Finding supplementary and complementary angles
geom305 Identifying supplementary and vertical angles
geom304 Identifying corresponding and alternate angles
geom306 Acute, obtuse, and right triangles
geom307 Classifying scalene, isosceles, and equilateral triangles by side lengths or angles
geom001 Finding an angle measure of a triangle given two angles
geom908 Finding an angle measure for a triangle with an extended side
geom812 Finding an angle measure given extended triangles
geom813 Finding an angle measure given a triangle and parallel lines
geom361 Naming polygons
mstat042 Interpreting a Venn diagram of 2 sets
geom367 Identifying parallelograms, rectangles, and squares
geom310 Properties of quadrilaterals
geom352 Classifying parallelograms
geom019 Area of a square or a rectangle
geom866 Perimeter and area on a grid
geom620 Area of a rectangle involving fractions
geom619 Area of a rectangle involving mixed numbers and fractions
geom350 Distinguishing between the area and perimeter of a rectangle
geom351 Areas of rectangles with the same perimeter
geom217 Finding the side length of a rectangle given its perimeter or area
geom340 Area of a piecewise rectangular figure
geom142 Word problem involving the area between two rectangles
geom801 Area of a triangle
geom344 Area involving rectangles and triangles
geom022 Area of a parallelogram
geom023 Area of a trapezoid
geom347 Introduction to a circle: Diameter, radius, and chord
geom016 Circumference of a circle
geom301 Perimeter involving rectangles and circles
geom302 Area involving rectangles and circles
geom303 Word problem involving the area between two concentric circles
geom214 Area involving inscribed figures
geom814 Angle measure in a circle graph
geom358 Classifying solids
geom348 Vertices, edges, and faces of a solid
geom380 Counting the cubes in a solid made of cubes
geom354 Volume of a rectangular prism made of unit cubes
geom311 Volume of a rectangular prism
geom505 Volume of a piecewise rectangular prism
geom90 Volume of a triangular prism
geom033 Volume of a pyramid
geom035 Volume of a cylinder
geom92 Word problem involving the rate of filling or emptying a cylinder
geom022 Volume of a cone
geom841 Volume of a sphere
geom219 Nets of solids
geom816 Side views of a solid made of cubes
geom031 Surface area of a cube or a rectangular prism
geom345 Surface area of a piecewise rectangular prism made of unit cubes
geom91 Surface area of a triangular prism
geom621 Surface area of a cylinder
geom842 Surface area of a sphere
arith016 Square root of a perfect square
arith763 Using a calculator to approximate a square root
arith602 Estimating a square root
arith601 Square root of a rational perfect square
alge407 Introduction to the Pythagorean Theorem
geom404 Pythagorean Theorem
alge408 Word problem involving the Pythagorean Theorem

Measurement

mstat059 Choosing U.S. Customary measurement units
unit005 U.S. Customary unit conversion with whole number values
mstat035 Conversions involving measurements in feet and inches
mstat036 Adding measurements in feet and inches
unit006 U.S. Customary unit conversion with whole number values: Two-step conversion
unit007 U.S. Customary unit conversion with mixed number values: One-step conversion
unit008 U.S. Customary unit conversion with mixed number values: Two-step conversion
unit009 U.S. Customary area unit conversion with whole number values
unit001 Metric distance conversion with whole number values
unit002 Metric mass or capacity conversion with whole number values
unit003 Metric distance conversion with decimal values
unit004 Metric conversion with decimal values: Two-step problem
unit010 Metric area unit conversion with decimal values
unit012 Time unit conversion with whole number values
time006 Adding time
time007 Elapsed time
arith063 Word problem with clocks
mstat065 Converting between temperatures in Fahrenheit and Celsius
arith826 Simplifying a ratio of whole numbers: Problem type 2
unit034 Converting between metric and U.S. Customary unit systems
unit035 Converting between compound units: Basic
unit036 Converting between compound units: Advanced
mstat056 Interpreting a tally table
mstat037 Constructing a line plot
mstat005 Constructing a bar graph for non-numerical data
mstat004 Constructing a histogram for numerical data
mstat024 Interpreting a bar graph
mstat044 Interpreting a double bar graph
mstat057 Interpreting a pictograph table
mstat007 Interpreting a line graph
mstat031 Interpreting a stem-and-leaf plot
stat804 Interpreting a circle graph or pie chart
stat020 Calculating relative frequencies in a contingency table
stat805 Making a reasonable inference based on proportion statistics
mstat025 Finding if a question can be answered by the data
mstat003 Mode of a data set
mstat055 Finding the mode and range of a data set
arith103 Average of two numbers
mstat001 Mean of a data set
mstat028 Mean and median of a data set
mstat029 How changing a value affects the mean and median
mstat053 Choosing the best measure to describe data
stat802 Rejecting unreasonable claims based on average statistics
mstat066 Weighted mean
mstat027 Using back-to-back stem-and-leaf plots to compare data sets
mstat072 Five-number summary and interquartile range
mstat006 Constructing a box-and-whisker plot
mstat073 Using box-and-whisker plots to compare data sets
mstat043 Interpreting a Venn diagram of 3 sets
mstat041 Interpreting a tree diagram
mstat040 Introduction to the counting principle
mstat015 Counting principle
pcalc082 Factorial expressions
B.35. **NCCCS DEVELOPMENTAL MATH MODULE 030**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>mstat017</td>
<td>Computing permutations and combinations</td>
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<tr>
<td>mstat008</td>
<td>Word problem involving permutations</td>
</tr>
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<td>mstat009</td>
<td>Word problem involving combinations</td>
</tr>
<tr>
<td>mstat026</td>
<td>Introduction to the probability of an event</td>
</tr>
<tr>
<td>mstat010</td>
<td>Probability of an event</td>
</tr>
<tr>
<td>mstat039</td>
<td>Understanding likelihood</td>
</tr>
<tr>
<td>mstat048</td>
<td>Odds of an event</td>
</tr>
<tr>
<td>stat106</td>
<td>Outcomes and event probability</td>
</tr>
<tr>
<td>stat112</td>
<td>Probabilities involving two dice</td>
</tr>
<tr>
<td>mstat011</td>
<td>Area as probability</td>
</tr>
<tr>
<td>mstat046</td>
<td>Experimental and theoretical probability</td>
</tr>
<tr>
<td>mstat047</td>
<td>Introduction to expectation</td>
</tr>
<tr>
<td>mstat012</td>
<td>Probability of independent events</td>
</tr>
<tr>
<td>mstat013</td>
<td>Probability of dependent events</td>
</tr>
<tr>
<td>mstat032</td>
<td>Probability of the union of two events</td>
</tr>
</tbody>
</table>

### Real Numbers

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>alge286</td>
<td>Plotting integers on a number line</td>
</tr>
<tr>
<td>arith605</td>
<td>Plotting rational numbers on a number line</td>
</tr>
<tr>
<td>mstat038</td>
<td>Reading the temperature from a thermometer</td>
</tr>
<tr>
<td>arith699</td>
<td>Writing a signed number for a real-world situation</td>
</tr>
<tr>
<td>arith691</td>
<td>Ordering integers</td>
</tr>
<tr>
<td>arith712</td>
<td>Ordering real numbers</td>
</tr>
<tr>
<td>arith071</td>
<td>Absolute value of a number</td>
</tr>
<tr>
<td>arith200</td>
<td>Integer addition: Problem type 1</td>
</tr>
<tr>
<td>arith108</td>
<td>Integer addition: Problem type 2</td>
</tr>
<tr>
<td>arith688</td>
<td>Integer subtraction: Problem type 1</td>
</tr>
<tr>
<td>arith689</td>
<td>Integer subtraction: Problem type 2</td>
</tr>
<tr>
<td>arith690</td>
<td>Integer subtraction: Problem type 3</td>
</tr>
<tr>
<td>arith754</td>
<td>Addition and subtraction with 3 integers</td>
</tr>
<tr>
<td>arith755</td>
<td>Addition and subtraction with 4 or 5 integers</td>
</tr>
<tr>
<td>arith701</td>
<td>Word problem with addition or subtraction of integers</td>
</tr>
<tr>
<td>arith231</td>
<td>Integer multiplication and division</td>
</tr>
<tr>
<td>arith800</td>
<td>Multiplication of 3 or 4 integers</td>
</tr>
<tr>
<td>alge001</td>
<td>Identifying numbers as integers or non-integers</td>
</tr>
<tr>
<td>alge002</td>
<td>Identifying numbers as rational or irrational</td>
</tr>
<tr>
<td>arith116</td>
<td>Signed fraction addition or subtraction: Basic</td>
</tr>
<tr>
<td>arith864</td>
<td>Signed fraction subtraction involving double negation</td>
</tr>
<tr>
<td>arith106</td>
<td>Signed fraction addition or subtraction: Advanced</td>
</tr>
<tr>
<td>arith811</td>
<td>Addition and subtraction of 3 fractions involving signs</td>
</tr>
<tr>
<td>arith822</td>
<td>Signed fraction multiplication: Basic</td>
</tr>
<tr>
<td>arith105</td>
<td>Signed fraction multiplication: Advanced</td>
</tr>
<tr>
<td>arith814</td>
<td>Signed fraction division</td>
</tr>
<tr>
<td>arith117</td>
<td>Signed decimal addition and subtraction</td>
</tr>
<tr>
<td>arith234</td>
<td>Signed decimal addition and subtraction with 3 numbers</td>
</tr>
<tr>
<td>arith750</td>
<td>Signed decimal multiplication</td>
</tr>
<tr>
<td>arith751</td>
<td>Signed decimal division</td>
</tr>
<tr>
<td>arith104</td>
<td>Operations with absolute value: Problem type 2</td>
</tr>
<tr>
<td>geom525</td>
<td>Computing distances between decimals on the number line</td>
</tr>
<tr>
<td>unit052</td>
<td>Finding the absolute error and percent error of a measurement</td>
</tr>
<tr>
<td>arith702</td>
<td>Exponents and integers: Problem type 1</td>
</tr>
<tr>
<td>arith703</td>
<td>Exponents and integers: Problem type 2</td>
</tr>
<tr>
<td>arith704</td>
<td>Exponents and signed fractions</td>
</tr>
<tr>
<td>arith118</td>
<td>Order of operations with integers</td>
</tr>
<tr>
<td>arith600</td>
<td>Order of operations with integers and exponents</td>
</tr>
<tr>
<td>arith696</td>
<td>Complex fraction without variables: Problem type 2</td>
</tr>
<tr>
<td>alge065</td>
<td>Evaluating a linear expression: Integer multiplication with addition or subtraction</td>
</tr>
<tr>
<td>alge808</td>
<td>Evaluating a linear expression: Signed fraction multiplication with addition or subtraction</td>
</tr>
<tr>
<td>alge302</td>
<td>Evaluating a linear expression: Signed decimal addition and subtraction</td>
</tr>
</tbody>
</table>
alge303 Evaluating a linear expression: Signed decimal multiplication with addition or subtraction
alge004 Evaluating a quadratic expression: Integers
alge700 Combining like terms: Whole number coefficients
alge607 Combining like terms: Integer coefficients
alge187 Properties of addition
alge310 Multiplying a constant and a linear monomial
alge606 Distributive property: Whole number coefficients
alge604 Distributive property: Integer coefficients
alge188 Properties of real numbers
alge608 Using distribution and combining like terms to simplify: Univariate
alge609 Using distribution with double negation and combining like terms to simplify: Multivariate
alge293 Combining like terms in a quadratic expression
alge432 Introduction to adding fractions with variables and common denominators
alge436 Adding rational expressions with different denominators and a single occurrence of a variable

Linear Equations and Inequalities

alge801 Additive property of equality with fractions and mixed numbers
alge800 Additive property of equality with decimals
alge010 Additive property of equality with integers
alge836 Additive property of equality with signed fractions
alge820 Multiplicative property of equality with fractions
alge825 Multiplicative property of equality with decimals
alge797 Multiplicative property of equality with integers
alge012 Multiplicative property of equality with signed fractions
alge834 Identifying solutions to a linear equation in one variable: Two-step equations
alge266 Additive property of equality with a negative coefficient
alge006 Solving a two-step equation with integers
alge200 Solving an equation to find the value of an expression
alge920 Introduction to solving an equation with parentheses
alge837 Solving a multi-step equation given in fractional form
alge986 Identifying properties used to solve a linear equation
alge824 Solving a two-step equation with signed decimals
alge838 Introduction to solving an equation with variables on the same side
alge862 Solving a linear equation with several occurrences of the variable: Variables on the same side
alge863 Solving a linear equation with several occurrences of the variable: Variables on both sides
alge011 Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
alge013 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
alge209 Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions
alge420 Solving a linear equation with several occurrences of the variable: Fractional forms with monomial numerators
alge208 Solving a two-step equation with signed fractions
alge061 Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
alge179 Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators
alge742 Solving equations with zero, one, or infinitely many solutions
alge840 Solving a proportion of the form (x+a)/b = c/d
alge271 Solving a proportion of the form a/(x+b) = c/x
alge603 Introduction to solving an absolute value equation
alge864 Solving an absolute value equation: Problem type 1
alge511 Solving for a variable in terms of other variables using addition or subtraction: Basic
alge512 Solving for a variable in terms of other variables using addition or subtraction: Advanced
alge513 Solving for a variable in terms of other variables using multiplication or division: Basic
alge514 Solving for a variable in terms of other variables using multiplication or division: Advanced
alge517 Solving for a variable in terms of other variables using addition or subtraction with division
alge518 Solving for a variable inside parentheses in terms of other variables
alge507 Solving for a variable in terms of other variables in a linear equation with fractions
alge733 Writing a one-step expression for a real-world situation
alge831 Translating a phrase into a one-step expression
alge291 Translating a phrase into a two-step expression
alge016 Translating a sentence into a one-step equation
alge841 Translating a sentence into a multi-step equation
alge802 Solving a fraction word problem using a linear equation of the form $Ax = B$
alge014 Solving a word problem with two unknowns using a linear equation
alge173 Solving a decimal word problem using a linear equation of the form $Ax + B = C$
alge740 Writing a multi-step equation for a real-world situation
alge219 Solving a decimal word problem using a linear equation with the variable on both sides
alge704 Solving a fraction word problem using a linear equation with the variable on both sides
alge792 Solving a word problem with three unknowns using a linear equation
alge842 Solving a word problem involving consecutive integers
alge794 Solving a value mixture problem using a linear equation
alge796 Solving a distance, rate, time problem using a linear equation
arith854 Computing a percent mixture
ggeom817 Finding a side length given the perimeter and side lengths with variables
ggeom143 Finding the perimeter or area of a rectangle given one of these values
ggeom218 Finding the radius or the diameter of a circle given its circumference
ggeom838 Circumference ratios
ggeom530 Solving equations involving vertical angles
ggeom531 Solving equations involving angles and a pair of parallel lines
ggeom823 Finding angle measures of a triangle given angles with variables
ggeom828 Finding angle measures of a right or isosceles triangle given angles with variables
stat803 Finding the value for a new score that will yield a given mean
alge015 Translating a sentence by using an inequality symbol
alge845 Translating a sentence into a one-step inequality
alge846 Translating a sentence into a multi-step inequality
alge748 Writing an inequality for a real-world situation
alge017 Graphing a linear inequality on the number line
alge822 Writing an inequality given a graph on the number line
alge186 Translating a sentence into a compound inequality
alge166 Graphing a compound inequality on the number line
alge847 Writing a compound inequality given a graph on the number line
set001 Set builder notation
set004 Set builder and interval notation
set002 Union and intersection of finite sets
alge814 Identifying solutions to a two-step linear inequality in one variable
alge848 Additive property of inequality with whole numbers
alge849 Additive property of inequality with integers
alge852 Additive property of inequality with signed fractions
alge853 Additive property of inequality with signed decimals
alge854 Multiplicative property of inequality with integers
alge964 Multiplicative property of inequality with signed fractions
alge855 Solving a two-step linear inequality: Problem type 1
alge856 Solving a two-step linear inequality: Problem type 2
alge857 Solving a two-step linear inequality with a fractional coefficient
alge977 Solving a linear inequality with multiple occurrences of the variable: Problem type 1
alge858 Solving a linear inequality with multiple occurrences of the variable: Problem type 2
alge859 Solving a linear inequality with multiple occurrences of the variable: Problem type 3
alge860 Solving inequalities with no solution or all real numbers as solutions
alge746 Solving a compound linear inequality: Graph solution, basic
alge747 Solving a compound linear inequality: Interval notation
alge868 Solving an absolute value inequality: Problem type 1
alge749 Solving a decimal word problem using a two-step linear inequality
alge750 Solving a decimal word problem using a linear inequality with the variable on both sides

Lines and Functions
APPENDIX B. SYLLABI IN ALEKS

alge064 Reading a point in the coordinate plane
alge067 Plotting a point in the coordinate plane
alge850 Table for a linear equation
alge873 Identifying solutions to a linear equation in two variables
alge066 Finding a solution to a linear equation in two variables
alge191 Midpoint of a line segment in the plane
alge877 Graphing a linear equation of the form y = mx
alge878 Graphing a line given its equation in slope-intercept form: Integer slope
alge879 Graphing a line given its equation in slope-intercept form: Fractional slope
alge880 Graphing a line given its equation in standard form
alge198 Graphing a vertical or horizontal line
alge884 Finding x- and y-intercepts given the graph of a line on a grid
alge924 Finding x- and y-intercepts of a line given the equation: Basic
alge210 Finding x- and y-intercepts of a line given the equation: Advanced
alge197 Graphing a line given its x- and y-intercepts
alge881 Graphing a line by first finding its x- and y-intercepts
alge875 Classifying slopes given graphs of lines
alge886 Finding slope given the graph of a line on a grid
alge887 Finding slope given two points on the line
alge885 Finding the slope of horizontal and vertical lines
alge888 Finding the coordinate that yields a given slope
alge259 Graphing a line given its slope and y-intercept
alge196 Graphing a line through a given point with a given slope
alge876 Identifying linear equations: Advanced
alge874 Identifying linear functions given ordered pairs
alge891 Rewriting a linear equation in the form Ax + By = C
alge889 Finding the slope and y-intercept of a line given its equation in the form y = mx + b
alge890 Finding the slope and y-intercept of a line given its equation in the form Ax+By=C
alge882 Graphing a line by first finding its slope and y-intercept
alge258 Writing an equation of a line given its slope and y-intercept
alge892 Writing an equation and graphing a line given its slope and y-intercept
alge893 Writing an equation in slope-intercept form given the slope and a point
alge883 Graphing a line given its equation in point-slope form
alge894 Writing an equation in point-slope form given the slope and a point
alge070 Writing an equation of a line given the y-intercept and another point
alge072 Writing the equation of the line through two given points
alge073 Writing the equations of vertical and horizontal lines through a given point
geom806 Finding slopes of lines parallel and perpendicular to a line given in slope-intercept form
geom807 Finding slopes of lines parallel and perpendicular to a line given in the form Ax + By = C
alge895 Identifying parallel and perpendicular lines from equations
geom808 Writing equations of lines parallel and perpendicular to a given line through a point
alge897 Writing and evaluating a function that models a real-world situation: Advanced
alge701 Writing an equation and drawing its graph to model a real-world situation: Advanced
fun006 Writing a function rule given a table of ordered pairs: Two-step rules
fun005 Writing a function rule given a table of ordered pairs: One-step rules
alge992 Combining functions to write a new function that models a real-world situation
alge987 Comparing properties of linear functions given in different forms
alge989 Interpreting the parameters of a linear function that models a real-world situation
alge805 Application problem with a linear function: Finding a coordinate given the slope and a point
alge806 Application problem with a linear function: Finding a coordinate given two points
mstat052 Identifying independent and dependent variables from equations or real-world situations
alge991 Solving a linear equation by graphing
mstat030 Sketching the line of best fit
mstat023 Scatter plots and correlation
mstat068 Predictions from the line of best fit
mstat067 Approximating the equation of a line of best fit and making predictions
mstat069 Computing residuals
mstat070 Interpreting residual plots
mstat071 Linear relationship and the correlation coefficient
mstat074 Identifying correlation and causation
alge898 Translating the graph of an absolute value function: One step
alge899 Translating the graph of an absolute value function: Two steps
alge913 Graphing an absolute value equation of the form \( y = A - x - \)
alge900 Graphing an absolute value equation in the plane: Basic
alge168 Graphing an absolute value equation in the plane: Advanced
alge901 How the leading coefficient affects the graph of an absolute value function
fun032 Identifying functions from relations
fun010 Vertical line test
fun016 Domain and range from ordered pairs
fun001 Table for a linear function
calc760 Evaluating functions: Linear and quadratic or cubic
fun033 Variable expressions as inputs of functions: Problem type 1
alge294 Finding outputs of a one-step function that models a real-world situation: Function notation
alge295 Finding outputs of a two-step function with decimals that models a real-world situation: Function notation
alge296 Finding inputs and outputs of a two-step function that models a real-world situation: Function notation
fun090 Domain and range of a linear function that models a real-world situation
fun026 Finding an output of a function from its graph
calc761 Finding inputs and outputs of a function from its graph
fun007 Domain and range from the graph of a discrete relation
fun024 Domain and range from the graph of a continuous function
alge896 Graphing an integer function and finding its range for a given domain
alge570 Graphing a function of the form \( f(x) = ax + b \): Integer slope
alge571 Graphing a function of the form \( f(x) = ax + b \): Fractional slope
alge954 Graphing a parabola of the form \( y = ax^2 \)
alge955 Graphing a parabola of the form \( y = ax^2 + c \)
alge572 Graphing a function of the form \( f(x) = ax^2 \)
alge573 Graphing a function of the form \( f(x) = ax^2 + c \)
calc750 Finding intercepts of a nonlinear function given its graph
calc751 Finding where a function is increasing, decreasing, or constant given the graph: Interval notation
calc752 Finding local maxima and minima of a function given the graph
mstat018 Choosing a graph to fit a narrative: Basic
mstat051 Choosing a graph to fit a narrative: Advanced

Systems

alge914 Identifying solutions to a system of linear equations
alge075 Classifying systems of linear equations from graphs
alge725 Graphically solving a system of linear equations
alge751 Solving a system of linear equations using substitution
alge915 Solving a system of linear equations using elimination with addition
alge076 Solving a system of linear equations using elimination with multiplication and addition
alge916 Solving a system of linear equations with fractional coefficients
alge917 Solving a system of linear equations with decimal coefficients
alge752 Solving a 2x2 system of linear equations that is inconsistent or consistent dependent
alge988 Identifying the operations used to create equivalent systems of equations
alge753 Solving a 3x3 system of linear equations: Problem type 1
alge263 Interpreting the graphs of two functions
alge078 Solving a word problem involving a sum and another basic relationship using a system of linear equations
alge919 Solving a word problem using a system of linear equations of the form \( Ax + By = C \)
alge918 Solving a word problem using a system of linear equations of the form \( y = mx + b \)
alge184 Solving a value mixture problem using a system of linear equations
alge192 Solving a percent mixture problem using a system of linear equations
alge224 Solving a distance, rate, time problem using a system of linear equations
alge172 Solving a tax rate or interest rate problem using a system of linear equations
alge703 Solving a word problem using a 3x3 system of linear equations: Problem type 1
alge912 Identifying solutions to a linear inequality in two variables
alge225 Graphing a linear inequality in the plane: Vertical or horizontal line
alge729 Graphing a linear inequality in the plane: Slope-intercept form
alge918 Graphing a linear inequality in the plane: Standard form
alge079 Graphing a system of two linear inequalities: Basic
alge921 Graphing a system of two linear inequalities: Advanced
Exponents and Polynomials

alge922 Graphing a system of three linear inequalities
alge729 Writing a multi-step inequality for a real-world situation
pcalc093 Solving a word problem using a system of linear inequalities: Problem type 1
alge798 Simplifying a sum or difference of two univariate polynomials
alge029 Simplifying a sum or difference of three univariate polynomials
alge932 Simplifying a sum or difference of multivariate polynomials
alge735 Multiplying a univariate polynomial by a monomial with a positive coefficient
alge972 Multiplying a univariate polynomial by a monomial with a negative coefficient
alge835 Multiplying a multivariate polynomial by a monomial
alge033 Multiplying binomials with leading coefficients of 1
alge983 Multiplying binomials with leading coefficients greater than 1
alge765 Multiplying binomials in two variables
alge764 Multiplying conjugate binomials: Univariate
alge081 Multiplying conjugate binomials: Multivariate
alge032 Squaring a binomial: Univariate
alge068 Squaring a binomial: Multivariate
alge973 Multiplying binomials with negative coefficients
alge905 Multiplication involving binomials and trinomials in one variable
alge180 Multiplication involving binomials and trinomials in two variables
alge759 Dividing a polynomial by a monomial: Univariate
alge760 Dividing a polynomial by a monomial: Multivariate
alge761 Polynomial long division: Problem type 1
alge762 Polynomial long division: Problem type 2
alge763 Polynomial long division: Problem type 3
alge985 Closure properties of integers and polynomials
alge605 Factoring a linear binomial
alge736 Introduction to the GCF of two monomials
alge930 Greatest common factor of three univariate monomials
alge037 Greatest common factor of two multivariate monomials
alge738 Factoring out a monomial from a polynomial: Univariate
alge739 Factoring out a monomial from a polynomial: Multivariate
alge949 Factoring out a binomial from a polynomial: GCF factoring, basic
alge923 Factoring a univariate polynomial by grouping: Problem type 1
alge950 Factoring a univariate polynomial by grouping: Problem type 2
alge951 Factoring a multivariate polynomial by grouping: Problem type 1
alge952 Factoring a multivariate polynomial by grouping: Problem type 2
alge639 Factoring a quadratic with leading coefficient 1
alge942 Factoring a quadratic in two variables with leading coefficient 1
alge936 Factoring out a constant before factoring a quadratic
alge939 Factoring a quadratic with leading coefficient greater than 1: Problem type 1
alge940 Factoring a quadratic with leading coefficient greater than 1: Problem type 2
alge941 Factoring a quadratic with leading coefficient greater than 1: Problem type 3
alge978 Factoring a quadratic by the ac-method
alge205 Factoring a quadratic in two variables with leading coefficient greater than 1
alge937 Factoring a quadratic with a negative leading coefficient
alge944 Factoring a perfect square trinomial with leading coefficient 1
alge945 Factoring a perfect square trinomial with leading coefficient greater than 1
alge946 Factoring a perfect square trinomial in two variables
alge290 Factoring a difference of squares in one variable: Basic
alge947 Factoring a difference of squares in one variable: Advanced
alge839 Factoring a difference of squares in two variables
alge948 Factoring a polynomial involving a GCF and a difference of squares: Univariate
alge833 Factoring a polynomial involving a GCF and a difference of squares: Multivariate
alge041 Factoring a product of a quadratic trinomial and a monomial
alge942 Factoring with repeated use of the difference of squares formula
alge944 Factoring a sum or difference of two cubes
alge681 Solving an equation written in factored form
alge956 Finding the roots of a quadratic equation of the form $ax^2 + bx = 0$
alge045 Finding the roots of a quadratic equation with leading coefficient 1
alge048 Finding the roots of a quadratic equation with leading coefficient greater than 1
alge211 Solving a quadratic equation needing simplification
alge703 Solving a word problem using a quadratic equation with rational roots
alge713 Using the Pythagorean Theorem and a quadratic equation to find side lengths of a right triangle
Rational Expressions

alge049 Restriction on a variable in a denominator: Linear
alge467 Restriction on a variable in a denominator: Quadratic
alge468 Evaluating a rational function: Problem type 1
alge469 Evaluating a rational function: Problem type 2
alge715 Domain of a rational function: Excluded values
alge455 Simplifying a ratio of factored polynomials: Linear factors
alge456 Simplifying a ratio of polynomials using GCF factoring
alge457 Simplifying a ratio of linear polynomials: 1, -1, and no simplification
alge458 Simplifying a ratio of polynomials by factoring a quadratic with leading coefficient 1
alge710 Simplifying a ratio of polynomials: Problem type 1
alge682 Simplifying a ratio of polynomials: Problem type 2
alge459 Simplifying a ratio of polynomials: Problem type 3
alge604 Simplifying a ratio of multivariate polynomials
alge053 Multiplying rational expressions involving multivariate monomials
alge710 Multiplying rational expressions: Excluded values
alge460 Multiplying rational expressions made up of linear expressions
alge620 Multiplying rational expressions involving quadratics with leading coefficients of 1
alge461 Multiplying rational expressions involving quadratics with leading coefficients greater than 1
alge462 Multiplying rational expressions involving multivariate quadratics
alge054 Dividing rational expressions involving multivariate monomials
alge463 Dividing rational expressions involving linear expressions
alge766 Dividing rational expressions involving quadratics with leading coefficients of 1
alge464 Dividing rational expressions involving quadratics with leading coefficients greater than 1
alge465 Dividing rational expressions involving multivariate quadratics
alge466 Multiplication and division of 3 rational expressions
alge737 Introduction to the LCM of two monomials
alge055 Least common multiple of two monomials
alge427 Finding the LCD of rational expressions with linear denominators: Relatively prime
alge428 Finding the LCD of rational expressions with linear denominators: Common factors
alge429 Finding the LCD of rational expressions with quadratic denominators
alge430 Writing equivalent rational expressions with monomial denominators
alge431 Writing equivalent rational expressions with polynomial denominators
alge432 Writing equivalent rational expressions involving opposite factors
alge433 Adding rational expressions with common denominators and monomial numerators
alge056 Adding rational expressions with common denominators and binomial numerators
alge434 Adding rational expressions with common denominators and GCF factoring
alge435 Adding rational expressions with common denominators and quadratic factoring
alge436 Adding rational expressions with common denominators and factoring
alge437 Adding rational expressions with denominators ax and bx: Basic
alge438 Adding rational expressions with denominators ax and bx: Advanced
alge439 Adding rational expressions with denominators axn and bxm
alge440 Adding rational expressions with multivariate monomial denominators: Basic
alge226 Adding rational expressions with multivariate monomial denominators: Advanced
alge441 Adding rational expressions with linear denominators without common factors: Basic
alge442 Adding rational expressions with linear denominators without common factors: Advanced
alge443 Adding rational expressions with linear denominators with common factors: Basic
alge444 Adding rational expressions with linear denominators with common factors: Advanced
alge445 Adding rational expressions with denominators ax-b and b-ax
alge661 Adding rational expressions involving different quadratic denominators
alge446 Adding 3 rational expressions with different quadratic denominators
alge470 Complex fraction involving univariate monomials
alge058 Complex fraction involving multivariate monomials
alge471 Complex fraction: GCF factoring
alge472 Complex fraction: Quadratic factoring
alge473 Complex fraction made of sums involving rational expressions: Problem type 1
alge474 Complex fraction made of sums involving rational expressions: Problem type 2
alge475 Complex fraction made of sums involving rational expressions: Problem type 3
alge476 Complex fraction made of sums involving rational expressions: Problem type 4
alge477 Complex fraction made of sums involving rational expressions: Problem type 5
alge478 Complex fraction made of sums involving rational expressions: Problem type 6
alge479 Complex fraction made of sums involving rational expressions: Multivariate
alge480 Complex fraction with negative exponents: Problem type 1
alge481 Complex fraction with negative exponents: Problem type 2
alge162 Complex fraction that contains a complex fraction
alge060 Solving a rational equation that simplifies to linear: Denominator x
alge205 Solving a rational equation that simplifies to linear: Denominator x+a
alge769 Solving a rational equation that simplifies to linear: Denominators a, x, or ax
alge421 Solving a rational equation that simplifies to linear: Denominators ax and bx
alge422 Solving a rational equation that simplifies to linear: Like binomial denominators
alge423 Solving a rational equation that simplifies to linear: Factorable quadratic denominator
alge424 Solving a rational equation that simplifies to quadratic: Proportional form, basic
alge425 Solving a rational equation that simplifies to quadratic: Denominator x
alge212 Solving a rational equation that simplifies to quadratic: Binomial denominators, constant numerators
alge062 Solving a rational equation that simplifies to quadratic: Binomial denominators and numerators
alge426 Solving a rational equation that simplifies to quadratic: Factorable quadratic denominator
alge047 Solving a rational equation that simplifies to quadratic: Proportional form, advanced
alge508 Solving for a variable in terms of other variables in a rational equation: Problem type 1
alge509 Solving for a variable in terms of other variables in a rational equation: Problem type 2
alge510 Solving for a variable in terms of other variables in a rational equation: Problem type 3
arith612 Word problem involving multiple rates
alge770 Solving a work problem using a rational equation
alge450 Solving a distance, rate, time problem using a rational equation
alge059 Ordering fractions with variables
alge982 Identifying direct variation equations
alge938 Identifying direct variation from ordered pairs and writing equations
alge904 Writing a direct variation equation
alge175 Word problem on direct variation
alge828 Interpreting direct variation from a graph
alge905 Writing an inverse variation equation
alge903 Identifying direct and inverse variation equations
alge902 Identifying direct and inverse variation from ordered pairs and writing equations
alge176 Word problem on inverse variation
alge220 Word problem on inverse proportions
pcalc681 Writing an equation that models variation
alge772 Word problem on combined variation

Radicals and Quadratic Equations

alge413 Finding all square roots of a number
arith760 Square roots of perfect squares with signs
alge415 Introduction to simplifying a radical expression with an even exponent
alge264 Square root of a perfect square monomial
arith094 Cube root of an integer
alge549 Finding nth roots of perfect nth powers with signs
arith768 Finding the nth root of a perfect nth power fraction
alge550 Finding the nth root of a perfect nth power monomial
arith093 Simplifying the square root of a whole number less than 100
arith762 Simplifying the square root of a whole number greater than 100
alge508 Simplifying a radical expression with an even exponent
alge520 Introduction to simplifying a radical expression with an odd exponent
alge521 Simplifying a radical expression with an odd exponent
alge275 Simplifying a radical expression with two variables
alge273 Simplifying a higher root of a whole number
alge551 Introduction to simplifying a higher radical expression
alge552 Simplifying a higher radical expression: Univariate
alge811 Simplifying a higher radical expression: Multivariate
arith767 Introduction to square root addition or subtraction
arith632 Square root addition or subtraction
alge533 Square root addition or subtraction with three terms
alge531 Introduction to simplifying a sum or difference of radical expressions: Univariate
APPENDIX B. SYLLABI IN ALEKS

alg0532 Simplifying a sum or difference of radical expressions: Univariate
alg084 Simplifying a sum or difference of radical expressions: Multivariate
alg0554 Simplifying a sum or difference of higher roots
alg0555 Simplifying a sum or difference of higher radical expressions
arith764 Introduction to square root multiplication
arith765 Square root multiplication: Basic
arith639 Square root multiplication: Advanced
alg0522 Introduction to simplifying a product of radical expressions: Univariate
alg0523 Simplifying a product of radical expressions: Univariate
alg0640 Simplifying a product of radical expressions: Multivariate
alg0556 Introduction to simplifying a product of higher roots
alg0557 Simplifying a product of higher radical expressions
alg0525 Introduction to simplifying a product involving square roots using the distributive property
alg0526 Simplifying a product involving square roots using the distributive property: Basic
alg0276 Simplifying a product involving square roots using the distributive property: Advanced
alg0774 Special products of radical expressions: Conjugates and squaring
alg0984 Classifying sums and products as rational or irrational
arith766 Simplifying a quotient of square roots
alg0530 Simplifying a quotient involving a sum or difference with a square root
alg0527 Rationalizing a denominator: Quotient involving square roots
alg0528 Rationalizing a denominator: Square root of a fraction
alg0529 Rationalizing a denominator: Quotient involving a monomial
alg0534 Rationalizing a denominator using conjugates: Integer numerator
alg0535 Rationalizing a denominator using conjugates: Square root in numerator
alg0536 Rationalizing a denominator using conjugates: Variable in denominator
alg0564 Rationalizing a denominator: Quotient involving a higher radical
alg0400 Introduction to solving a radical equation
alg089 Solving a radical equation that simplifies to a linear equation: One radical, basic
alg0402 Solving a radical equation that simplifies to a linear equation: One radical, advanced
alg0900 Solving a radical equation that simplifies to a linear equation: Two radicals
alg0405 Solving a radical equation with two radicals that simplifies to sqrt(x) = a
alg0403 Solving a radical equation that simplifies to a quadratic equation: One radical, basic
alg0404 Solving a radical equation that simplifies to a quadratic equation: One radical, advanced
alg0411 Solving a radical equation with a quadratic expression under the radical
alg0402 Solving a radical equation that simplifies to a quadratic equation: Two radicals
alg0410 Solving an equation with a root index greater than 2: Problem type 1
alg0417 Solving an equation with a root index greater than 2: Problem type 2
alg0412 Algebraic symbol manipulation with radicals
alg0542 Word problem involving radical equations: Basic
alg0409 Word problem involving radical equations: Advanced
alg132 Distance between two points in the plane: Exact answers
alg0539 Table for a square root function
alg0540 Domain of a square root function: Basic
pcalc763 Domain of a square root function: Advanced
alg0543 Graphing a square root function: Problem type 1
alg0544 Graphing a square root function: Problem type 2
alg0812 Converting between radical form and exponent form
alg0560 Rational exponents: Unit fraction exponents and whole number bases
alg0561 Rational exponents: Unit fraction exponents and bases involving signs
alg0250 Rational exponents: Non-unit fraction exponent with a whole number base
alg0251 Rational exponents: Negative exponents and fractional bases
alg0558 Rational exponents: Product rule
alg0559 Rational exponents: Quotient rule
alg0773 Rational exponents: Products and quotients with negative exponents
alg0562 Rational exponents: Power of a power rule
alg0249 Rational exponents: Powers of powers with negative exponents
alg0563 Simplifying products or quotients of higher radicals with different indices: Univariate
alg0778 Using i to rewrite square roots of negative numbers
alg0779 Simplifying a product and quotient involving square roots of negative numbers
pcalc048 Adding or subtracting complex numbers
pcalc049 Multiplying complex numbers
pcalc050 Dividing complex numbers
pcalc053 Simplifying a power of i  
alg092 Solving a quadratic equation using the square root property: Exact answers, basic  
alg227 Solving a quadratic equation using the square root property: Exact answers, advanced  
alg094 Completing the square  
alge780 Solving a quadratic equation by completing the square: Exact answers  
alge095 Applying the quadratic formula: Exact answers  
alge863 Applying the quadratic formula: Decimal answers  
alg214 Discriminant of a quadratic equation  
alge524 Solving a word problem using a quadratic equation with complex roots  
alge974 Finding the vertex, x-intercepts, and axis of symmetry from the graph of a parabola  
alge975 Domain and range from the graph of a parabola  
alge697 Range of a quadratic function  
alge57 Solving a quadratic equation by graphing  
alge996 Comparing properties of quadratic functions given in different forms  
alge723 How the leading coefficient affects the shape of a parabola  
alge865 Identifying linear, quadratic, and exponential functions given ordered pairs  
alge262 Graphing a cubic function of the form y = ax³  
fun019 Sum, difference, and product of two functions  
fun022 Composition of two functions: Basic  
alg746 Expressing a function as a composition of two functions  
alge737 Determining whether an equation defines a function: Basic  
alge757 Determining whether an equation defines a function: Advanced  

B.36 NCCCS Developmental Math Module 040

Whole Numbers

arith124 Whole number place value: Problem type 1  
arith125 Whole number place value: Problem type 2  
arith066 Expanded form  
arith643 Expanded form with zeros  
arith028 Numeral translation: Problem type 1  
arith060 Numeral translation: Problem type 2  
arith633 One-digit addition with carry  
arith634 Addition of 3 or 4 one-digit numbers  
arith001 Addition without carry  
arith635 Adding a 2-digit number and a 1-digit number with carry  
arith050 Addition with carry  
arith630 Addition with carry to the hundreds place  
arith012 Addition of large numbers  
arith636 Subtracting a 1-digit number from a 2-digit number  
arith007 Subtraction without borrowing  
arith128 Adding or subtracting 10, 100, or 1000  
arith006 Subtraction with borrowing  
arith682 Subtraction with multiple regrouping steps  
arith637 Subtraction and regrouping with zeros
APPENDIX B. SYLLABI IN ALEKS

arith613 Word problem with addition or subtraction of whole numbers
arith655 Introduction to properties of addition
arith126 Multiplication as repeated addition
arith008 One-digit multiplication
arith679 Multiplication by 10, 100, and 1000
arith003 Multiplication without carry
arith004 Multiplication with carry
arith632 Multiplication with trailing zeros: Problem type 1
arith615 Introduction to multiplication of large numbers
arith638 Multiplication with trailing zeros: Problem type 2
arith014 Multiplication of large numbers
arith641 Multiples: Problem type 1
arith642 Multiples: Problem type 2
arith656 Introduction to properties of multiplication
arith775 Division facts
arith614 Word problem with multiplication or division of whole numbers
arith130 Word problem with multiplication and addition or subtraction of whole numbers
arith243 Division of whole numbers given in fractional form
arith711 Division involving zero
arith052 Division without carry
arith005 Division with carry
arith680 Division with trailing zeros: Problem type 1
arith649 Division with trailing zeros: Problem type 2
arith616 Quotient and remainder: Problem type 1
arith644 Word problem on quotient and remainder
arith617 Quotient and remainder: Problem type 2
arith631 Quotient and remainder: Problem type 3
arith644 Division involving quotients with intermediate zeros
arith023 Word problem with division of whole numbers and rounding
arith651 Introduction to inequalities
arith077 Ordering large numbers
arith078 Rounding to tens or hundreds
arith123 Rounding to hundreds or thousands
arith661 Rounding to thousands, ten thousands, or hundred thousands
arith102 Estimating a difference of whole numbers
arith604 Estimating a product or quotient of whole numbers
arith666 Even and odd numbers
arith647 Divisibility rules for 2, 5, and 10
arith648 Divisibility rules for 3 and 9
arith656 Factors
arith634 Prime numbers
arith635 Prime factorization
arith633 Greatest common factor of 2 numbers
arith670 Least common multiple of 2 numbers
arith804 Least common multiple of 3 numbers
arith240 Word problem with common multiples
alge925 Finding the next terms of an arithmetic sequence with whole numbers
alge933 Finding the next terms of a geometric sequence with whole numbers
alge732 Finding patterns in shapes

Real Numbers

arith692 Writing expressions using exponents
arith233 Introduction to exponents
arith683 Power of 10: Positive exponent
arith645 Introduction to parentheses
arith681 Introduction to order of operations
arith048 Order of operations with whole numbers
arith051 Order of operations with whole numbers and grouping symbols
arith693 Order of operations with whole numbers and exponents: Basic
arith713 Order of operations with whole numbers and exponents: Advanced
arith657 Understanding the distributive property
arith623 Introduction to fractions
arith665 Understanding equivalent fractions
arith212 Equivalent fractions
arith666 Introduction to simplifying a fraction
arith67 Simplifying a fraction
arith687 Fractional position on a number line
arith667 Plotting fractions on a number line
arith044 Ordering fractions with the same denominator
arith091 Ordering fractions with the same numerator
arith092 Using a common denominator to order fractions
arith086 Product of a fraction and a whole number: Problem type 1
arith119 Introduction to fraction multiplication
arith653 Fraction multiplication
arith812 Product of a fraction and a whole number: Problem type 2
arith813 Multiplication of 3 fractions
arith818 Word problem involving fractions and multiplication
arith875 Multi-step word problem involving fractions and multiplication
arith608 The reciprocal of a number
arith694 Division involving a whole number and a fraction
arith622 Fraction division
arith819 Word problem involving fractions and division
arith820 Addition or subtraction of fractions with different denominators
arith618 Addition or subtraction of fractions with the same denominator
arith821 Word problem involving addition or subtraction of fractions with the same denominator and simplification
arith801 Finding the LCD of two fractions
arith109 Addition or subtraction of unit fractions
arith664 Introduction to addition or subtraction of fractions with different denominators
arith803 Addition and subtraction of 3 fractions with different denominators
arth805 Word problem involving addition or subtraction of fractions with different denominators
arth806 Fractional part of a circle
arth807 Addition and subtraction of 3 mixed numbers with different denominators
arth808 Addition and subtraction of mixed numbers with different denominators and carry
arth809 Subtraction of mixed numbers with different denominators and borrowing
arth810 Word problem involving addition or subtraction of mixed numbers with different denominators
arth815 Mixed number multiplication
arth816 Multiplication of a mixed number and a whole number
arth817 Division with a mixed number and a whole number
arth68 Mixed number division
arth820 Word problem involving multiplication or division with mixed numbers
arth821 Exponents and fractions
arth859 Order of operations with fractions: Problem type 1
arth860 Order of operations with fractions: Problem type 2
arth861 Order of operations with fractions: Problem type 3
arth695 Complex fraction without variables: Problem type 1
arth117 Writing a decimal and a fraction for a shaded region
arth110 Decimal place value: Tenths and hundredths
arth220 Decimal place value: Hundreds to ten thousandths
arth714 Writing a decimal number less than 1 given its name
arth715 Writing a decimal number greater than 1 given its name
arth716 Writing a decimal number given its name: Advanced
arth829 Reading decimal position on a number line: Tenths
APPENDIX B. SYLLABI IN ALEKS

arith830 Reading decimal position on a number line: Hundredths
arith831 Understanding decimal position on a number line using zoom: Hundredths
arith832 Understanding decimal position on a number line using zoom: Thousandths
arith129 Introduction to ordering decimals
arith221 Rounding decimals
arith717 Converting a decimal to a proper fraction without simplifying: Basic
arith719 Converting a decimal to a proper fraction without simplifying: Advanced
arith721 Converting a decimal to a proper fraction in simplest form: Basic
arith722 Converting a decimal to a proper fraction in simplest form: Advanced
arith721 Converting a decimal to a mixed number and an improper fraction without simplifying
arith722 Converting a decimal to a mixed number and an improper fraction in simplest form: Basic
arith724 Converting a decimal to a mixed number and an improper fraction in simplest form: Advanced
arith624 Addition of aligned decimals
arith013 Decimal addition with 3 numbers
arith734 Subtraction of aligned decimals
arith735 Decimal subtraction: Basic
arith736 Decimal subtraction: Advanced
arith737 Decimal addition and subtraction with 3 or more numbers
arith131 Estimating a decimal sum or difference
arith132 Word problem with addition or subtraction of 2 decimals
arith133 Word problem with addition of 3 or 4 decimals and whole numbers
arith134 Word problem with subtraction of a whole number and a decimal: Regrouping with zeros
arith739 Introduction to decimal multiplication
arith017 Multiplication of a decimal by a whole number
arith055 Decimal multiplication: Problem type 1
arith082 Multiplication of a decimal by a power of ten
arith738 Multiplication of a decimal by a power of 0.1
arith740 Multiplication of decimals that have a product less than 0.1
arith752 Estimating a product of decimals
arith135 Word problem with multiplication of a decimal and a whole number
arith137 Word problem with multiplication of two decimals
arith224 Word problem with decimal addition and multiplication
arith744 Whole number division with decimal answers
arith081 Division of a decimal by a whole number
arith743 Division of a decimal by a 1-digit decimal
arith019 Division of a decimal by a 2-digit decimal
arith083 Division of a decimal by a power of ten
arith742 Division of a decimal by a power of 0.1
arith745 Decimal division with rounding
arith136 Word problem with division of a decimal and a whole number
arith138 Word problem with division of two decimals
arith727 Word problem with decimal subtraction and division
arith725 Converting a fraction with a denominator of 10 or 100 to a decimal
arith726 Converting a fraction with a denominator of 100 or 1000 to a decimal
arith609 Ordering fractions and decimals
arith727 Converting a fraction to a terminating decimal: Basic
arith728 Converting a fraction to a terminating decimal: Advanced
arith730 Converting a fraction to a repeating decimal: Basic
arith731 Converting a fraction to a repeating decimal: Advanced
arith733 Using a calculator to convert a fraction to a rounded decimal
arith111 Converting a mixed number to a terminating decimal: Basic
arith112 Converting a mixed number to a terminating decimal: Advanced
arith732 Converting a fraction or mixed number to a rounded decimal
arith753 Squaring decimal bases: Products greater than 0.1
arith741 Exponents and decimals: Products less than 0.1
arith720 Order of operations with decimals: Problem type 1
arith746 Order of operations with decimals: Problem type 2
arith747 Order of operations with decimals: Problem type 3
arith748 Addition or subtraction with a decimal and a mixed number
arith749 Multiplication with a decimal and a fraction
B.36. NCCCS DEVELOPMENTAL MATH MODULE 040

arith823 Writing ratios using different notations
arith663 Writing ratios for real-world situations
arith824 Simplifying a ratio of whole numbers: Problem type 1
arith825 Simplifying a ratio of decimals
arith827 Finding a unit price
arith828 Computing unit prices to find the better buy
arith664 Solving a word problem on proportions using a unit rate
arith228 Solving a proportion of the form \( x/a = b/c \)
arith610 Word problem on proportions: Problem type 1
arith611 Word problem on proportions: Problem type 2
alg6063 Word problem on mixed number proportions
arith045 Word problem with powers of ten
arith836 Converting a fraction with a denominator of 100 to a percentage
arith837 Converting a percentage to a fraction with a denominator of 100
arith674 Finding the percentage of a grid that is shaded
arith723 Introduction to converting a percentage to a decimal
arith833 Introduction to converting a decimal to a percentage
arith834 Converting between percentages and decimals
arith841 Converting a mixed number percentage to a decimal
arith835 Converting between percentages and decimals in a real-world situation
arith690 Converting a percentage to a fraction in simplest form
arith839 Converting a decimal percentage to a fraction
arith838 Converting a fraction to a percentage: Denominator of 4, 5, or 10
arith802 Converting a fraction to a percentage: Denominator of 20, 25, or 50
arith843 Using a calculator to convert a fraction to a rounded percentage
arith842 Converting a fraction to a percentage in a real-world situation
arith840 Finding a percentage of a whole number
arith630 Finding a percentage of a whole number without a calculator: Basic
arith844 Finding a percentage of a whole number without a calculator: Advanced
arith845 Applying the percent equation: Problem type 1
arith863 Applying the percent equation: Problem type 2
arith846 Finding a percentage of a total amount: Real-world situations
arith846 Finding a percentage of a total amount without a calculator: Sales tax, commission, discount
arith857 Estimating a tip without a calculator
arith069 Writing a ratio as a percentage without a calculator
mstat049 Computing a percentage from a table of values
arith850 Finding the rate of a tax or commission
arith849 Finding the total amount given the percentage of a partial amount
arith852 Finding the multiplier to give a final amount after a percentage increase or decrease
arith851 Finding the final amount given the original amount and a percentage increase or decrease
arith847 Finding the sale price given the original price and percent discount
arith674 Finding the sale price without a calculator given the original price and percent discount
arith848 Finding the total cost including tax or markup
arith855 Finding the original amount given the result of a percentage increase or decrease
arith631 Finding the original price given the sale price and percent discount
arith858 Finding the percentage increase or decrease: Basic
arith225 Finding the percentage increase or decrease: Advanced
arith232 Finding simple interest without a calculator
arith856 Finding a percentage of a total amount in a circle graph
stat801 Computations from a circle graph
arith200 Integer addition: Problem type 1
arith108 Integer addition: Problem type 2
arith688 Integer subtraction: Problem type 1
arith689 Integer subtraction: Problem type 2
arith690 Integer subtraction: Problem type 3
arith754 Addition and subtraction with 3 integers
arith755 Addition and subtraction with 4 or 5 integers
arith701 Word problem with addition or subtraction of integers
arith231 Integer multiplication and division
arith800 Multiplication of 3 or 4 integers
alg001 Identifying numbers as integers or non-integers
APPENDIX B. SYLLABI IN ALEKS

alge002 Identifying numbers as rational or irrational
arith116 Signed fraction addition or subtraction: Basic
arith864 Signed fraction subtraction involving double negation
arith106 Signed fraction addition or subtraction: Advanced
arith811 Addition and subtraction of 3 fractions involving signs
arith822 Signed fraction multiplication: Basic
arith105 Signed fraction multiplication: Advanced
arith814 Signed fraction division
arith117 Signed decimal addition and subtraction
arith234 Signed decimal addition and subtraction with 3 numbers
arith750 Signed decimal multiplication
arith751 Signed decimal division
arith104 Operations with absolute value: Problem type 2
geom525 Computing distances between decimals on the number line
arith702 Exponents and integers: Problem type 1
arith703 Exponents and integers: Problem type 2
arith704 Exponents and signed fractions
arith118 Order of operations with integers
arith600 Order of operations with integers and exponents
arith696 Complex fraction without variables: Problem type 2

Geometry

geom339 Perimeter of a polygon
geom300 Perimeter of a square or a rectangle
geom618 Perimeter of a polygon involving mixed numbers and fractions
geom878 Sides of polygons having the same perimeter
geom221 Finding the missing length in a figure
geom353 Perimeter of a piecewise rectangular figure
geom358 Identifying parallel and perpendicular lines
geom349 Naming segments, rays, and lines
geom151 Measuring an angle with the protractor
geom152 Drawing an angle with the protractor
geom303 Acute, obtuse, and right angles
geom039 Finding supplementary and complementary angles
geom305 Identifying supplementary and vertical angles
geom304 Identifying corresponding and alternate angles
geom306 Acute, obtuse, and right triangles
geom307 Classifying scalene, isosceles, and equilateral triangles by side lengths or angles
geom088 Finding an angle measure for a triangle with an extended side
geom812 Finding an angle measure given extended triangles
geom813 Finding an angle measure given a triangle and parallel lines
geom361 Naming polygons
mstat042 Interpreting a Venn diagram of 2 sets
geom867 Identifying parallelograms, rectangles, and squares
geom310 Properties of quadrilaterals
geom352 Classifying parallelograms
geom019 Area of a square or a rectangle
geom866 Perimeter and area on a grid
geom620 Area of a rectangle involving fractions
geom619 Area of a rectangle involving mixed numbers and fractions
geom350 Distinguishing between the area and perimeter of a rectangle
geom351 Areas of rectangles with the same perimeter
geom340 Area of a piecewise rectangular figure
geom142 Word problem involving the area between two rectangles
geom801 Area of a triangle
geom344 Area involving rectangles and triangles
geom022 Area of a parallelogram
geom023 Area of a trapezoid
geom347 Introduction to a circle: Diameter, radius, and chord
gem016 Circumference of a circle
gem031 Perimeter involving rectangles and circles
gem082 Circumference and area of a circle
gem032 Area involving rectangles and circles
gem036 Word problem involving the area between two concentric circles
gem024 Area involving inscribed figures
gem081 Angle measure in a circle graph
gem068 Classifying solids
gem034 Vertices, edges, and faces of a solid
gem030 Counting the cubes in a solid made of cubes
gem035 Volume of a rectangular prism made of unit cubes
gem031 Volume of a rectangular prism
gem050 Volume of a piecewise rectangular prism
gem090 Volume of a triangular prism
gem033 Volume of a pyramid
gem035 Volume of a cylinder
gem092 Word problem involving the rate of filling or emptying a cylinder
gem022 Volume of a cone
gem081 Volume of a sphere
gem0219 Nets of solids
gem016 Side views of a solid made of cubes
gem031 Surface area of a cube or a rectangular prism
gem0345 Surface area of a piecewise rectangular prism made of unit cubes
gem091 Surface area of a triangular prism
gem021 Surface area of a cylinder
gem082 Surface area of a sphere
arith016 Square root of a perfect square
arith763 Using a calculator to approximate a square root
arith02 Estimating a square root
arith01 Square root of a rational perfect square
alge047 Introduction to the Pythagorean Theorem
geom044 Pythagorean Theorem
alge408 Word problem involving the Pythagorean Theorem
geom059 Identifying congruent shapes on a grid
geom020 Identifying and naming congruent triangles
geom060 Identifying similar or congruent shapes on a grid
geom037 Similar polygons
geom038 Similar right triangles
geom037 Indirect measurement

Algebraic Expressions

alge284 Evaluating an algebraic expression: Whole number addition or subtraction
alge683 Evaluating an algebraic expression: Whole number multiplication or division
alge285 Evaluating an algebraic expression: Whole numbers with two operations
alge832 Evaluating an algebraic expression: Whole number operations and exponents
alge605 Evaluating a linear expression: Integer multiplication with addition or subtraction
alge004 Evaluating a quadratic expression: Integers
alge808 Evaluating a linear expression: Signed fraction multiplication with addition or subtraction
alge302 Evaluating a linear expression: Signed decimal addition and subtraction
alge303 Evaluating a linear expression: Signed decimal multiplication with addition or subtraction
alge700 Combining like terms: Whole number coefficients
alge607 Combining like terms: Integer coefficients
alge187 Properties of addition
alg310 Multiplying a constant and a linear monomial
alge606 Distributive property: Whole number coefficients
alge604 Distributive property: Integer coefficients
alge188 Properties of real numbers
alge608 Using distribution and combining like terms to simplify: Univariate
alge609 Using distribution with double negation and combining like terms to simplify: Multivariate
alge293 Combining like terms in a quadratic expression
alge432 Introduction to adding fractions with variables and common denominators
alge436 Adding rational expressions with different denominators and a single occurrence of a variable

Measurement and Data Analysis

mstat059 Choosing U.S. Customary measurement units
unit005 U.S. Customary unit conversion with whole number values
mstat035 Conversions involving measurements in feet and inches
unit036 Adding measurements in feet and inches
mstat006 U.S. Customary unit conversion with whole number values: Two-step conversion
unit007 U.S. Customary unit conversion with mixed number values: One-step conversion
unit008 U.S. Customary unit conversion with mixed number values: Two-step conversion
unit009 U.S. Customary area unit conversion with whole number values
mstat060 Choosing metric measurement units
unit001 Metric distance conversion with whole number values
unit002 Metric mass or capacity conversion with whole number values
unit003 Metric distance conversion with decimal values
unit004 Metric conversion with decimal values: Two-step problem
unit010 Metric area unit conversion with decimal values
unit012 Time unit conversion with whole number values
time006 Adding time
time007 Elapsed time
arith063 Word problem with clocks
mstat065 Converting between temperatures in Fahrenheit and Celsius
arith082 Simplifying a ratio of whole numbers: Problem type 2
unit034 Converting between metric and U.S. Customary unit systems
unit035 Converting between compound units: Basic
unit036 Converting between compound units: Advanced
mstat056 Interpreting a tally table
mstat037 Constructing a line plot
mstat005 Constructing a bar graph for non-numerical data
mstat004 Constructing a histogram for numerical data
mstat024 Interpreting a bar graph
mstat044 Interpreting a double bar graph
mstat057 Interpreting a pictograph table
mstat007 Interpreting a line graph
mstat031 Interpreting a stem-and-leaf plot
stat094 Interpreting a circle graph or pie chart
stat020 Calculating relative frequencies in a contingency table
stat085 Making a reasonable inference based on proportion statistics
mstat025 Finding if a question can be answered by the data
mstat003 Mode of a data set
mstat055 Finding the mode and range of a data set
arith103 Average of two numbers
mstat028 Mean and median of a data set
mstat029 How changing a value affects the mean and median
mstat053 Choosing the best measure to describe data
stat082 Rejecting unreasonable claims based on average statistics
mstat066 Weighted mean
mstat027 Using back-to-back stem-and-leaf plots to compare data sets
mstat072 Five-number summary and interquartile range
mstat006 Constructing a box-and-whisker plot
mstat073 Using box-and-whisker plots to compare data sets
mstat043 Interpreting a Venn diagram of 3 sets
mstat041 Interpreting a tree diagram
mstat040 Introduction to the counting principle
mstat015 Counting principle
pcalc082 Factorial expressions
mstat017 Computing permutations and combinations
mstat008 Word problem involving permutations
mstat009 Word problem involving combinations
mstat026 Introduction to the probability of an event
mstat010 Probability of an event
mstat039 Understanding likelihood
mstat048 Odds of an event
stat106 Outcomes and event probability
stat112 Probabilities involving two dice
mstat011 Area as probability
mstat046 Experimental and theoretical probability
mstat047 Introduction to expectation
mstat012 Probability of independent events
mstat013 Probability of dependent events
mstat032 Probability of the union of two events
alge286 Plotting integers on a number line
arith605 Plotting rational numbers on a number line
mstat038 Reading the temperature from a thermometer
arith699 Writing a signed number for a real-world situation
arith712 Ordering real numbers
arith071 Absolute value of a number

Linear Equations and Inequalities

alge009 Additive property of equality with whole numbers
alge008 Multiplicative property of equality with whole numbers
alge803 Using two steps to solve an equation with whole numbers
alge801 Additive property of equality with fractions and mixed numbers
alge800 Additive property of equality with decimals
alge010 Additive property of equality with integers
alge836 Additive property of equality with signed fractions
alge820 Multiplicative property of equality with fractions
alge825 Multiplicative property of equality with decimals
alge797 Multiplicative property of equality with integers
alge012 Multiplicative property of equality with signed fractions
alge834 Identifying solutions to a linear equation in one variable: Two-step equations
alge266 Additive property of equality with a negative coefficient
alge006 Solving a two-step equation with integers
alge200 Solving an equation to find the value of an expression
alge920 Introduction to solving an equation with parentheses
alge837 Solving a multi-step equation given in fractional form
alge986 Identifying properties used to solve a linear equation
alge824 Solving a two-step equation with signed decimals
alge838 Introduction to solving an equation with variables on the same side
alge862 Solving a linear equation with several occurrences of the variable: Variables on the same side
alge863 Solving a linear equation with several occurrences of the variable: Variables on both sides
alge011 Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
alge013 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
alge209 Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions
alge420 Solving a linear equation with several occurrences of the variable: Fractional forms with monomial numerators
alge208 Solving a two-step equation with signed fractions
alge061 Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
alge179 Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators
APPENDIX B. SYLLABI IN ALEKS

alge742 Solving equations with zero, one, or infinitely many solutions
alge840 Solving a proportion of the form \( (x-a) \div b = c \div d \)
alge271 Solving a proportion of the form \( a \div (x+b) = c \div x \)
alge603 Introduction to solving an absolute value equation
alge864 Solving an absolute value equation: Problem type 1
alge511 Solving for a variable in terms of other variables using addition or subtraction: Basic
alge512 Solving for a variable in terms of other variables using addition or subtraction: Advanced
alge513 Solving for a variable in terms of other variables using multiplication or division: Basic
alge514 Solving for a variable in terms of other variables using multiplication or division: Advanced
alge517 Solving for a variable in terms of other variables using addition or subtraction with division
alge518 Solving for a variable inside parentheses in terms of other variables
alge507 Solving for a variable in terms of other variables in a linear equation with fractions
alge733 Writing a one-step expression for a real-world situation
alge831 Translating a phrase into a one-step expression
alge291 Translating a phrase into a two-step expression
alge016 Translating a sentence into a one-step equation
alge841 Translating a sentence into a two-step equation
alge823 Solving a one-step word problem using the formula \( d = rt \)
alge802 Solving a fraction word problem using a linear equation of the form \( Ax = B \)
alge014 Solving a word problem with two unknowns using a linear equation
alge173 Solving a decimal word problem using a linear equation of the form \( Ax + B = C \)
alge720 Writing a multi-step equation for a real-world situation
alge219 Solving a decimal word problem using a linear equation with the variable on both sides
alge704 Solving a fraction word problem using a linear equation with the variable on both sides
alge792 Solving a word problem with three unknowns using a linear equation
alge842 Solving a word problem involving consecutive integers
alge794 Solving a value mixture problem using a linear equation
alge218 Solving a word problem involving rates and time conversion
alge796 Solving a distance, rate, time problem using a linear equation
arith854 Computing a percent mixture
alge795 Solving a percent mixture problem using a linear equation
geom817 Finding a side length given the perimeter and side lengths with variables
geom143 Finding the perimeter or area of a rectangle given one of these values
geom218 Finding the radius or the diameter of a circle given its circumference
geom838 Circumference ratios
geom001 Finding an angle measure of a triangle given two angles
geom217 Finding the side length of a rectangle given its perimeter or area
geom530 Solving equations involving vertical angles
geom531 Solving equations involving angles and a pair of parallel lines
geom623 Finding angle measures of a triangle given angles with variables
geom502 Finding angle measures of a right or isosceles triangle given angles with variables
mstat001 Mean of a data set
stat802 Finding the value for a new score that will yield a given mean
alge815 Translating a sentence by using an inequality symbol
alge845 Translating a sentence into a one-step inequality
alge846 Translating a sentence into a multi-step inequality
alge748 Writing an inequality for a real-world situation
alge017 Graphing a linear inequality on the number line
alge822 Writing an inequality given a graph on the number line
alge186 Translating a sentence into a compound inequality
alge166 Graphing a compound inequality on the number line
alge847 Writing a compound inequality given a graph on the number line
set001 Set builder notation
set004 Set builder and interval notation
set002 Union and intersection of finite sets
alge844 Identifying solutions to a two-step linear inequality in one variable
alge848 Additive property of inequality with whole numbers
alge849 Additive property of inequality with integers
alge852 Additive property of inequality with signed fractions
alge853 Additive property of inequality with signed decimals
alge854 Multiplicative property of inequality with integers
alge964 Multiplicative property of inequality with signed fractions
Lines and Functions

alge064 Reading a point in the coordinate plane
alge067 Plotting a point in the coordinate plane
alge850 Table for a linear equation
alge066 Finding a solution to a linear equation in two variables
alge191 Midpoint of a line segment in the plane
alge878 Graphing a line given its equation in slope-intercept form: Integer slope
alge879 Graphing a line given its equation in slope-intercept form: Fractional slope
alge880 Graphing a line given its equation in standard form
alge198 Graphing a vertical or horizontal line
alge881 Finding x- and y-intercepts given the graph of a line on a grid
alge924 Finding x- and y-intercepts of a line given the equation: Basic
alge210 Finding x- and y-intercepts of a line given the equation: Advanced
alge197 Graphing a line given its x- and y-intercepts
alge881 Graphing a line by first finding its x- and y-intercepts
alge875 Classifying slopes given graphs of lines
alge886 Finding slope given the graph of a line on a grid
alge887 Finding slope given two points on the line
alge888 Finding the slope of horizontal and vertical lines
alge889 Finding the coordinate that yields a given slope
alge259 Graphing a line given its slope and y-intercept
alge196 Graphing a line through a given point with a given slope
alge876 Identifying linear equations: Advanced
alge874 Identifying linear functions given ordered pairs
alge891 Rewriting a linear equation in the form Ax + By = C
alge889 Finding the slope and y-intercept of a line given its equation in the form y = mx + b
alge890 Finding the slope and y-intercept of a line given its equation in the form Ax+By=C
alge882 Graphing a line by first finding its slope and y-intercept
alge258 Writing an equation of a line given its slope and y-intercept
alge892 Writing an equation and graphing a line given its slope and y-intercept
alge893 Writing an equation in slope-intercept form given the slope and a point
alge883 Graphing a line given its equation in point-slope form
alge894 Writing an equation in point-slope form given the slope and a point
alge070 Writing an equation of a line given the y-intercept and another point
alge072 Writing the equation of the line through two given points
alge073 Writing the equations of vertical and horizontal lines through a given point
geom806 Finding slopes of lines parallel and perpendicular to a line given in slope-intercept form
geom807 Finding slopes of lines parallel and perpendicular to a line given in the form Ax + By = C
alge895 Identifying parallel and perpendicular lines from equations
geom808 Writing equations of lines parallel and perpendicular to a given line through a point
alge897 Writing and evaluating a function that models a real-world situation: Advanced
alge701 Writing an equation and drawing its graph to model a real-world situation: Advanced
fun005 Writing a function rule given a table of ordered pairs: One-step rules
fun006 Writing a function rule given a table of ordered pairs: Two-step rules
alge992 Combining functions to write a new function that models a real-world situation
alge987 Comparing properties of linear functions given in different forms
alge989 Interpreting the parameters of a linear function that models a real-world situation
alge805 Application problem with a linear function: Finding a coordinate given the slope and a point
alge806 Application problem with a linear function: Finding a coordinate given two points
mstat052 Identifying independent and dependent variables from equations or real-world situations
alge991 Solving a linear equation by graphing
mstat030 Sketching the line of best fit
mstat023 Scatter plots and correlation
mstat068 Predictions from the line of best fit
mstat067 Approximating the equation of a line of best fit and making predictions
mstat069 Computing residuals
mstat070 Interpreting residual plots
mstat071 Linear relationship and the correlation coefficient
mstat074 Identifying correlation and causation
alge898 Translating the graph of an absolute value function: One step
alge899 Translating the graph of an absolute value function: Two steps
alge913 Graphing an absolute value equation of the form $y = A - x$–
alge900 Graphing an absolute value equation in the plane: Basic
alge168 Graphing an absolute value equation in the plane: Advanced
alge901 How the leading coefficient affects the graph of an absolute value function
fun032 Identifying functions from relations
fun010 Vertical line test
fun016 Domain and range from ordered pairs
fun001 Table for a linear function
pcalc760 Evaluating functions: Linear and quadratic or cubic
fun032 Identifying functions from relations: Problem type 1
alge294 Finding outputs of a one-step function that models a real-world situation: Function notation
alge295 Finding outputs of a two-step function with decimals that models a real-world situation: Function notation
alge296 Finding inputs and outputs of a two-step function that models a real-world situation: Function notation
alge990 Domain and range of a linear function that models a real-world situation
fun026 Finding an output of a function from its graph
pcalc756 Evaluating functions: Linear and quadratic or cubic
fun007 Domain and range from the graph of a discrete relation
fun024 Domain and range from the graph of a continuous function
alge896 Graphing an integer function and finding its range for a given domain
alge570 Graphing a function of the form $f(x) = ax + b$: Integer slope
alge571 Graphing a function of the form $f(x) = ax + b$: Fractional slope
alge954 Graphing a parabola of the form $y = ax^2$
alge955 Graphing a parabola of the form $y = ax^2 + c$
alge572 Graphing a function of the form $f(x) = ax^2$
alge573 Graphing a function of the form $f(x) = ax^2 + c$
pcalc750 Finding intercepts of a non-linear function given its graph
pcalc751 Finding where a function is increasing, decreasing, or constant given the graph: Interval notation
pcalc752 Finding local maxima and minima of a function given the graph
mstat018 Choosing a graph to fit a narrative: Basic
mstat051 Choosing a graph to fit a narrative: Advanced

Systems

alge914 Identifying solutions to a system of linear equations
alge075 Classifying systems of linear equations from graphs
alge725 Graphically solving a system of linear equations
alge721 Solving a system of linear equations using substitution
alge915 Solving a system of linear equations using elimination with addition
alge916 Solving a system of linear equations using elimination with multiplication and addition
alge916 Solving a system of linear equations with fractional coefficients
alge917 Solving a system of linear equations with decimal coefficients
alge752 Solving a 2x2 system of linear equations that is inconsistent or consistent dependent
Exponents and Polynomials

alge821 Understanding the product rule of exponents
alge024 Introduction to the product rule of exponents
alge311 Product rule with positive exponents: Univariate
alge030 Product rule with positive exponents: Multivariate
arith029 Ordering numbers with positive exponents
alge826 Understanding the power rules of exponents
alge306 Introduction to the power of a power rule of exponents
alge305 Introduction to the power of a product rule of exponents
alge307 Power rules with positive exponents: Multivariate products
alge308 Power rules with positive exponents: Multivariate quotients
alge756 Power and product rules with positive exponents
alge451 Simplifying a ratio of multivariate monomials: Basic
alge827 Introduction to the quotient rule of exponents
alge452 Simplifying a ratio of univariate monomials
alge026 Quotient of expressions involving exponents
alge453 Simplifying a ratio of multivariate monomials: Advanced
alge927 Power and quotient rules with positive exponents
alge790 Evaluating expressions with exponents of zero
arith084 Power of 10: Negative exponent
arith729 Evaluating an expression with a negative exponent: Whole number base
arith042 Evaluating an expression with a negative exponent: Positive fraction base
arith043 Evaluating an expression with a negative exponent: Negative integer base
arith024 Ordering numbers with negative exponents
alge791 Rewriting an algebraic expression without a negative exponent
alge961 Introduction to the product rule with negative exponents
alge028 Product rule with negative exponents
alge755 Quotient rule with negative exponents: Problem type 1
alge926 Quotient rule with negative exponents: Problem type 2
alge025 Power of a power rule with negative exponents
alge799 Power rules with negative exponents
alge928 Power and quotient rules with negative exponents: Problem type 1
alge929 Power and quotient rules with negative exponents: Problem type 2
alge757 Power, product, and quotient rules with negative exponents
arith036 Scientific notation with positive exponent
arith037 Scientific notation with negative exponent
scinot012 Converting between scientific notation and standard form in a real-world situation
scinot008 Multiplying numbers written in scientific notation: Basic
scinot009 Multiplying numbers written in scientific notation: Advanced
scinot010 Dividing numbers written in scientific notation: Basic
scinot011 Dividing numbers written in scientific notation: Advanced
alge971 Table for an exponential function
alge830 Evaluating an exponential function that models a real-world situation
arith853 Introduction to compound interest
alge177 Finding a final amount in a word problem on exponential growth or decay
alge741 Finding the final amount in a word problem on compound interest
alge966 Finding the initial amount and rate of change given an exponential function
alge968 Writing an equation that models exponential growth or decay
alge301 Solving an exponential equation by finding common bases: Linear exponents
alge969 Graphing an exponential function: f(x) = ax
alge970 Graphing an exponential function: f(x) = a(b)x
alge967 Writing an exponential function rule given a table of ordered pairs
alge993 Comparing linear, polynomial, and exponential functions
alge758 Degree and leading coefficient of a univariate polynomial
alge801 Degree of a multivariate polynomial
alge788 Simplifying a sum or difference of two univariate polynomials
alge602 Simplifying a sum or difference of three univariate polynomials
alge932 Simplifying a sum or difference of multivariate polynomials
alge735 Multiplying a univariate polynomial by a monomial with a positive coefficient
alge972 Multiplying a univariate polynomial by a monomial with a negative coefficient
alge835 Multiplying a multivariate polynomial by a monomial
alge603 Multiplying binomials with leading coefficients of 1
alge983 Multiplying binomials with leading coefficients greater than 1
alge765 Multiplying binomials in two variables
alge974 Multiplying conjugate binomials: Univariate
alge081 Multiplying conjugate binomials: Multivariate
alge973 Multiplying binomials with negative coefficients
alge935 Multiplication involving binomials and trinomials in one variable
alge180 Multiplication involving binomials and trinomials in two variables
alge739 Dividing a polynomial by a monomial: Univariate
alge760 Dividing a polynomial by a monomial: Multivariate
alge761 Polynomial long division: Problem type 1
alge762 Polynomial long division: Problem type 2
alge763 Polynomial long division: Problem type 3
alge985 Closure properties of integers and polynomials
alge605 Factoring a linear binomial
alge736 Introduction to the GCF of two monomials
alge930 Greatest common factor of three univariate monomials
alge637 Greatest common factor of two multivariate monomials
alge932 Factoring out a monomial from a polynomial: Univariate
alge739 Factoring out a monomial from a polynomial: Multivariate
alge949 Factoring out a binomial from a polynomial: GCF factoring, basic
alge923 Factoring a univariate polynomial by grouping: Problem type 1
alge950 Factoring a univariate polynomial by grouping: Problem type 2
alge951 Factoring a multivariate polynomial by grouping: Problem type 1
alge952 Factoring a multivariate polynomial by grouping: Problem type 2
alge639 Factoring a quadratic with leading coefficient 1
alge942 Factoring a quadratic in two variables with leading coefficient 1
alge936 Factoring out a constant before factoring a quadratic
alge939 Factoring a quadratic with leading coefficient greater than 1: Problem type 1
alge940 Factoring a quadratic with leading coefficient greater than 1: Problem type 2
alge941 Factoring a quadratic with leading coefficient greater than 1: Problem type 3
alge978 Factoring a quadratic by the ac-method
alge265 Factoring a quadratic in two variables with leading coefficient greater than 1
alge937 Factoring a quadratic with a negative leading coefficient
alge944 Factoring a perfect square trinomial with leading coefficient 1
alge945 Factoring a perfect square trinomial with leading coefficient greater than 1
alge946 Factoring a perfect square trinomial in two variables
Rational Expressions

alge049 Restriction on a variable in a denominator: Linear
alge467 Restriction on a variable in a denominator: Quadratic
alge468 Evaluating a rational function: Problem type 1
alge469 Evaluating a rational function: Problem type 2
alge715 Domain of a rational function: Excluded values
alge454 Simplifying a ratio of factored polynomials: Linear factors
alge455 Simplifying a ratio of factored polynomials: Factors with exponents
alge456 Simplifying a ratio of polynomials using GCF factoring
alge457 Simplifying a ratio of linear polynomials: 1, -1, and no simplification
alge458 Simplifying a ratio of polynomials by factoring a quadratic with leading coefficient 1
alge710 Simplifying a ratio of polynomials: Problem type 1
alge682 Simplifying a ratio of polynomials: Problem type 2
alge459 Simplifying a ratio of polynomials: Problem type 3
alge034 Simplifying a ratio of multivariate polynomials
alge460 Multiplying rational expressions made up of linear expressions
alge620 Multiplying rational expressions involving quadratics with leading coefficients of 1
alge461 Multiplying rational expressions involving quadratics with leading coefficients greater than 1
alge462 Multiplying rational expressions involving multivariate quadratics
alge054 Dividing rational expressions involving multivariate monomials
alge463 Dividing rational expressions involving linear expressions
alge706 Dividing rational expressions involving quadratics with leading coefficients of 1
alge464 Dividing rational expressions involving quadratics with leading coefficients greater than 1
alge465 Dividing rational expressions involving multivariate quadratics
alge466 Multiplication and division of 3 rational expressions
alge737 Introduction to the LCM of two monomials
alge055 Least common multiple of two monomials
alge427 Finding the LCD of rational expressions with linear denominators: Relatively prime
alge428 Finding the LCD of rational expressions with linear denominators: Common factors
alge429 Finding the LCD of rational expressions with quadratic denominators
alge430 Writing equivalent rational expressions with monomial denominators
alge431 Writing equivalent rational expressions with polynomial denominators
alge304 Writing equivalent rational expressions involving opposite factors
alge433 Adding rational expressions with common denominators and monomial numerators
alge056 Adding rational expressions with common denominators and binomial numerators
alge434 Adding rational expressions with common denominators and GCF factoring
alge435 Adding rational expressions with common denominators and quadratic factoring
alge436 Adding rational expressions with denominators ax and bx: Basic
alge438 Adding rational expressions with denominators ax and bx: Advanced
alge439 Adding rational expressions with denominators ax and bx:
alge440 Adding rational expressions with multivariate monomial denominators: Basic
alge226 Adding rational expressions with multivariate monomial denominators: Advanced
APPENDIX B. SYLLABI IN ALEKS

alge441 Adding rational expressions with linear denominators without common factors: Basic
alge442 Adding rational expressions with linear denominators without common factors: Advanced
alge443 Adding rational expressions with linear denominators with common factors: Basic
alge444 Adding rational expressions with linear denominators with common factors: Advanced
alge445 Adding rational expressions with denominators ax-b and b-ax
alge661 Adding rational expressions involving different quadratic denominators
alge446 Adding 3 rational expressions with different quadratic denominators
alge471 Complex fraction involving univariate monomials
alge472 Complex fraction involving multivariate monomials
alge473 Complex fraction made of sums involving rational expressions: Problem type 1
alge474 Complex fraction made of sums involving rational expressions: Problem type 2
alge475 Complex fraction made of sums involving rational expressions: Problem type 3
alge476 Complex fraction made of sums involving rational expressions: Problem type 4
alge477 Complex fraction made of sums involving rational expressions: Problem type 5
alge478 Complex fraction made of sums involving rational expressions: Problem type 6
alge479 Complex fraction made of sums involving rational expressions: Multivariate
alge480 Complex fraction with negative exponents: Problem type 1
alge481 Complex fraction with negative exponents: Problem type 2
alge162 Complex fraction that contains a complex fraction
alge125 Solving a rational equation that simplifies to linear: Denominator x
alge205 Solving a rational equation that simplifies to linear: Denominator x+a
alge426 Solving a rational equation that simplifies to linear: Binomial denominators and numerators
alge428 Solving a rational equation that simplifies to linear: Like binomial denominators
alge206 Solving a rational equation that simplifies to linear: Unlike binomial denominators
alge423 Solving a rational equation that simplifies to linear: Factorable quadratic denominator
alge424 Solving a rational equation that simplifies to quadratic: Proportional form, basic
alge212 Solving a rational equation that simplifies to quadratic: Denominator x
alge264 Square root of a perfect square monomial
alge508 Solving for a variable in terms of other variables in a rational equation: Problem type 1
alge509 Solving for a variable in terms of other variables in a rational equation: Problem type 2
alge510 Solving for a variable in terms of other variables in a rational equation: Problem type 3
arith612 Word problem involving multiple rates
alge770 Solving a work problem using a rational equation
alge450 Solving a distance, rate, time problem using a rational equation
alge059 Ordering fractions with variables
alge982 Identifying direct variation equations
alge908 Identifying direct variation from ordered pairs and writing equations
alge904 Writing a direct variation equation
alge175 Word problem on direct variation
alge828 Interpreting direct variation from a graph
alge905 Writing an inverse variation equation
alge903 Identifying direct and inverse variation equations
alge902 Identifying direct and inverse variation from ordered pairs and writing equations
alge176 Word problem on inverse variation
alge220 Word problem on inverse proportions
pcalc681 Writing an equation that models variation
alge772 Word problem on combined variation

Radicals and Quadratic Equations

alge413 Finding all square roots of a number
arith760 Square roots of perfect squares with signs
alge415 Introduction to simplifying a radical expression with an even exponent
alge264 Square root of a perfect square monomial
arith094 Cube root of an integer
alge549 Finding nth roots of perfect nth powers with signs
arith768 Finding the nth root of a perfect nth power fraction
alge550 Finding the nth root of a perfect nth power monomial
arith093 Simplifying the square root of a whole number less than 100
arith762 Simplifying the square root of a whole number greater than 100
alge551 Simplifying a radical expression with an even exponent
alge521 Simplifying a radical expression with an odd exponent
alge275 Simplifying a radical expression with two variables
alge273 Simplifying a higher root of a whole number
alge552 Simplifying a higher radical expression: Univariate
alge340 Simplifying a higher radical expression: Multivariate
arith766 Simplifying a sum or difference of higher radical expressions
arith764 Introduction to square root addition or subtraction
arith032 Square root addition or subtraction
alge532 Introduction to simplifying a product of radical expressions: Univariate
alge522 Simplifying a sum or difference of radical expressions: Univariate
arith632 Simplifying a sum or difference of radical expressions: Multivariate
alge530 Simplifying a quotient involving a sum or difference with a square root
alge527 Rationalizing a denominator: Quotient involving square roots
alge528 Rationalizing a denominator: Square root of a fraction
alge529 Rationalizing a denominator: Quotient involving a monomial
alge534 Rationalizing a denominator using conjugates: Integer numerator
alge535 Rationalizing a denominator using conjugates: Square root in numerator
alge536 Rationalizing a denominator using conjugates: Variable in denominator
alge530 Rationalizing a denominator: Quotient involving a higher radical
alge540 Introduction to solving a radical equation
alge089 Solving a radical equation that simplifies to a linear equation: One radical, basic
alge042 Solving a radical equation that simplifies to a linear equation: One radical, advanced
alge090 Solving a radical equation that simplifies to a linear equation: Two radicals
alge405 Solving a radical equation with two radicals that simplifies to sqrt(x) = a
alge403 Solving a radical equation that simplifies to a quadratic equation: One radical, basic
alge404 Solving a radical equation that simplifies to a quadratic equation: One radical, advanced
alge411 Solving a radical equation with a quadratic expression under the radical
alge182 Solving a radical equation that simplifies to a quadratic equation: Two radicals
alge410 Solving an equation with a root index greater than 2: Problem type 1
alge417 Solving an equation with a root index greater than 2: Problem type 2
alge412 Algebraic symbol manipulation with radicals
alge542 Word problem involving radical equations: Basic
alge409 Word problem involving radical equations: Advanced
alge132 Distance between two points in the plane: Exact answers
alge539 Table for a square root function
alge540 Domain of a square root function: Basic
pcalc763 Domain of a square root function: Advanced
### APPENDIX B. SYLLABI IN ALEKS

<table>
<thead>
<tr>
<th>Module</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>alge543</td>
<td>Graphing a square root function: Problem type 1</td>
</tr>
<tr>
<td>alge544</td>
<td>Graphing a square root function: Problem type 2</td>
</tr>
<tr>
<td>alge812</td>
<td>Converting between radical form and exponent form</td>
</tr>
<tr>
<td>alge560</td>
<td>Rational exponents: Unit fraction exponents and whole number bases</td>
</tr>
<tr>
<td>alge561</td>
<td>Rational exponents: Unit fraction exponents and bases involving signs</td>
</tr>
<tr>
<td>alge250</td>
<td>Rational exponents: Non-unit fraction exponent with a whole number base</td>
</tr>
<tr>
<td>alge558</td>
<td>Rational exponents: Product rule</td>
</tr>
<tr>
<td>alge559</td>
<td>Rational exponents: Quotient rule</td>
</tr>
<tr>
<td>alge773</td>
<td>Rational exponents: Products and quotients with negative exponents</td>
</tr>
<tr>
<td>alge562</td>
<td>Rational exponents: Power of a power rule</td>
</tr>
<tr>
<td>alge249</td>
<td>Rational exponents: Powers of powers with negative exponents</td>
</tr>
<tr>
<td>alge563</td>
<td>Simplifying products or quotients of higher radicals with different indices: Univariate</td>
</tr>
<tr>
<td>alge778</td>
<td>Using i to rewrite square roots of negative numbers</td>
</tr>
<tr>
<td>alge779</td>
<td>Simplifying a product and quotient involving square roots of negative numbers</td>
</tr>
<tr>
<td>pcalc048</td>
<td>Adding or subtracting complex numbers</td>
</tr>
<tr>
<td>pcalc049</td>
<td>Multiplying complex numbers</td>
</tr>
<tr>
<td>pcalc050</td>
<td>Dividing complex numbers</td>
</tr>
<tr>
<td>pcalc053</td>
<td>Simplifying a power of i</td>
</tr>
<tr>
<td>alge962</td>
<td>Solving an equation of the form $x^2 = a$ using the square root property</td>
</tr>
<tr>
<td>alge992</td>
<td>Solving a quadratic equation using the square root property: Exact answers, basic</td>
</tr>
<tr>
<td>alge227</td>
<td>Solving a quadratic equation using the square root property: Exact answers, advanced</td>
</tr>
<tr>
<td>alge994</td>
<td>Completing the square</td>
</tr>
<tr>
<td>alge780</td>
<td>Solving a quadratic equation by completing the square: Exact answers</td>
</tr>
<tr>
<td>alge995</td>
<td>Applying the quadratic formula: Exact answers</td>
</tr>
<tr>
<td>alge963</td>
<td>Applying the quadratic formula: Decimal answers</td>
</tr>
<tr>
<td>pcalc051</td>
<td>Solving a quadratic equation with complex roots</td>
</tr>
<tr>
<td>alge214</td>
<td>Discriminant of a quadratic equation</td>
</tr>
<tr>
<td>alge524</td>
<td>Solving a word problem using a quadratic equation with irrational roots</td>
</tr>
<tr>
<td>alge974</td>
<td>Finding the vertex, x-intercepts, and axis of symmetry from the graph of a parabola</td>
</tr>
<tr>
<td>alge953</td>
<td>Translating the graph of a parabola: One step</td>
</tr>
<tr>
<td>alge253</td>
<td>Graphing a parabola of the form $y = (x-h)^2 + k$</td>
</tr>
<tr>
<td>alge569</td>
<td>Graphing a parabola of the form $y = x^2 + bx + c$</td>
</tr>
<tr>
<td>pcalc746</td>
<td>Graphing a parabola of the form $y = ax^2 + bx + c$: Integer coefficients</td>
</tr>
<tr>
<td>pcalc747</td>
<td>Graphing a parabola of the form $y = ax^2 + bx + c$: Rational coefficients</td>
</tr>
<tr>
<td>alge277</td>
<td>Finding the x-intercept(s) and the vertex of a parabola</td>
</tr>
<tr>
<td>pcalc774</td>
<td>Rewriting a quadratic function to find the vertex of its graph</td>
</tr>
<tr>
<td>pcalc775</td>
<td>Finding the maximum or minimum of a quadratic function</td>
</tr>
<tr>
<td>alge785</td>
<td>Word problem involving the maximum or minimum of a quadratic function</td>
</tr>
<tr>
<td>alge975</td>
<td>Domain and range from the graph of a parabola</td>
</tr>
<tr>
<td>pcalc762</td>
<td>Range of a quadratic function</td>
</tr>
<tr>
<td>alge957</td>
<td>Solving a quadratic equation by graphing</td>
</tr>
<tr>
<td>alge996</td>
<td>Comparing properties of quadratic functions given in different forms</td>
</tr>
<tr>
<td>alge702</td>
<td>Classifying the graph of a function</td>
</tr>
<tr>
<td>alge723</td>
<td>How the leading coefficient affects the shape of a parabola</td>
</tr>
<tr>
<td>alge965</td>
<td>Identifying linear, quadratic, and exponential functions given ordered pairs</td>
</tr>
<tr>
<td>alge262</td>
<td>Graphing a cubic function of the form $y = ax^3$</td>
</tr>
<tr>
<td>fun019</td>
<td>Sum, difference, and product of two functions</td>
</tr>
<tr>
<td>fun022</td>
<td>Composition of two functions: Basic</td>
</tr>
<tr>
<td>pcalc776</td>
<td>Expressing a function as a composition of two functions</td>
</tr>
<tr>
<td>pcalc924</td>
<td>Determining whether an equation defines a function: Basic</td>
</tr>
<tr>
<td>pcalc775</td>
<td>Determining whether an equation defines a function: Advanced</td>
</tr>
</tbody>
</table>

### B.37 NCCCS Developmental Math Module 050

#### Whole Numbers

<table>
<thead>
<tr>
<th>Module</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>arith124</td>
<td>Whole number place value: Problem type 1</td>
</tr>
</tbody>
</table>
arith125 Whole number place value: Problem type 2
arith066 Expanded form
arith643 Expanded form with zeros
arith028 Numerical translation: Problem type 1
arith060 Numerical translation: Problem type 2
arith633 One-digit addition with carry
arith634 Addition of 3 or 4 one-digit numbers
arith635 Adding a 2-digit number and a 1-digit number with carry
arith650 Addition with carry
arith630 Addition with carry to the hundreds place
arith012 Addition of large numbers
arith636 Subtracting a 1-digit number from a 2-digit number
arith07 Subtraction without borrowing
arith128 Adding or subtracting 10, 100, or 1000
arith006 Subtraction with borrowing
arith682 Subtraction with multiple regrouping steps
arith637 Subtraction and regrouping with zeros
arith613 Word problem with addition or subtraction of whole numbers
arith655 Introduction to properties of addition
arith126 Multiplication as repeated addition
arith008 One-digit multiplication
arith679 Multiplication by 10, 100, and 1000
arith003 Multiplication without carry
arith604 Multiplication with carry
arith632 Multiplication with trailing zeros: Problem type 1
arith615 Introduction to multiplication of large numbers
arith638 Multiplication with trailing zeros: Problem type 2
arith014 Multiplication of large numbers
arith641 Multiples: Problem type 1
arith642 Multiples: Problem type 2
arith656 Introduction to properties of multiplication
arith075 Division facts
arith614 Word problem with multiplication or division of whole numbers
arith130 Word problem with multiplication and addition or subtraction of whole numbers
arith243 Division of whole numbers given in fractional form
arith711 Division involving zero
arith652 Division without carry
arith605 Division with carry
arith680 Division with trailing zeros: Problem type 1
arith649 Division with trailing zeros: Problem type 2
arith616 Quotient and remainder: Problem type 1
arith644 Word problem on quotient and remainder
arith617 Quotient and remainder: Problem type 2
arith631 Quotient and remainder: Problem type 3
arith650 Division involving quotients with intermediate zeros
arith023 Word problem with division of whole numbers and rounding
arith651 Introduction to inequalities
arith077 Ordering large numbers
arith678 Rounding to tens or hundreds
arith123 Rounding to hundreds or thousands
arith661 Rounding to thousands, ten thousands, or hundred thousands
arith101 Estimating a sum of whole numbers
arith102 Estimating a difference of whole numbers
arith604 Estimating a product or quotient of whole numbers
arith692 Writing expressions using exponents
arith23 Introduction to exponents
arith683 Power of 10: Positive exponent
arith645 Introduction to parentheses
arith681 Introduction to order of operations
arith648 Order of operations with whole numbers
arith651 Order of operations with whole numbers and grouping symbols
APPENDIX B. SYLLABI IN ALEKS

arith693 Order of operations with whole numbers and exponents: Basic
arith713 Order of operations with whole numbers and exponents: Advanced
arith657 Understanding the distributive property
alge284 Evaluating an algebraic expression: Whole number addition or subtraction
alge683 Evaluating an algebraic expression: Whole number multiplication or division
alge285 Evaluating an algebraic expression: Whole numbers with two operations
alge832 Evaluating an algebraic expression: Whole number operations and exponents
alge069 Additive property of equality with whole numbers
alge008 Multiplicative property of equality with whole numbers
alge803 Using two steps to solve an equation with whole numbers
arith646 Even and odd numbers
arith647 Divisibility rules for 2, 5, and 10
arith648 Divisibility rules for 3 and 9
arith656 Factors
arith634 Prime numbers
arith635 Prime factorization
arith633 Greatest common factor of 2 numbers
arith670 Least common multiple of 2 numbers
arith804 Least common multiple of 3 numbers
arith240 Finding the next terms of an arithmetic sequence with whole numbers
alge925 Finding the next terms of a geometric sequence with whole numbers
alge732 Finding patterns in shapes

Real Numbers

arith623 Introduction to fractions
arith665 Understanding equivalent fractions
arith212 Equivalent fractions
arith666 Introduction to simplifying a fraction
arith667 Simplifying a fraction
arith687 Fractional position on a number line
arith667 Plotting fractions on a number line
arith044 Ordering fractions with the same denominator
arith091 Ordering fractions with the same numerator
arith092 Using a common denominator to order fractions
arith079 Product of a unit fraction and a whole number
arith886 Product of a fraction and a whole number: Problem type 1
arith119 Introduction to fraction multiplication
arith534 Fraction multiplication
arith812 Product of a fraction and a whole number: Problem type 2
arith813 Multiplication of 3 fractions
arith818 Word problem involving fractions and multiplication
arith805 Multi-step word problem involving fractions and multiplication
arith808 The reciprocal of a number
arith694 Division involving a whole number and a fraction
arith022 Fraction division
arith819 Word problem involving fractions and division
arith818 Addition or subtraction of fractions with the same denominator
arith802 Addition or subtraction of fractions with the same denominator and simplification
arith801 Finding the LCD of two fractions
arith109 Addition or subtraction of unit fractions
arith664 Introduction to addition or subtraction of fractions with different denominators
arith230 Addition or subtraction of fractions with different denominators
arith803 Addition and subtraction of 3 fractions with different denominators
arith805 Word problem involving addition or subtraction of fractions with different denominators
arith108 Fractional part of a circle
arith662 Writing a mixed number and an improper fraction for a shaded region
arith805 Writing an improper fraction as a mixed number
arith619 Writing a mixed number as an improper fraction
arith215 Addition or subtraction of mixed numbers with the same denominator
arith084 Addition of mixed numbers with the same denominator and carry
arith216 Subtraction of mixed numbers with the same denominator and borrowing
arith806 Addition or subtraction of mixed numbers with different denominators and no carry or borrow
arith808 Addition of mixed numbers with different denominators and carry
arith809 Subtraction of mixed numbers with different denominators and borrowing
arith807 Addition and subtraction of 3 mixed numbers with different denominators
arith810 Word problem involving addition or subtraction of mixed numbers with different denominators
arith815 Mixed number multiplication
arith816 Multiplication of a mixed number and a whole number
arith817 Division with a mixed number and a whole number
arith068 Mixed number division
arith820 Word problem involving multiplication or division with mixed numbers
arith821 Exponents and fractions
arith859 Order of operations with fractions: Problem type 1
arith860 Order of operations with fractions: Problem type 2
arith861 Order of operations with fractions: Problem type 3
arith717 Converting a decimal to a proper fraction without simplifying: Basic
arith719 Converting a decimal to a proper fraction without simplifying: Advanced
arith718 Converting a decimal to a proper fraction in simplest form: Basic
arith807 Converting a decimal to a proper fraction in simplest form: Advanced
arith721 Converting a decimal to a mixed number and an improper fraction without simplifying
arith722 Converting a decimal to a mixed number and an improper fraction in simplest form: Basic
arith724 Converting a decimal to a mixed number and an improper fraction in simplest form: Advanced
arith624 Addition of aligned decimals
arith013 Decimal addition with 3 numbers
arith734 Subtraction of aligned decimals
arith735 Decimal subtraction: Basic
arith736 Decimal subtraction: Advanced
arith737 Decimal addition and subtraction with 3 or more numbers
arith131 Estimating a decimal sum or difference
arith132 Word problem with addition or subtraction of 2 decimals
arith133 Word problem with addition of 3 or 4 decimals and whole numbers
arith134 Word problem with subtraction of a whole number and a decimal: Regrouping with zeros
arith739 Introduction to decimal multiplication
arith017 Multiplication of a decimal by a whole number
arith055 Decimal multiplication: Problem type 1
arith082 Multiplication of a decimal by a power of ten
arith738 Multiplication of a decimal by a power of 0.1
arith740 Multiplication of decimals that have a product less than 0.1
arith752 Estimating a product of decimals
arith135 Word problem with multiplication of a decimal and a whole number
arith137 Word problem with multiplication of two decimals
arith224 Word problem with decimal addition and multiplication
arith744 Whole number division with decimal answers
arith081 Division of a decimal by a whole number
arith743 Division of a decimal by a 1-digit decimal
arith019 Division of a decimal by a 2-digit decimal
arith083 Division of a decimal by a power of ten
arith742 Division of a decimal by a power of 0.1
arith745 Decimal division with rounding
arith136 Word problem with division of a decimal and a whole number
arith138 Word problem with division of two decimals
arith227 Word problem with decimal subtraction and division
alge823 Solving a one-step word problem using the formula d = rt
arith725 Converting a fraction with a denominator of 10 or 100 to a decimal
arith726 Converting a fraction with a denominator of 100 or 1000 to a decimal
arith609 Ordering fractions and decimals
arith727 Converting a fraction to a terminating decimal: Basic
arith728 Converting a fraction to a terminating decimal: Advanced
Appendix B. Syllabi in Aleks

- arith730 Converting a fraction to a repeating decimal: Basic
- arith731 Converting a fraction to a repeating decimal: Advanced
- arith733 Using a calculator to convert a fraction to a rounded decimal
- arith111 Converting a mixed number to a terminating decimal: Basic
- arith112 Converting a mixed number to a terminating decimal: Advanced
- arith732 Converting a fraction or mixed number to a rounded decimal
- arith753 Squaring decimal bases: Products greater than 0.1
- arith741 Exponents and decimals: Products less than 0.1
- arith720 Order of operations with decimals: Problem type 1
- arith746 Order of operations with decimals: Problem type 2
- arith747 Order of operations with decimals: Problem type 3
- arith748 Addition or subtraction with a decimal and a mixed number
- arith749 Multiplication with a decimal and a fraction
- arith823 Writing ratios using different notations
- arith663 Writing ratios for real-world situations
- arith824 Simplifying a ratio of whole numbers: Problem type 1
- arith825 Simplifying a ratio of decimals
- arith827 Finding a unit price
- arith804 Solving a word problem on proportions using a unit rate
- arith228 Word problem on proportions: Problem type 1
- arith229 Word problem on proportions: Problem type 2
- arith064 Word problem on proportions: Problem type 3
- alge272 Solving a proportion of the form x/a = b/c
- arith610 Word problem on proportions: Problem type 1
- arith611 Word problem on proportions: Problem type 2
- alge063 Word problem on mixed number proportions
- arith455 Word problem with powers of ten
- arith836 Converting a fraction with a denominator of 100 to a percentage
- arith837 Converting a percentage to a fraction with a denominator of 100
- arith838 Finding the percentage of a grid that is shaded
- arith839 Introduction to converting a percentage to a decimal
- arith840 Introduction to converting a decimal to a percentage
- arith841 Converting between percentages and decimals
- arith842 Converting a mixed number percentage to a decimal
- arith843 Converting between percentages and decimals in a real-world situation
- arith844 Converting a percentage to a fraction in simplest form
- arith845 Converting a decimal percentage to a fraction
- arith846 Converting a fraction to a percentage: Denominator of 4, 5, or 10
- arith847 Converting a fraction to a percentage: Denominator of 20, 25, or 50
- arith848 Using a calculator to convert a fraction to a rounded percentage
- arith849 Converting a fraction to a percentage in a real-world situation
- arith850 Finding a percentage of a whole number
- arith851 Finding a percentage of a whole number without a calculator: Basic
- arith852 Finding a percentage of a whole number without a calculator: Advanced
- arith853 Finding a percentage of a whole number without a calculator: Fraction
- arith854 Finding the percent equation: Problem type 1
- arith855 Applying the percent equation: Problem type 2
- arith856 Finding a percentage of a total amount: Real-world situations
- arith857 Finding a percentage of a total amount without a calculator: Sales tax, commission, discount
- arith858 Estimating a tip without a calculator
- arith859 Writing a ratio as a percentage without a calculator
- mstat049 Computing a percentage from a table of values
- arith850 Finding the rate of a tax or commission
- arith851 Finding the total amount given the percentage of a partial amount
- arith852 Finding the multiplier to give a final amount after a percentage increase or decrease
- arith853 Finding the final amount given the original amount and a percentage increase or decrease
- arith854 Finding the sale price given the original price and percent discount
- arith855 Finding the sale price without a calculator given the original price and percent discount
- arith856 Finding the total cost including tax or markup
- arith857 Finding the original amount given the result of a percentage increase or decrease
- arith858 Finding the original price given the sale price and percent discount
- arith859 Finding the percentage increase or decrease: Basic
- arith860 Finding the percentage increase or decrease: Advanced
- arith861 Finding simple interest without a calculator
Decimals, Proportions, and Percents

arith127 Writing a decimal and a fraction for a shaded region
arith110 Decimal place value: Tenths and hundredths
arith220 Decimal place value: Hundreds to ten thousandths
arith714 Writing a decimal number less than 1 given its name
arith715 Writing a decimal number greater than 1 given its name
arith829 Reading decimal position on a number line: Tenths
arith830 Reading decimal position on a number line: Hundredths
arith831 Understanding decimal position on a number line using zoom: Hundredths
arith832 Understanding decimal position on a number line using zoom: Thousandths
arith129 Introduction to ordering decimals
arith608 Ordering decimals
arith221 Rounding decimals

Linear Equations
APPENDIX B. SYLLABI IN ALEKS

alge005 Evaluating a linear expression: Integer multiplication with addition or subtraction
alge008 Evaluating a linear expression: Signed fraction multiplication with addition or subtraction
alge302 Evaluating a linear expression: Signed decimal addition and subtraction
alge303 Evaluating a linear expression: Signed decimal multiplication with addition or subtraction
alge004 Evaluating a quadratic expression: Integers
alge700 Combining like terms: Whole number coefficients
alge607 Combining like terms: Integer coefficients
alge187 Properties of addition
alge310 Multiplying a constant and a linear monomial
alge606 Distributive property: Whole number coefficients
alge604 Distributive property: Integer coefficients
alge188 Properties of real numbers
alge608 Using distribution and combining like terms to simplify: Univariate
alge609 Using distribution with double negation and combining like terms to simplify: Multivariate
alge293 Combining like terms in a quadratic expression
alge432 Introduction to adding fractions with variables and common denominators
alge436 Adding rational expressions with different denominators and a single occurrence of a variable
alge801 Additive property of equality with fractions and mixed numbers
alge800 Additive property of equality with decimals
alge010 Additive property of equality with integers
alge836 Additive property of equality with signed fractions
alge820 Multiplicative property of equality with fractions
alge825 Multiplicative property of equality with decimals
alge797 Multiplicative property of equality with integers
alge012 Multiplicative property of equality with signed fractions
alge834 Identifying solutions to a linear equation in one variable: Two-step equations
alge206 Additive property of equality with a negative coefficient
alge006 Solving a two-step equation with integers
alge209 Solving an equation to find the value of an expression
alge920 Introduction to solving an equation with parentheses
alge837 Solving a multi-step equation given in fractional form
alge986 Identifying properties used to solve a linear equation
alge824 Solving a two-step equation with signed decimals
alge838 Introduction to solving an equation with variables on the same side
alge862 Solving a linear equation with several occurrences of the variable: Variables on the same side
alge863 Solving a linear equation with several occurrences of the variable: Variables on both sides
alge011 Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
alge013 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
alge209 Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions
alge420 Solving a linear equation with several occurrences of the variable: Fractional forms with monomial numerators
alge208 Solving a two-step equation with signed fractions
alge061 Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
alge179 Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators
alge742 Solving equations with zero, one, or infinitely many solutions
alge840 Solving a proportion of the form \((x+a)\div b = c\div d\)
alge271 Solving a proportion of the form \(a\div(x+b) = c\div x\)
alge603 Introduction to solving an absolute value equation
alge864 Solving an absolute value equation: Problem type 1
alge511 Solving for a variable in terms of other variables using addition or subtraction: Basic
alge512 Solving for a variable in terms of other variables using addition or subtraction: Advanced
alge513 Solving for a variable in terms of other variables using multiplication or division: Basic
alge514 Solving for a variable in terms of other variables using multiplication or division: Advanced
alge517 Solving for a variable in terms of other variables using addition or subtraction with division
alge518 Solving for a variable inside parentheses in terms of other variables
alge597 Solving for a variable in terms of other variables in a linear equation with fractions
alge733 Writing a one-step expression for a real-world situation
alge831 Translating a phrase into a one-step expression
alge291 Translating a phrase into a two-step expression
alge016 Translating a sentence into a one-step equation
alge841 Translating a sentence into a multi-step equation
alge802 Solving a fraction word problem using a linear equation of the form Ax = B
alge014 Solving a word problem with two unknowns using a linear equation
alge173 Solving a decimal word problem using a linear equation of the form Ax + B = C
alge730 Writing a multi-step equation for a real-world situation
alge219 Solving a decimal word problem using a linear equation with the variable on both sides
alge704 Solving a fraction word problem using a linear equation with the variable on both sides
alge792 Solving a word problem with three unknowns using a linear equation
alge842 Solving a word problem involving consecutive integers
alge794 Solving a value mixture problem using a linear equation
alge218 Solving a word problem involving rates and time conversion
alge796 Solving a distance, rate, time problem using a linear equation
arith854 Computing a percent mixture
alge795 Solving a percent mixture problem using a linear equation
geom817 Finding a side length given the perimeter and side lengths with variables
geom143 Finding the perimeter or area of a rectangle given one of these values
geom218 Finding the radius or the diameter of a circle given its circumference
geom838 Circumference ratios
geom530 Solving equations involving vertical angles
geom531 Solving equations involving angles and a pair of parallel lines
geom623 Finding angle measures of a triangle given angles with variables
geom502 Finding angle measures of a right or isosceles triangle given angles with variables
stat803 Finding the value for a new score that will yield a given mean
alge015 Translating a sentence by using an inequality symbol
alge845 Translating a sentence into a one-step inequality
alge846 Translating a sentence into a multi-step inequality
alge748 Writing an inequality for a real-world situation
alge017 Graphing a linear inequality on the number line
alge822 Writing an inequality given a graph on the number line
alge186 Translating a sentence into a compound inequality
alge166 Graphing a compound inequality on the number line
alge847 Writing a compound inequality given a graph on the number line
set001 Set builder notation
set004 Set builder and interval notation
set002 Union and intersection of finite sets
alge844 Identifying solutions to a two-step linear inequality in one variable
alge848 Additive property of inequality with whole numbers
alge849 Additive property of inequality with integers
alge852 Additive property of inequality with signed fractions
alge853 Additive property of inequality with signed decimals
alge854 Multiplicative property of inequality with integers
alge964 Multiplicative property of inequality with signed fractions
alge855 Solving a two-step linear inequality: Problem type 1
alge856 Solving a two-step linear inequality: Problem type 2
alge857 Solving a two-step linear inequality with a fractional coefficient
alge977 Solving a linear inequality with multiple occurrences of the variable: Problem type 1
alge858 Solving a linear inequality with multiple occurrences of the variable: Problem type 2
alge859 Solving a linear inequality with multiple occurrences of the variable: Problem type 3
alge860 Solving inequalities with no solution or all real numbers as solutions
alge746 Solving a compound linear inequality: Graph solution, basic
alge747 Solving a compound linear inequality: Interval notation
alge868 Solving an absolute value inequality: Problem type 1
alge749 Solving a decimal word problem using a two-step linear inequality
alge750 Solving a decimal word problem using a linear inequality with the variable on both sides

Functions and Lines

fun001 Table for a linear function
APPENDIX B. SYLLABI IN ALEKS

alge064 Reading a point in the coordinate plane
alge067 Plotting a point in the coordinate plane
alge850 Table for a linear equation
alge873 Identifying solutions to a linear equation in two variables
alge066 Finding a solution to a linear equation in two variables
alge191 Midpoint of a line segment in the plane
alge877 Graphing a linear equation of the form $y = mx$
alge878 Graphing a line given its equation in slope-intercept form: Integer slope
alge879 Graphing a line given its equation in slope-intercept form: Fractional slope
alge880 Graphing a line given its equation in standard form
alge198 Graphing a vertical or horizontal line
alge197 Graphing a line given its x- and y-intercepts
alge881 Graphing a line by first finding its x- and y-intercepts
alge259 Graphing a line given its slope and y-intercept
alge196 Graphing a line through a given point with a given slope
alge888 Finding the coordinate that yields a given slope
alge884 Finding x- and y-intercepts given the graph of a line on a grid
alge924 Finding x- and y-intercepts of a line given the equation: Basic
alge210 Finding x- and y-intercepts of a line given the equation: Advanced
alge875 Classifying slopes given graphs of lines
alge886 Finding slope given the graph of a line on a grid
alge887 Finding slope given two points on the line
alge885 Finding the slope of horizontal and vertical lines
alge876 Identifying linear equations: Advanced
alge874 Identifying linear functions given ordered pairs
alge891 Rewriting a linear equation in the form $Ax + By = C$
alge889 Finding the slope and y-intercept of a line given its equation in the form $y = mx + b$
alge890 Finding the slope and y-intercept of a line given its equation in the form $Ax+By=C$
alge882 Graphing a line by first finding its slope and y-intercept
alge258 Writing an equation of a line given its slope and y-intercept
alge892 Writing an equation and graphing a line given its slope and y-intercept
alge893 Writing an equation in slope-intercept form given the slope and a point
alge883 Graphing a line given its equation in point-slope form
alge894 Writing an equation in point-slope form given the slope and a point
alge070 Writing an equation of a line given the y-intercept and another point
alge072 Writing the equation of the line through two given points
alge073 Writing the equations of vertical and horizontal lines through a given point
geom806 Finding slopes of lines parallel and perpendicular to a line given in slope-intercept form
geom807 Finding slopes of lines parallel and perpendicular to a line given in the form $Ax + By = C$
alge895 Identifying parallel and perpendicular lines from equations
geom808 Writing equations of lines parallel and perpendicular to a given line through a point
mstat044 Interpreting a double bar graph
mstat007 Interpreting a line graph
stat804 Interpreting a circle graph or pie chart
stat801 Computations from a circle graph
alge897 Writing and evaluating a function that models a real-world situation: Advanced
alge701 Writing an equation and drawing its graph to model a real-world situation: Advanced
fun005 Writing a function rule given a table of ordered pairs: One-step rules
fun006 Writing a function rule given a table of ordered pairs: Two-step rules
alge992 Combining functions to write a new function that models a real-world situation
alge987 Comparing properties of linear functions given in different forms
alge989 Interpreting the parameters of a linear function that models a real-world situation
alge805 Application problem with a linear function: Finding a coordinate given the slope and a point
alge806 Application problem with a linear function: Finding a coordinate given two points
mstat052 Identifying independent and dependent variables from equations or real-world situations
alge991 Solving a linear equation by graphing
alge263 Interpreting the graphs of two functions
mstat068 Predictions from the line of best fit
mstat030 Sketching the line of best fit
mstat023 Scatter plots and correlation
mstat067 Approximating the equation of a line of best fit and making predictions
mstat069 Computing residuals
B.37. NCCCS DEVELOPMENTAL MATH MODULE 050

mstat070 Interpreting residual plots
mstat071 Linear relationship and the correlation coefficient
mstat074 Identifying correlation and causation
alge898 Translating the graph of an absolute value function: One step
alge899 Translating the graph of an absolute value function: Two steps
alge913 Graphing an absolute value equation of the form y = A−x−
alge900 Graphing an absolute value equation in the plane: Basic
alge168 Graphing an absolute value equation in the plane: Advanced
alge901 How the leading coefficient affects the graph of an absolute value function
fun032 Identifying functions from relations
fun010 Vertical line test
fun016 Domain and range from ordered pairs
pcalc760 Evaluating functions: Linear and quadratic or cubic
fun033 Variable expressions as inputs of functions: Problem type 1
alge294 Finding outputs of a one-step function that models a real-world situation: Function notation
alge295 Finding outputs of a two-step function with decimals that models a real-world situation: Function notation
alge296 Finding inputs and outputs of a two-step function that models a real-world situation: Function notation
alge900 Domain and range of a linear function that models a real-world situation
fun026 Finding an output of a function from its graph
pcalc761 Finding inputs and outputs of a function from its graph
fun007 Domain and range from the graph of a discrete relation
fun024 Domain and range from the graph of a continuous function
alge896 Graphing an integer function and finding its range for a given domain
alge570 Graphing a function of the form f(x) = ax + b: Integer slope
alge571 Graphing a function of the form f(x) = ax + b: Fractional slope
alge954 Graphing a parabola of the form y = ax2
alge955 Graphing a parabola of the form y = ax2 + c
alge572 Graphing a function of the form f(x) = ax2
alge573 Graphing a function of the form f(x) = ax2 + c
pcalc750 Finding intercepts of a nonlinear function given its graph
pcalc751 Finding where a function is increasing, decreasing, or constant given the graph: Interval notation
pcalc752 Finding local maxima and minima of a function given the graph
mstat018 Choosing a graph to fit a narrative: Basic
mstat051 Choosing a graph to fit a narrative: Advanced

Geometry

gem339 Perimeter of a polygon
gem300 Perimeter of a square or a rectangle
gem301 Perimeter of a polygon involving mixed numbers and fractions
gem078 Sides of polygons having the same perimeter
gem221 Finding the missing length in a figure
gem353 Perimeter of a piecewise rectangular figure
gem358 Identifying parallel and perpendicular lines
gem349 Naming segments, rays, and lines
gem151 Measuring an angle with the protractor
gem152 Drawing an angle with the protractor
gem303 Acute, obtuse, and right angles
gem309 Finding supplementary and complementary angles
gem305 Identifying supplementary and vertical angles
gem304 Identifying corresponding and alternate angles
gem306 Acute, obtuse, and right triangles
gem307 Classifying scalene, isosceles, and equilateral triangles by side lengths or angles
gem001 Finding an angle measure of a triangle given two angles
gem908 Finding an angle measure for a triangle with an extended side
gem812 Finding an angle measure given extended triangles
gem813 Finding an angle measure given a triangle and parallel lines
gem361 Naming polygons
mstat042 Interpreting a Venn diagram of 2 sets
APPENDIX B. SYLLABI IN ALEKS

geom867 Identifying parallelograms, rectangles, and squares
geom310 Properties of quadrilaterals
geom532 Classifying parallelograms
geom019 Area of a square or a rectangle
geom866 Perimeter and area on a grid
geom620 Area of a rectangle involving fractions
geom619 Area of a rectangle involving mixed numbers and fractions
geom350 Distinguishing between the area and perimeter of a rectangle
geom351 Areas of rectangles with the same perimeter
geom217 Finding the side length of a rectangle given its perimeter or area
geom340 Area of a piecewise rectangular figure
geom142 Word problem involving the area between two rectangles
geom801 Area of a triangle
geom344 Area involving rectangles and triangles
geom022 Area of a parallelogram
geom023 Area of a trapezoid
geom347 Introduction to a circle: Diameter, radius, and chord
geom016 Circumference of a circle
geom301 Perimeter involving rectangles and circles
geom302 Area involving rectangles and circles
geom036 Word problem involving the area between two concentric circles
geom214 Area involving inscribed figures
geom814 Angle measure in a circle graph
geom068 Classifying solids
geom348 Vertices, edges, and faces of a solid
geom380 Counting the cubes in a solid made of cubes
geom354 Volume of a rectangular prism made of unit cubes
geom311 Volume of a rectangular prism
geom505 Volume of a piecewise rectangular prism
geom690 Volume of a triangular prism
geom333 Volume of a pyramid
geom335 Volume of a cylinder
geom092 Word problem involving the rate of filling or emptying a cylinder
geom822 Volume of a cone
geom841 Volume of a sphere
geom219 Nets of solids
geom816 Side views of a solid made of cubes
geom031 Surface area of a cube or a rectangular prism
geom345 Surface area of a piecewise rectangular prism made of unit cubes
geom091 Surface area of a triangular prism
geom021 Surface area of a cylinder
geom842 Surface area of a sphere
arith616 Square root of a perfect square
arith763 Using a calculator to approximate a square root
arith602 Estimating a square root
arith601 Square root of a rational perfect square
alge407 Introduction to the Pythagorean Theorem
geom44 Pythagorean Theorem
alge408 Word problem involving the Pythagorean Theorem
geom359 Identifying congruent shapes on a grid
geom520 Identifying and naming congruent triangles
geom360 Identifying similar or congruent shapes on a grid
geom037 Similar polygons
geom038 Similar right triangles
geom337 Indirect measurement

Measurement and Data Analysis

mstat059 Choosing U.S. Customary measurement units
unit005 U.S. Customary unit conversion with whole number values
mstat035 Conversions involving measurements in feet and inches
mstat036 Adding measurements in feet and inches
unit006 U.S. Customary unit conversion with whole number values: Two-step conversion
unit007 U.S. Customary unit conversion with mixed number values: One-step conversion
unit008 U.S. Customary unit conversion with mixed number values: Two-step conversion
unit009 U.S. Customary area unit conversion with whole number values
mstat060 Choosing metric measurement units
unit001 Metric distance conversion with whole number values
unit002 Metric mass or capacity conversion with whole number values
unit003 Metric distance conversion with decimal values
unit004 Metric conversion with decimal values: Two-step problem
unit010 Metric area unit conversion with decimal values
unit012 Time unit conversion with whole number values
time006 Adding time
time007 Elapsed time
arith063 Word problem with clocks
mstat065 Converting between temperatures in Fahrenheit and Celsius
arith826 Simplifying a ratio of whole numbers: Problem type 2
unit034 Converting between metric and U.S. Customary unit systems
unit035 Converting between compound units: Basic
unit036 Converting between compound units: Advanced
mstat056 Interpreting a tally table
mstat037 Constructing a line plot
mstat005 Constructing a bar graph for non-numerical data
mstat004 Constructing a histogram for numerical data
mstat024 Interpreting a bar graph
mstat057 Interpreting a pictograph table
mstat031 Interpreting a stem-and-leaf plot
stat020 Calculating relative frequencies in a contingency table
stat805 Making a reasonable inference based on proportion statistics
mstat025 Finding if a question can be answered by the data
mstat003 Mode of a data set
mstat055 Finding the mode and range of a data set
arith103 Average of two numbers
mstat001 Mean of a data set
mstat028 Mean and median of a data set
mstat029 How changing a value affects the mean and median
mstat053 Choosing the best measure to describe data
stat802 Rejecting unreasonable claims based on average statistics
mstat006 Weighted mean
mstat027 Using back-to-back stem-and-leaf plots to compare data sets
mstat072 Five-number summary and interquartile range
mstat006 Constructing a box-and-whisker plot
mstat073 Using box-and-whisker plots to compare data sets
mstat043 Interpreting a Venn diagram of 3 sets
mstat041 Interpreting a tree diagram
mstat040 Introduction to the counting principle
mstat015 Counting principle
pcalc082 Factorial expressions
mstat017 Computing permutations and combinations
mstat008 Word problem involving permutations
mstat009 Word problem involving combinations
mstat026 Introduction to the probability of an event
mstat010 Probability of an event
mstat039 Understanding likelihood
mstat048 Odds of an event
stat106 Outcomes and event probability
stat112 Probabilities involving two dice
mstat011 Area as probability
mstat046 Experimental and theoretical probability
mstat047 Introduction to expectation
mstat012 Probability of independent events
mstat013 Probability of dependent events
mstat032 Probability of the union of two events

Systems

alge914 Identifying solutions to a system of linear equations
alge075 Classifying systems of linear equations from graphs
alge725 Graphically solving a system of linear equations
alge751 Solving a system of linear equations using substitution
alge915 Solving a system of linear equations using elimination with addition
alge076 Solving a system of linear equations using elimination with multiplication and addition
alge916 Solving a system of linear equations with fractional coefficients
alge917 Solving a system of linear equations with decimal coefficients
alge752 Solving a 2x2 system of linear equations that is inconsistent or consistent dependent
alge988 Identifying the operations used to create equivalent systems of equations
alge753 Solving a 3x3 system of linear equations: Problem type 1
alge078 Solving a word problem involving a sum and another basic relationship using a system of linear equations
alge919 Solving a word problem using a system of linear equations of the form Ax + By = C
alge918 Solving a word problem using a system of linear equations of the form y = mx + b
alge184 Solving a value mixture problem using a system of linear equations
alge192 Solving a percent mixture problem using a system of linear equations
alge224 Solving a distance, rate, time problem using a system of linear equations
alge172 Solving a tax rate or interest rate problem using a system of linear equations
alge793 Solving a word problem using a 3x3 system of linear equations: Problem type 1
alge912 Identifying solutions to a linear inequality in two variables
alge225 Graphing a linear inequality in the plane: Vertical or horizontal line
alge720 Graphing a linear inequality in the plane: Slope-intercept form
alge079 Graphing a system of two linear inequalities: Basic
alge921 Graphing a system of two linear inequalities: Advanced
alge922 Graphing a system of three linear inequalities
alge729 Writing a multi-step inequality for a real-world situation
pcalc093 Solving a word problem using a system of linear inequalities: Problem type 1

Exponents and Polynomials

alge821 Understanding the product rule of exponents
alge624 Introduction to the product rule of exponents
alge311 Product rule with positive exponents: Univariate
alge030 Product rule with positive exponents: Multivariate
arith029 Ordering numbers with positive exponents
alge826 Understanding the power rules of exponents
alge306 Introduction to the power of a power rule of exponents
alge305 Introduction to the power of a product rule of exponents
alge307 Power rules with positive exponents: Multivariate products
alge308 Power rules with positive exponents: Multivariate quotients
alge756 Power and product rules with positive exponents
alge451 Simplifying a ratio of multivariate monomials: Basic
alge827 Introduction to the quotient rule of exponents
alge452 Simplifying a ratio of univariate monomials
alge026 Quotient of expressions involving exponents
alge453 Simplifying a ratio of multivariate monomials: Advanced
alge927 Power and quotient rules with positive exponents
alge790 Evaluating expressions with exponents of zero
arith684 Power of 10: Negative exponent
arith729 Evaluating an expression with a negative exponent: Whole number base
arith042 Evaluating an expression with a negative exponent: Positive fraction base
arith043 Evaluating an expression with a negative exponent: Negative integer base
arith024 Ordering numbers with negative exponents
alge791 Rewriting an algebraic expression without a negative exponent
alge961 Introduction to the product rule with negative exponents
alge028 Product rule with negative exponents
alge755 Quotient rule with negative exponents: Problem type 1
alge926 Quotient rule with negative exponents: Problem type 2
alge025 Power of a power rule with negative exponents
alge799 Power rules with negative exponents
alge928 Power and quotient rules with negative exponents: Problem type 1
alge929 Power and quotient rules with negative exponents: Problem type 2
alge757 Power, product, and quotient rules with negative exponents
arith036 Scientific notation with positive exponent
arith037 Scientific notation with negative exponent
scinot012 Converting between scientific notation and standard form in a real-world situation
scinot008 Multiplying numbers written in scientific notation: Basic
scinot009 Multiplying numbers written in scientific notation: Advanced
scinot010 Dividing numbers written in scientific notation: Basic
scinot011 Dividing numbers written in scientific notation: Advanced
alge971 Table for an exponential function
alge830 Evaluating an exponential function that models a real-world situation
arith853 Introduction to compound interest
alge177 Finding a final amount in a word problem on exponential growth or decay
alge741 Finding the final amount in a word problem on compound interest
alge966 Finding the initial amount and rate of change given an exponential function
alge968 Writing an equation that models exponential growth or decay
alge961 Solving an exponential equation by finding common bases: Linear exponents
alge969 Graphing an exponential function: f(x) = ax
alge970 Graphing an exponential function: f(x) = a(b)x
alge967 Writing an exponential function rule given a table of ordered pairs
alge993 Comparing linear, polynomial, and exponential functions
alge758 Degree and leading coefficient of a univariate polynomial
alge601 Degree of a multivariate polynomial
alge798 Simplifying a sum or difference of two univariate polynomials
alge029 Simplifying a sum or difference of three univariate polynomials
alge932 Simplifying a sum or difference of multivariate polynomials
alge735 Multiplying a univariate polynomial by a monomial with a positive coefficient
alge972 Multiplying a univariate polynomial by a monomial with a negative coefficient
alge835 Multiplying a multivariate polynomial by a monomial
alge033 Multiplying binomials with leading coefficients of 1
alge983 Multiplying binomials with leading coefficients greater than 1
alge765 Multiplying binomials in two variables
alge764 Multiplying conjugate binomials: Univariate
alge081 Multiplying conjugate binomials: Multivariate
alge032 Squaring a binomial: Univariate
alge068 Squaring a binomial: Multivariate
alge973 Multiplying binomials with negative coefficients
alge935 Multiplication involving binomials and trinomials in one variable
alge180 Multiplication involving binomials and trinomials in two variables
alge759 Dividing a polynomial by a monomial: Univariate
alge760 Dividing a polynomial by a monomial: Multivariate
alge761 Polynomial long division: Problem type 1
alge762 Polynomial long division: Problem type 2
alge763 Polynomial long division: Problem type 3
alge985 Closure properties of integers and polynomials
alge605 Factoring a linear binomial
alge736 Introduction to the GCF of two monomials
alge930 Greatest common factor of three univariate monomials
alge037 Greatest common factor of two multivariate monomials
alge738 Factoring out a monomial from a polynomial: Univariate
alge739 Factoring out a monomial from a polynomial: Multivariate
alge949 Factoring out a binomial from a polynomial: GCF factoring, basic
alge923 Factoring a univariate polynomial by grouping: Problem type 1
### APPENDIX B. SYLLABI IN ALEKS

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>alge950</td>
<td>Factoring a univariate polynomial by grouping: Problem type 2</td>
</tr>
<tr>
<td>alge951</td>
<td>Factoring a multivariate polynomial by grouping: Problem type 1</td>
</tr>
<tr>
<td>alge952</td>
<td>Factoring a multivariate polynomial by grouping: Problem type 2</td>
</tr>
<tr>
<td>alge039</td>
<td>Factoring a quadratic with leading coefficient 1</td>
</tr>
<tr>
<td>alge942</td>
<td>Factoring a quadratic in two variables with leading coefficient 1</td>
</tr>
<tr>
<td>alge936</td>
<td>Factoring out a constant before factoring a quadratic</td>
</tr>
<tr>
<td>alge939</td>
<td>Factoring a quadratic with leading coefficient greater than 1: Problem type 1</td>
</tr>
<tr>
<td>alge940</td>
<td>Factoring a quadratic with leading coefficient greater than 1: Problem type 2</td>
</tr>
<tr>
<td>alge941</td>
<td>Factoring a quadratic with leading coefficient greater than 1: Problem type 3</td>
</tr>
<tr>
<td>alge978</td>
<td>Factoring a quadratic by the ac-method</td>
</tr>
<tr>
<td>alge265</td>
<td>Factoring a quadratic in two variables with leading coefficient greater than 1</td>
</tr>
<tr>
<td>alge937</td>
<td>Factoring a quadratic with a negative leading coefficient</td>
</tr>
<tr>
<td>alge944</td>
<td>Factoring a perfect square trinomial with leading coefficient 1</td>
</tr>
<tr>
<td>alge945</td>
<td>Factoring a perfect square trinomial with leading coefficient greater than 1</td>
</tr>
<tr>
<td>alge946</td>
<td>Factoring a perfect square trinomial in two variables</td>
</tr>
<tr>
<td>alge290</td>
<td>Factoring a difference of squares in one variable: Basic</td>
</tr>
<tr>
<td>alge947</td>
<td>Factoring a difference of squares in one variable: Advanced</td>
</tr>
<tr>
<td>alge839</td>
<td>Factoring a difference of squares in two variables</td>
</tr>
<tr>
<td>alge948</td>
<td>Factoring a polynomial involving a GCF and a difference of squares: Univariate</td>
</tr>
<tr>
<td>alge833</td>
<td>Factoring a polynomial involving a GCF and a difference of squares: Multivariate</td>
</tr>
<tr>
<td>alge041</td>
<td>Factoring a product of a quadratic trinomial and a monomial</td>
</tr>
<tr>
<td>alge042</td>
<td>Factoring with repeated use of the difference of squares formula</td>
</tr>
<tr>
<td>alge044</td>
<td>Factoring a sum or difference of two cubes</td>
</tr>
<tr>
<td>alge681</td>
<td>Solving an equation written in factored form</td>
</tr>
<tr>
<td>alge956</td>
<td>Finding the roots of a quadratic equation of the form ( ax^2 + bx = 0 )</td>
</tr>
<tr>
<td>alge045</td>
<td>Finding the roots of a quadratic equation with leading coefficient 1</td>
</tr>
<tr>
<td>alge048</td>
<td>Finding the roots of a quadratic equation with leading coefficient greater than 1</td>
</tr>
<tr>
<td>alge211</td>
<td>Solving a quadratic equation needing simplification</td>
</tr>
<tr>
<td>alge703</td>
<td>Solving a word problem using a quadratic equation with rational roots</td>
</tr>
<tr>
<td>alge713</td>
<td>Using the Pythagorean Theorem and a quadratic equation to find side lengths of a right triangle</td>
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### Rational Expressions

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>alge049</td>
<td>Restriction on a variable in a denominator: Linear</td>
</tr>
<tr>
<td>alge467</td>
<td>Restriction on a variable in a denominator: Quadratic</td>
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<tr>
<td>alge468</td>
<td>Evaluating a rational function: Problem type 1</td>
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<tr>
<td>alge469</td>
<td>Evaluating a rational function: Problem type 2</td>
</tr>
<tr>
<td>alge715</td>
<td>Domain of a rational function: Excluded values</td>
</tr>
<tr>
<td>alge454</td>
<td>Simplifying a ratio of factored polynomials: Linear factors</td>
</tr>
<tr>
<td>alge455</td>
<td>Simplifying a ratio of factored polynomials: Factors with exponents</td>
</tr>
<tr>
<td>alge456</td>
<td>Simplifying a ratio of polynomials using GCF factoring</td>
</tr>
<tr>
<td>alge457</td>
<td>Simplifying a ratio of linear polynomials: 1, -1, and no simplification</td>
</tr>
<tr>
<td>alge458</td>
<td>Simplifying a ratio of polynomials by factoring a quadratic with leading coefficient 1</td>
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<tr>
<td>alge710</td>
<td>Simplifying a ratio of polynomials: Problem type 1</td>
</tr>
<tr>
<td>alge682</td>
<td>Simplifying a ratio of polynomials: Problem type 2</td>
</tr>
<tr>
<td>alge459</td>
<td>Simplifying a ratio of polynomials: Problem type 3</td>
</tr>
<tr>
<td>alge604</td>
<td>Simplifying a ratio of multivariate polynomials</td>
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<tr>
<td>alge053</td>
<td>Multiplying rational expressions involving multivariate monomials</td>
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<tr>
<td>alge460</td>
<td>Multiplying rational expressions made up of linear expressions</td>
</tr>
<tr>
<td>alge620</td>
<td>Multiplying rational expressions involving quadratics with leading coefficients of 1</td>
</tr>
<tr>
<td>alge461</td>
<td>Multiplying rational expressions involving quadratics with leading coefficients greater than 1</td>
</tr>
<tr>
<td>alge462</td>
<td>Multiplying rational expressions involving multivariate quadratics</td>
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<tr>
<td>alge054</td>
<td>Dividing rational expressions involving multivariate monomials</td>
</tr>
<tr>
<td>alge463</td>
<td>Dividing rational expressions involving linear expressions</td>
</tr>
<tr>
<td>alge706</td>
<td>Dividing rational expressions involving quadratics with leading coefficients of 1</td>
</tr>
<tr>
<td>alge464</td>
<td>Dividing rational expressions involving quadratics with leading coefficients greater than 1</td>
</tr>
<tr>
<td>alge465</td>
<td>Dividing rational expressions involving multivariate quadratics</td>
</tr>
<tr>
<td>alge466</td>
<td>Multiplication and division of 3 rational expressions</td>
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<tr>
<td>alge737</td>
<td>Introduction to the LCM of two monomials</td>
</tr>
<tr>
<td>alge055</td>
<td>Least common multiple of two monomials</td>
</tr>
<tr>
<td>Ref</td>
<td>Description</td>
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<tr>
<td>alge427</td>
<td>Finding the LCD of rational expressions with linear denominators: Relatively prime</td>
</tr>
<tr>
<td>alge428</td>
<td>Finding the LCD of rational expressions with linear denominators: Common factors</td>
</tr>
<tr>
<td>alge429</td>
<td>Finding the LCD of rational expressions with quadratic denominators</td>
</tr>
<tr>
<td>alge430</td>
<td>Writing equivalent rational expressions with monomial denominators</td>
</tr>
<tr>
<td>alge431</td>
<td>Writing equivalent rational expressions with polynomial denominators</td>
</tr>
<tr>
<td>alge432</td>
<td>Writing equivalent rational expressions involving opposite factors</td>
</tr>
<tr>
<td>alge433</td>
<td>Adding rational expressions with common denominators and monomial numerators</td>
</tr>
<tr>
<td>alge434</td>
<td>Adding rational expressions with common denominators and binomial numerators</td>
</tr>
<tr>
<td>alge435</td>
<td>Adding rational expressions with common denominators and quadratic factoring</td>
</tr>
<tr>
<td>alge436</td>
<td>Adding rational expressions with denominators $ax$ and $bx$: Basic</td>
</tr>
<tr>
<td>alge437</td>
<td>Adding rational expressions with denominators $ax$ and $bx$: Advanced</td>
</tr>
<tr>
<td>alge438</td>
<td>Adding rational expressions with denominators $axn$ and $bxm$</td>
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<tr>
<td>alge439</td>
<td>Adding rational expressions with multivariate monomial denominators: Basic</td>
</tr>
<tr>
<td>alge440</td>
<td>Adding rational expressions with multivariate monomial denominators: Advanced</td>
</tr>
<tr>
<td>alge441</td>
<td>Adding rational expressions with linear denominators without common factors: Basic</td>
</tr>
<tr>
<td>alge442</td>
<td>Adding rational expressions with linear denominators without common factors: Advanced</td>
</tr>
<tr>
<td>alge443</td>
<td>Adding rational expressions with linear denominators with common factors: Basic</td>
</tr>
<tr>
<td>alge444</td>
<td>Adding rational expressions with linear denominators with common factors: Advanced</td>
</tr>
<tr>
<td>alge445</td>
<td>Adding rational expressions with denominators $ax-b$ and $b-ax$</td>
</tr>
<tr>
<td>alge461</td>
<td>Adding rational expressions involving different quadratic denominators</td>
</tr>
<tr>
<td>alge446</td>
<td>Adding 3 rational expressions with different quadratic denominators</td>
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<td>alge470</td>
<td>Complex fraction involving univariate monomials</td>
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<tr>
<td>alge471</td>
<td>Complex fraction involving multivariate monomials</td>
</tr>
<tr>
<td>alge472</td>
<td>Complex fraction: GCF factoring</td>
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<tr>
<td>alge473</td>
<td>Complex fraction made of sums involving rational expressions: Problem type 1</td>
</tr>
<tr>
<td>alge474</td>
<td>Complex fraction made of sums involving rational expressions: Problem type 2</td>
</tr>
<tr>
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<td>Complex fraction made of sums involving rational expressions: Problem type 3</td>
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<td>alge476</td>
<td>Complex fraction made of sums involving rational expressions: Problem type 4</td>
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<td>alge477</td>
<td>Complex fraction made of sums involving rational expressions: Problem type 5</td>
</tr>
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<td>alge478</td>
<td>Complex fraction made of sums involving rational expressions: Problem type 6</td>
</tr>
<tr>
<td>alge479</td>
<td>Complex fraction made of sums involving rational expressions: Multivariate</td>
</tr>
<tr>
<td>alge480</td>
<td>Complex fraction with negative exponents: Problem type 1</td>
</tr>
<tr>
<td>alge481</td>
<td>Complex fraction with negative exponents: Problem type 2</td>
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<tr>
<td>alge482</td>
<td>Complex fraction that contains a complex fraction</td>
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<tr>
<td>alge492</td>
<td>Solving a rational equation that simplifies to linear: Denominator $x$</td>
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<tr>
<td>alge499</td>
<td>Solving a rational equation that simplifies to linear: Denominators $a$, $x$, or $ax$</td>
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<tr>
<td>alge506</td>
<td>Solving a rational equation that simplifies to linear: Like binomial denominators</td>
</tr>
<tr>
<td>alge506</td>
<td>Solving a rational equation that simplifies to linear: Unlike binomial denominators</td>
</tr>
<tr>
<td>alge509</td>
<td>Solving a rational equation that simplifies to quadratic: Factorable quadratic denominator</td>
</tr>
<tr>
<td>alge510</td>
<td>Solving a rational equation that simplifies to quadratic: Proportional form, basic</td>
</tr>
<tr>
<td>alge512</td>
<td>Solving a rational equation that simplifies to quadratic: Denominator $x$</td>
</tr>
<tr>
<td>alge513</td>
<td>Solving a rational equation that simplifies to quadratic: Binomial denominators, constant numerators</td>
</tr>
<tr>
<td>alge514</td>
<td>Solving a rational equation that simplifies to quadratic: Binomial denominators and numerators</td>
</tr>
<tr>
<td>alge526</td>
<td>Solving a rational equation that simplifies to quadratic: Factorable quadratic denominator</td>
</tr>
<tr>
<td>alge537</td>
<td>Solving a rational equation that simplifies to quadratic: Proportional form, advanced</td>
</tr>
<tr>
<td>alge548</td>
<td>Solving for a variable in terms of other variables in a rational equation: Problem type 1</td>
</tr>
<tr>
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<td>Solving for a variable in terms of other variables in a rational equation: Problem type 2</td>
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<td>Solving for a variable in terms of other variables in a rational equation: Problem type 3</td>
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<tr>
<td>arith612</td>
<td>Word problem involving multiple rates</td>
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<tr>
<td>alge770</td>
<td>Solving a work problem using a rational equation</td>
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<tr>
<td>alge450</td>
<td>Solving a distance, rate, time problem using a rational equation</td>
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<tr>
<td>alge459</td>
<td>Solving a distance, rate, time problem using a rational equation</td>
</tr>
<tr>
<td>alge492</td>
<td>Identifying direct variation equations</td>
</tr>
<tr>
<td>alge493</td>
<td>Identifying direct variation from ordered pairs and writing equations</td>
</tr>
<tr>
<td>alge494</td>
<td>Writing a direct variation equation</td>
</tr>
<tr>
<td>alge175</td>
<td>Word problem on direct variation</td>
</tr>
<tr>
<td>alge828</td>
<td>Interpreting direct variation from a graph</td>
</tr>
<tr>
<td>alge905</td>
<td>Writing an inverse variation equation</td>
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### APPENDIX B. SYLLABI IN ALEKS

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>alge903</td>
<td>Identifying direct and inverse variation equations</td>
</tr>
<tr>
<td>alge902</td>
<td>Identifying direct and inverse variation from ordered pairs and writing equations</td>
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<tr>
<td>alge176</td>
<td>Word problem on inverse variation</td>
</tr>
<tr>
<td>alge220</td>
<td>Word problem on inverse proportions</td>
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<tr>
<td>pcalc681</td>
<td>Writing an equation that models variation</td>
</tr>
<tr>
<td>alge772</td>
<td>Word problem on combined variation</td>
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### Radicals and Quadratic Equations

<table>
<thead>
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<tr>
<td>alge413</td>
<td>Finding all square roots of a number</td>
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<tr>
<td>arith760</td>
<td>Square roots of perfect squares with signs</td>
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<tr>
<td>alge415</td>
<td>Introduction to simplifying a radical expression with an even exponent</td>
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<tr>
<td>alge264</td>
<td>Square root of a perfect square monomial</td>
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<tr>
<td>arith694</td>
<td>Cube root of an integer</td>
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<tr>
<td>alge549</td>
<td>Finding nth roots of perfect nth powers with signs</td>
</tr>
<tr>
<td>arith768</td>
<td>Finding the nth root of a perfect nth power fraction</td>
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<tr>
<td>alge550</td>
<td>Finding the nth root of a perfect nth power monomial</td>
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<tr>
<td>arith693</td>
<td>Simplifying the square root of a whole number less than 100</td>
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<tr>
<td>arith762</td>
<td>Simplifying the square root of a whole number greater than 100</td>
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<tr>
<td>alge080</td>
<td>Simplifying a radical expression with an even exponent</td>
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<tr>
<td>alge520</td>
<td>Introduction to simplifying a radical expression with an odd exponent</td>
</tr>
<tr>
<td>alge521</td>
<td>Simplifying a radical expression with an odd exponent</td>
</tr>
<tr>
<td>alge275</td>
<td>Simplifying a radical expression with two variables</td>
</tr>
<tr>
<td>alge273</td>
<td>Simplifying a higher root of a whole number</td>
</tr>
<tr>
<td>alge551</td>
<td>Introduction to simplifying a higher radical expression</td>
</tr>
<tr>
<td>alge552</td>
<td>Simplifying a higher radical expression: Univariate</td>
</tr>
<tr>
<td>alge811</td>
<td>Simplifying a higher radical expression: Multivariate</td>
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<tr>
<td>arith767</td>
<td>Introduction to square root addition or subtraction</td>
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<tr>
<td>arith632</td>
<td>Square root addition or subtraction</td>
</tr>
<tr>
<td>alge533</td>
<td>Square root addition or subtraction with three terms</td>
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<tr>
<td>alge531</td>
<td>Introduction to simplifying a sum or difference of radical expressions: Univariate</td>
</tr>
<tr>
<td>alge532</td>
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</tr>
<tr>
<td>alge084</td>
<td>Simplifying a sum or difference of radical expressions: Multivariate</td>
</tr>
<tr>
<td>alge554</td>
<td>Simplifying a sum or difference of higher roots</td>
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<tr>
<td>alge555</td>
<td>Simplifying a sum or difference of higher radical expressions</td>
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<tr>
<td>arith764</td>
<td>Introduction to square root multiplication</td>
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<tr>
<td>arith675</td>
<td>Square root multiplication: Basic</td>
</tr>
<tr>
<td>arith639</td>
<td>Square root multiplication: Advanced</td>
</tr>
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<td>alge522</td>
<td>Introduction to simplifying a product of radical expressions: Univariate</td>
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<td>Simplifying a product of radical expressions: Univariate</td>
</tr>
<tr>
<td>alge524</td>
<td>Simplifying a product of radical expressions: Multivariate</td>
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<tr>
<td>alge556</td>
<td>Introduction to simplifying a product of higher roots</td>
</tr>
<tr>
<td>alge557</td>
<td>Simplifying a product of higher radical expressions</td>
</tr>
<tr>
<td>alge525</td>
<td>Introduction to simplifying a product involving square roots using the distributive property: Basic</td>
</tr>
<tr>
<td>alge526</td>
<td>Simplifying a product involving square roots using the distributive property: Basic</td>
</tr>
<tr>
<td>alge276</td>
<td>Simplifying a product involving square roots using the distributive property: Advanced</td>
</tr>
<tr>
<td>alge774</td>
<td>Special products of radical expressions: Conjugates and squaring</td>
</tr>
<tr>
<td>alge984</td>
<td>Classifying sums and products as rational or irrational</td>
</tr>
<tr>
<td>arith766</td>
<td>Simplifying a quotient of square roots</td>
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<td>Simplifying a quotient involving a sum or difference with a square root</td>
</tr>
<tr>
<td>alge527</td>
<td>Rationalizing a denominator: Quotient involving square roots</td>
</tr>
<tr>
<td>alge528</td>
<td>Rationalizing a denominator: Square root of a fraction</td>
</tr>
<tr>
<td>alge529</td>
<td>Rationalizing a denominator: Quotient involving a monomial</td>
</tr>
<tr>
<td>alge534</td>
<td>Rationalizing a denominator using conjugates: Integer numerator</td>
</tr>
<tr>
<td>alge535</td>
<td>Rationalizing a denominator using conjugates: Square root in numerator</td>
</tr>
<tr>
<td>alge536</td>
<td>Rationalizing a denominator using conjugates: Variable in denominator</td>
</tr>
<tr>
<td>alge564</td>
<td>Rationalizing a denominator: Quotient involving a higher radical</td>
</tr>
<tr>
<td>alge400</td>
<td>Introduction to solving a radical equation</td>
</tr>
<tr>
<td>alge089</td>
<td>Solving a radical equation that simplifies to a linear equation: One radical, basic</td>
</tr>
<tr>
<td>alge402</td>
<td>Solving a radical equation that simplifies to a linear equation: One radical, advanced</td>
</tr>
</tbody>
</table>
B.37. NCCCS DEVELOPMENTAL MATH MODULE 050

alge090 Solving a radical equation that simplifies to a linear equation: Two radicals
alge405 Solving a radical equation with two radicals that simplifies to $\sqrt{x} = a$
alge403 Solving a radical equation that simplifies to a quadratic equation: One radical, basic
alge404 Solving a radical equation that simplifies to a quadratic equation: One radical, advanced
alge411 Solving a radical equation with a quadratic expression under the radical
alge418 Solving a radical equation that simplifies to a quadratic equation: Two radicals
alge410 Solving an equation with a root index greater than 2: Problem type 1
alge417 Solving an equation with a root index greater than 2: Problem type 2
alge412 Algebraic symbol manipulation with radicals
alge542 Word problem involving radical equations: Basic
alge409 Word problem involving radical equations: Advanced
alge132 Distance between two points in the plane: Exact answers
alge539 Table for a square root function
alge540 Domain of a square root function: Basic
pcalc763 Domain of a square root function: Advanced
alge543 Graphing a square root function: Problem type 1
alge544 Graphing a square root function: Problem type 2
alge812 Converting between radical form and exponent form
alge560 Rational exponents: Unit fraction exponents and whole number bases
alge561 Rational exponents: Unit fraction exponents and bases involving signs
alge250 Rational exponents: Non-unit fraction exponent with a whole number base
alge251 Rational exponents: Negative exponents and fractional bases
alge558 Rational exponents: Product rule
alge559 Rational exponents: Quotient rule
alge773 Rational exponents: Products and quotients with negative exponents
alge562 Rational exponents: Power of a power rule
alge249 Rational exponents: Powers of powers with negative exponents
alge563 Simplifying products or quotients of higher radicals with different indices: Univariate
alge778 Using $i$ to rewrite square roots of negative numbers
alge779 Simplifying a product and quotient involving square roots of negative numbers
pcalc048 Adding or subtracting complex numbers
pcalc049 Multiplying complex numbers
pcalc050 Dividing complex numbers
pcalc053 Simplifying a power of $i$
alge962 Solving an equation of the form $x^2 = a$ using the square root property
alge092 Solving a quadratic equation using the square root property: Exact answers, basic
alge227 Solving a quadratic equation using the square root property: Exact answers, advanced
alge094 Completing the square
alge780 Solving a quadratic equation by completing the square: Exact answers
alge095 Applying the quadratic formula: Exact answers
alge963 Applying the quadratic formula: Decimal answers
pcalc051 Solving a quadratic equation with complex roots
alge214 Discriminant of a quadratic equation
alge524 Solving a word problem using a quadratic equation with irrational roots
alge974 Finding the vertex, x-intercepts, and axis of symmetry from the graph of a parabola
alge953 Translating the graph of a parabola: One step
alge253 Graphing a parabola of the form $y = (x-h)^2 + k$
alge569 Graphing a parabola of the form $y = ax^2 + bx + c$
pcalc746 Graphing a parabola of the form $y = ax^2 + bx + c$: Integer coefficients
pcalc747 Graphing a parabola of the form $y = ax^2 + bx + c$: Rational coefficients
alge277 Finding the x-intercept(s) and the vertex of a parabola
pcalc774 Rewriting a quadratic function to find the vertex of its graph
pcalc775 Finding the maximum or minimum of a quadratic function
alge785 Word problem involving the maximum or minimum of a quadratic function
alge975 Domain and range from the graph of a parabola
pcalc762 Range of a quadratic function
alge957 Solving a quadratic equation by graphing
alge996 Comparing properties of quadratic functions given in different forms
alge702 Classifying the graph of a function
alge723 How the leading coefficient affects the shape of a parabola
alge965 Identifying linear, quadratic, and exponential functions given ordered pairs
alge262 Graphing a cubic function of the form $y = ax^3$
fun019 Sum, difference, and product of two functions
fun022 Composition of two functions: Basic
pcalc776 Expressing a function as a composition of two functions
pcalc924 Determining whether an equation defines a function: Basic
pcalc757 Determining whether an equation defines a function: Advanced

B.38 NCCCS Developmental Math Module 060

Whole Numbers

arith124 Whole number place value: Problem type 1
arith125 Whole number place value: Problem type 2
arith066 Expanded form
arith643 Expanded form with zeros
arith028 Numerical translation: Problem type 1
arith060 Numerical translation: Problem type 2
arith633 One-digit addition with carry
arith634 Addition of 3 or 4 one-digit numbers
arith001 Addition without carry
arith635 Adding a 2-digit number and a 1-digit number with carry
arith650 Addition with carry
arith630 Addition with carry to the hundreds place
arith012 Addition of large numbers
arith636 Subtracting a 1-digit number from a 2-digit number
arith007 Subtraction without borrowing
arith128 Adding or subtracting 10, 100, or 1000
arith006 Subtraction with borrowing
arith682 Subtraction with multiple regrouping steps
arith637 Subtraction and regrouping with zeros
arith613 Word problem with addition or subtraction of whole numbers
arith655 Introduction to properties of addition
arith126 Multiplication as repeated addition
arith008 One-digit multiplication
arith679 Multiplication by 10, 100, and 1000
arith003 Multiplication without carry
arith004 Multiplication with carry
arith632 Multiplication with trailing zeros: Problem type 1
arith615 Introduction to multiplication of large numbers
arith638 Multiplication with trailing zeros: Problem type 2
arith014 Multiplication of large numbers
arith641 Multiples: Problem type 1
arith642 Multiples: Problem type 2
arith656 Introduction to properties of multiplication
arith075 Division facts
arith614 Word problem with multiplication or division of whole numbers
arith130 Word problem with multiplication and addition or subtraction of whole numbers
arith243 Division of whole numbers given in fractional form
arith711 Division involving zero
arith052 Division without carry
arith005 Division with carry
arith680 Division with trailing zeros: Problem type 1
arith649 Division with trailing zeros: Problem type 2
arith616 Quotient and remainder: Problem type 1
arith644 Word problem on quotient and remainder
arith617 Quotient and remainder: Problem type 2
arith631 Quotient and remainder: Problem type 3
arith650 Division involving quotients with intermediate zeros
arith023 Word problem with division of whole numbers and rounding
arith651 Introduction to inequalities
arith077 Ordering large numbers
arith078 Rounding to tens or hundreds
arith123 Rounding to hundreds or thousands
arith061 Rounding to thousands, ten thousands, or hundred thousands
arith101 Estimating a sum of whole numbers
arith102 Estimating a difference of whole numbers
arith604 Estimating a product or quotient of whole numbers
arith692 Writing expressions using exponents
arith233 Introduction to exponents
arith683 Power of 10: Positive exponent
arith645 Introduction to parentheses
arith681 Introduction to order of operations
arith651 Order of operations with whole numbers
arith693 Order of operations with whole numbers and grouping symbols
arith713 Order of operations with whole numbers and exponents: Basic
arith571 Order of operations with whole numbers and exponents: Advanced
arith284 Understanding the distributive property
arith681 Evaluating an algebraic expression: Whole number addition or subtraction
arith683 Evaluating an algebraic expression: Whole number multiplication or division
arith832 Evaluating an algebraic expression: Whole number operations and exponents
arith646 Evaluating an algebraic expression: Whole numbers with two operations
arith667 Evaluating an algebraic expression: Whole numbers and exponents
arith609 Additive property of equality with whole numbers
arith608 Multiplicative property of equality with whole numbers
arith683 Using two steps to solve an equation with whole numbers
arith646 Even and odd numbers
arith647 Divisibility rules for 2, 5, and 10
arith648 Divisibility rules for 3 and 9
arith656 Factors
arith634 Prime numbers
arith635 Prime factorization
arith633 Greatest common factor of 2 numbers
arith70 Least common multiple of 2 numbers
arith804 Least common multiple of 3 numbers
arith240 Least common multiple of 3 numbers
arith619 Word problem with common multiples
arith623 Finding the next terms of an arithmetic sequence with whole numbers
arith933 Finding the next terms of a geometric sequence with whole numbers
arith732 Finding patterns in shapes

Fractions

arith623 Introduction to fractions
arith665 Understanding equivalent fractions
arith212 Equivalent fractions
arith666 Introduction to simplifying a fraction
arith067 Simplifying a fraction
arith687 Fractional position on a number line
arith667 Plotting fractions on a number line
arith644 Ordering fractions with the same denominator
arith691 Ordering fractions with the same numerator
arith692 Using a common denominator to order fractions
arith662 Writing a mixed number and an improper fraction for a shaded region
arith615 Writing an improper fraction as a mixed number
arith619 Writing a mixed number as an improper fraction
arith215 Addition or subtraction of mixed numbers with the same denominator
arith804 Addition of mixed numbers with the same denominator
arith6216 Subtraction of mixed numbers with the same denominator and borrowing
arith806 Addition or subtraction of mixed numbers with different denominators and no carry or borrow
arith808 Addition of mixed numbers with different denominators and carry
arith809 Subtraction of mixed numbers with different denominators and borrowing
APPENDIX B. SYLLABI IN ALEKS

arith807 Addition and subtraction of 3 mixed numbers with different denominators
arith810 Word problem involving addition or subtraction of mixed numbers with different denominators
arith815 Mixed number multiplication
arith816 Multiplication of a mixed number and a whole number
arith817 Division with a mixed number and a whole number
arith868 Mixed number division
arith820 Word problem involving multiplication or division with mixed numbers

Decimals, Proportions, and Percents

arith717 Converting a decimal to a proper fraction without simplifying: Basic
arith719 Converting a decimal to a proper fraction without simplifying: Advanced
arith718 Converting a decimal to a proper fraction in simplest form: Basic
arith887 Converting a decimal to a proper fraction in simplest form: Advanced
arith721 Converting a decimal to a mixed number and an improper fraction without simplifying
arith722 Converting a decimal to a mixed number and an improper fraction in simplest form: Basic
arith724 Converting a decimal to a mixed number and an improper fraction in simplest form: Advanced
arith624 Addition of aligned decimals
arith813 Decimal addition with 3 numbers
arith734 Subtraction of aligned decimals
arith735 Decimal subtraction: Basic
arith736 Decimal subtraction: Advanced
arith737 Decimal addition and subtraction with 3 or more numbers
arith131 Estimating a decimal sum or difference
arith132 Word problem with addition or subtraction of 2 decimals
arith133 Word problem with addition of 3 or 4 decimals and whole numbers
arith134 Word problem with subtraction of a whole number and a decimal: Regrouping with zeros
arith739 Introduction to decimal multiplication
arith017 Multiplication of a decimal by a whole number
arith055 Decimal multiplication: Problem type 1
arith046 Decimal multiplication: Problem type 2
arith082 Multiplication of a decimal by a power of ten
arith738 Multiplication of a decimal by a power of 0.1
arith740 Multiplication of decimals that have a product less than 0.1
arith752 Estimating a product of decimals
arith135 Word problem with multiplication of a decimal and a whole number
arith137 Word problem with multiplication of two decimals
arith224 Word problem with decimal addition and multiplication
arith744 Whole number division with decimal answers
arith858 Division of a decimal by a whole number
arith743 Division of a decimal by a 1-digit decimal
arith809 Division of a decimal by a 2-digit decimal
arith808 Division of a decimal by a power of ten
arith742 Division of a decimal by a power of 0.1
arith745 Decimal division with rounding
arith746 Word problem with division of a decimal and a whole number
arith748 Word problem with division of two decimals
arith427 Word problem with decimal subtraction and division
alge823 Solving a one-step word problem using the formula \( d = rt \)
arith725 Converting a fraction with a denominator of 10 or 100 to a decimal
arith726 Converting a fraction with a denominator of 100 or 1000 to a decimal
arith609 Ordering fractions and decimals
arith727 Converting a fraction to a terminating decimal: Basic
arith728 Converting a fraction to a terminating decimal: Advanced
arith730 Converting a fraction to a repeating decimal: Basic
arith731 Converting a fraction to a repeating decimal: Advanced
arith733 Using a calculator to convert a fraction to a rounded decimal
arith111 Converting a mixed number to a terminating decimal: Basic
arith112 Converting a mixed number to a terminating decimal: Advanced
arith732 Converting a fraction or mixed number to a rounded decimal
arith753 Squaring decimal bases: Products greater than 0.1
arith741 Exponents and decimals: Products less than 0.1
arith720 Order of operations with decimals: Problem type 1
arith746 Order of operations with decimals: Problem type 2
arith747 Order of operations with decimals: Problem type 3
arith748 Addition or subtraction with a decimal and a mixed number
arith749 Multiplication with a decimal and a fraction
arith823 Writing ratios using different notations
arith827 Finding a unit price
arith828 Computing unit prices to find the better buy
arith064 Solving a word problem on proportions using a unit rate
arith228 Word problem on unit rates associated with ratios of whole numbers: Decimal answers
alge272 Solving a proportion of the form \( x/a = b/c \)
arith610 Word problem on proportions: Problem type 1
arith611 Word problem on proportions: Problem type 2
alge063 Word problem on mixed number proportions
arith045 Word problem with powers of ten
arith836 Converting a ratio of whole numbers: Problem type 1
arith837 Converting a ratio of decimals
arith825 Writing ratios for real-world situations
arith827 Finding a unit price
arith828 Computing unit prices to find the better buy
arith228 Word problem on unit rates associated with ratios of whole numbers: Decimal answers
alge272 Solving a proportion of the form \( x/a = b/c \)
arith610 Word problem on proportions: Problem type 1
arith611 Word problem on proportions: Problem type 2
alge063 Word problem on mixed number proportions
arith045 Word problem with powers of ten
arith836 Converting a ratio of whole numbers: Problem type 1
arith837 Converting a ratio of decimals
arith825 Writing ratios for real-world situations
arith827 Finding a unit price
arith828 Computing unit prices to find the better buy
APPENDIX B. SYLLABI IN ALEKS

geom339 Perimeter of a polygon
geom300 Perimeter of a square or a rectangle
geom618 Perimeter of a polygon involving mixed numbers and fractions
geom078 Sides of polygons having the same perimeter
geom221 Finding the missing length in a figure
geom353 Perimeter of a piecewise rectangular figure
geom358 Identifying parallel and perpendicular lines
geom349 Naming segments, rays, and lines
geom151 Measuring an angle with the protractor
geom152 Drawing an angle with the protractor
geom303 Acute, obtuse, and right angles
geom309 Finding supplementary and complementary angles
geom305 Identifying supplementary and vertical angles
geom304 Identifying corresponding and alternate angles
geom306 Acute, obtuse, and right triangles
geom307 Classifying scalene, isosceles, and equilateral triangles by side lengths or angles
geom901 Finding an angle measure of a triangle given two angles
geom908 Finding an angle measure for a triangle with an extended side
geom812 Finding an angle measure given extended triangles
geom813 Finding an angle measure given a triangle and parallel lines
geom361 Naming polygons
mstat042 Interpreting a Venn diagram of 2 sets
geom867 Identifying parallelograms, rectangles, and squares
geom310 Properties of quadrilaterals
geom532 Classifying parallelograms
geom819 Area of a square or a rectangle
geom866 Perimeter and area on a grid
geom620 Area of a rectangle involving fractions
geom619 Area of a rectangle involving mixed numbers and fractions
geom350 Distinguishing between the area and perimeter of a rectangle
geom351 Areas of rectangles with the same perimeter
geom217 Finding the side length of a rectangle given its perimeter or area
geom640 Area of a piecewise rectangular figure
geom142 Word problem involving the area between two rectangles
geom801 Area of a triangle
geom344 Area involving rectangles and triangles
geom622 Area of a parallelogram
geom623 Area of a trapezoid
geom347 Introduction to a circle: Diameter, radius, and chord
geom016 Circumference of a circle
geom301 Perimeter involving rectangles and circles
geom802 Circumference and area of a circle
geom302 Area involving rectangles and circles
geom346 Word problem involving the area between two concentric circles
geom214 Area involving inscribed figures
geom814 Angle measure in a circle graph
geom868 Classifying solids
geom348 Vertices, edges, and faces of a solid
geom380 Counting the cubes in a solid made of cubes
geom354 Volume of a rectangular prism made of unit cubes
geom311 Volume of a rectangular prism
geom305 Volume of a piecewise rectangular prism
geom690 Volume of a triangular prism
geom633 Volume of a pyramid
geom635 Volume of a cylinder
geom92 Word problem involving the rate of filling or emptying a cylinder
geom622 Volume of a cone
geom841 Volume of a sphere
geom219 Nets of solids
geom816 Side views of a solid made of cubes
geom831 Surface area of a cube or a rectangular prism
geom345 Surface area of a piecewise rectangular prism made of unit cubes
geom091 Surface area of a triangular prism
geom621 Surface area of a cylinder
geom842 Surface area of a sphere
arith016 Square root of a perfect square
arith763 Using a calculator to approximate a square root
arith602 Estimating a square root
arith601 Square root of a rational perfect square
alge407 Introduction to the Pythagorean Theorem
geom444 Pythagorean Theorem
alge408 Word problem involving the Pythagorean Theorem
geom359 Identifying congruent shapes on a grid
geom520 Identifying and naming congruent triangles
geom360 Identifying similar or congruent shapes on a grid
geom337 Similar polygons
geom38 Similar right triangles
geom337 Indirect measurement

Measurement and Data Analysis

mstat059 Choosing U.S. Customary measurement units
unit005 U.S. Customary unit conversion with whole number values
mstat035 Conversions involving measurements in feet and inches
unit006 U.S. Customary unit conversion with whole number values: Two-step conversion
unit007 U.S. Customary unit conversion with mixed number values: One-step conversion
unit008 U.S. Customary unit conversion with mixed number values: Two-step conversion
unit009 U.S. Customary area unit conversion with whole number values
mstat060 Choosing metric measurement units
unit001 Metric distance conversion with whole number values
unit002 Metric mass or capacity conversion with whole number values
unit003 Metric distance conversion with decimal values
unit004 Metric conversion with decimal values: Two-step problem
unit010 Metric area unit conversion with decimal values
unit012 Time unit conversion with whole number values
time006 Adding time
time007 Elapsed time
arith063 Word problem with clocks
mstat063 Converting between temperatures in Fahrenheit and Celsius
arith028 Simplifying a ratio of whole numbers: Problem type 2
unit034 Converting between metric and U.S. Customary unit systems
unit035 Converting between compound units: Basic
unit036 Converting between compound units: Advanced
mstat056 Interpreting a tally table
mstat037 Constructing a line plot
mstat005 Constructing a bar graph for non-numerical data
mstat004 Constructing a histogram for numerical data
mstat024 Interpreting a bar graph
mstat044 Interpreting a double bar graph
mstat057 Interpreting a pictograph table
mstat007 Interpreting a line graph
mstat031 Interpreting a stem-and-leaf plot
stat084 Interpreting a circle graph or pie chart
stat020 Calculating relative frequencies in a contingency table
stat085 Making a reasonable inference based on proportion statistics
mstat025 Finding if a question can be answered by the data
mstat003 Mode of a data set
mstat055 Finding the mode and range of a data set
arith003 Average of two numbers
mstat001 Mean of a data set
mstat028 Mean and median of a data set
mstat029 How changing a value affects the mean and median
mstat053 Choosing the best measure to describe data
stat082 Rejecting unreasonable claims based on average statistics
mstat066 Weighted mean
mstat027 Using back-to-back stem-and-leaf plots to compare data sets
mstat072 Five-number summary and interquartile range
mstat006 Constructing a box-and-whisker plot
mstat073 Using box-and-whisker plots to compare data sets
mstat043 Interpreting a Venn diagram of 3 sets
mstat041 Interpreting a tree diagram
mstat040 Introduction to the counting principle
mstat015 Counting principle
pcalc082 Factorial expressions
mstat017 Computing permutations and combinations
mstat008 Word problem involving permutations
mstat009 Word problem involving combinations
mstat026 Introduction to the probability of an event
mstat010 Probability of an event
mstat039 Understanding likelihood
mstat048 Odds of an event
stat106 Outcomes and event probability
stat112 Probabilities involving two dice
mstat011 Area as probability
mstat046 Experimental and theoretical probability
mstat047 Introduction to expectation
mstat012 Probability of independent events
mstat013 Probability of dependent events
mstat032 Probability of the union of two events

Real Numbers and Algebraic Expressions

arith618 Addition or subtraction of fractions with the same denominator
arith802 Addition or subtraction of fractions with the same denominator and simplification
arith801 Finding the LCD of two fractions
arith109 Addition or subtraction of unit fractions
arith664 Introduction to addition or subtraction of fractions with different denominators
arith230 Addition or subtraction of fractions with different denominators
arith803 Addition and subtraction of 3 fractions with different denominators
arith805 Word problem involving addition or subtraction of fractions with different denominators
arith100 Fractional part of a circle
arith079 Product of a unit fraction and a whole number
arith086 Product of a fraction and a whole number: Problem type 1
arith119 Introduction to fraction multiplication
arith053 Fraction multiplication
arith812 Product of a fraction and a whole number: Problem type 2
arith813 Multiplication of 3 fractions
arith818 Word problem involving fractions and multiplication
arith895 Multi-step word problem involving fractions and multiplication
arith888 The reciprocal of a number
arith694 Division involving a whole number and a fraction
arith022 Fraction division
arith819 Word problem involving whole number and division
arith821 Exponents and fractions
arith859 Order of operations with fractions: Problem type 1
arith860 Order of operations with fractions: Problem type 2
arith861 Order of operations with fractions: Problem type 3
arith695 Complex fraction without variables: Problem type 1
arith127 Writing a decimal and a fraction for a shaded region
arith110 Decimal place value: Tenths and hundredths
arith220 Decimal place value: Hundreds to ten thousandths
B.38. NCCCS DEVELOPMENTAL MATH MODULE 060

arith714 Writing a decimal number less than 1 given its name
arith715 Writing a decimal number greater than 1 given its name
arith716 Writing a decimal number given its name: Advanced
arith829 Reading decimal position on a number line: Tenths
arith830 Reading decimal position on a number line: Hundredths
arith831 Understanding decimal position on a number line using zoom: Hundredths
arith832 Understanding decimal position on a number line using zoom: Thousandths
arith129 Introduction to ordering decimals
arith608 Ordering decimals
arith221 Rounding decimals
alge286 Plotting integers on a number line
arith605 Plotting rational numbers on a number line
mstat038 Reading the temperature from a thermometer
arith699 Writing a signed number for a real-world situation
arith691 Ordering integers
arith712 Ordering real numbers
arith671 Absolute value of a number
arith200 Integer addition: Problem type 1
arith108 Integer addition: Problem type 2
arith688 Integer subtraction: Problem type 1
arith689 Integer subtraction: Problem type 2
arith690 Integer subtraction: Problem type 3
arith754 Addition and subtraction with 3 integers
arith755 Addition and subtraction with 4 or 5 integers
arith701 Word problem with addition or subtraction of integers
arith231 Integer multiplication and division
arith800 Multiplication of 3 or 4 integers
alge001 Identifying numbers as integers or non-integers
alge002 Identifying numbers as rational or irrational
arith116 Signed fraction addition or subtraction: Basic
arith864 Signed fraction subtraction involving double negation
arith106 Signed fraction addition or subtraction: Advanced
arith811 Addition and subtraction of 3 fractions involving signs
arith822 Signed fraction multiplication: Basic
arith105 Signed fraction multiplication: Advanced
arith814 Signed fraction division
arith117 Signed decimal addition and subtraction
arith234 Signed decimal addition and subtraction with 3 numbers
arith750 Signed decimal multiplication
arith751 Signed decimal division
arith104 Operations with absolute value: Problem type 2
geom525 Computing distances between decimals on the number line
unit052 Finding the absolute error and percent error of a measurement
arith702 Exponents and integers: Problem type 1
arith703 Exponents and integers: Problem type 2
arith704 Exponents and signed fractions
arith118 Order of operations with integers
arith600 Order of operations with integers and exponents
arith696 Complex fraction without variables: Problem type 2
alge005 Evaluating a linear expression: Integer multiplication with addition or subtraction
alge808 Evaluating a linear expression: Signed fraction multiplication with addition or subtraction
alge302 Evaluating a linear expression: Signed decimal addition and subtraction
alge303 Evaluating a linear expression: Signed decimal multiplication with addition or subtraction
alge004 Evaluating a quadratic expression: Integers
alge700 Combining like terms: Whole number coefficients
alge607 Combining like terms: Integer coefficients
alge187 Properties of addition
alge310 Multiplying a constant and a linear monomial
alge606 Distributive property: Whole number coefficients
alge604 Distributive property: Integer coefficients
alge188 Properties of real numbers
alge608 Using distribution and combining like terms to simplify: Univariate
APPENDIX B. SYLLABI IN ALEKS

alge609 Using distribution with double negation and combining like terms to simplify: Multivariate
alge293 Combining like terms in a quadratic expression
alge432 Introduction to adding fractions with variables and common denominators
alge436 Adding rational expressions with different denominators and a single occurrence of a variable

Linear Equations and Inequalities

alge801 Additive property of equality with fractions and mixed numbers
alge800 Additive property of equality with decimals
alge010 Additive property of equality with integers
alge836 Additive property of equality with signed fractions
alge820 Multiplicative property of equality with fractions
alge825 Multiplicative property of equality with decimals
alge797 Multiplicative property of equality with integers
alge012 Multiplicative property of equality with signed fractions

Functions and Linear Equations

alge834 Identifying solutions to a linear equation in one variable: Two-step equations
alge266 Additive property of equality with a negative coefficient
alge206 Solving a two-step equation with integers
alge200 Solving an equation to find the value of an expression
alge920 Introduction to solving an equation with parentheses
alge837 Solving a multi-step equation given in fractional form
alge986 Identifying properties used to solve a linear equation
alge824 Solving a two-step equation with signed decimals
alge838 Introduction to solving an equation with variables on the same side
alge862 Solving a linear equation with several occurrences of the variable: Variables on the same side
alge863 Solving a linear equation with several occurrences of the variable: Variables on both sides
alge811 Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
alge813 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
alge209 Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions
alge420 Solving a linear equation with several occurrences of the variable: Fractional forms with monomial numerators
alge208 Solving a two-step equation with signed fractions
alge061 Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
alge179 Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators
alge742 Solving equations with zero, one, or infinitely many solutions
alge840 Solving a proportion of the form \((x+a)/b = c/d\)
alge271 Solving a proportion of the form \(a/(x+b) = c/x\)
alge685 Introduction to solving an absolute value equation
alge864 Solving an absolute value equation: Problem type 1
alge511 Solving for a variable in terms of other variables using addition or subtraction: Basic
alge512 Solving for a variable in terms of other variables using addition or subtraction: Advanced
alge513 Solving for a variable in terms of other variables using multiplication or division: Basic
alge514 Solving for a variable in terms of other variables using multiplication or division: Advanced
alge517 Solving for a variable in terms of other variables using addition or subtraction with division
alge518 Solving for a variable inside parentheses in terms of other variables
alge507 Solving for a variable in terms of other variables in a linear equation with fractions
alge733 Writing a one-step expression for a real-world situation
alge831 Translating a phrase into a one-step expression
alge291 Translating a phrase into a two-step expression
alge016 Translating a sentence into a one-step equation
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>alge841</td>
<td>Translating a sentence into a multi-step equation</td>
</tr>
<tr>
<td>alge802</td>
<td>Solving a fraction word problem using a linear equation of the form Ax = B</td>
</tr>
<tr>
<td>alge014</td>
<td>Solving a word problem with two unknowns using a linear equation</td>
</tr>
<tr>
<td>alge173</td>
<td>Solving a decimal word problem using a linear equation of the form Ax + B = C</td>
</tr>
<tr>
<td>alge730</td>
<td>Writing a multi-step equation for a real-world situation</td>
</tr>
<tr>
<td>alge219</td>
<td>Solving a decimal word problem using a linear equation with the variable on both sides</td>
</tr>
<tr>
<td>alge704</td>
<td>Solving a fraction word problem using a linear equation with the variable on both sides</td>
</tr>
<tr>
<td>alge792</td>
<td>Solving a word problem with three unknowns using a linear equation</td>
</tr>
<tr>
<td>alge842</td>
<td>Solving a word problem involving consecutive integers</td>
</tr>
<tr>
<td>alge794</td>
<td>Solving a value mixture problem using a linear equation</td>
</tr>
<tr>
<td>alge218</td>
<td>Solving a word problem involving rates and time conversion</td>
</tr>
<tr>
<td>alge796</td>
<td>Solving a distance, rate, time problem using a linear equation</td>
</tr>
<tr>
<td>arith854</td>
<td>Computing a percent mixture</td>
</tr>
<tr>
<td>alge795</td>
<td>Solving a percent mixture problem using a linear equation</td>
</tr>
<tr>
<td>geom817</td>
<td>Finding a side length given the perimeter and side lengths with variables</td>
</tr>
<tr>
<td>geom143</td>
<td>Finding the perimeter or area of a rectangle given one of these values</td>
</tr>
<tr>
<td>geom218</td>
<td>Finding the radius or the diameter of a circle given its circumference</td>
</tr>
<tr>
<td>geom838</td>
<td>Circumference ratios</td>
</tr>
<tr>
<td>geom530</td>
<td>Solving equations involving vertical angles</td>
</tr>
<tr>
<td>geom502</td>
<td>Finding angle measures of a triangle given angles with variables</td>
</tr>
<tr>
<td>stat803</td>
<td>Finding the value for a new score that will yield a given mean</td>
</tr>
<tr>
<td>alge815</td>
<td>Translating a sentence by using an inequality symbol</td>
</tr>
<tr>
<td>alge845</td>
<td>Translating a sentence into a one-step inequality</td>
</tr>
<tr>
<td>alge846</td>
<td>Translating a sentence into a multi-step inequality</td>
</tr>
<tr>
<td>alge748</td>
<td>Writing an inequality for a real-world situation</td>
</tr>
<tr>
<td>alge017</td>
<td>Graphing a linear inequality on the number line</td>
</tr>
<tr>
<td>alge822</td>
<td>Writing an inequality given a graph on the number line</td>
</tr>
<tr>
<td>alge186</td>
<td>Translating a sentence into a compound inequality</td>
</tr>
<tr>
<td>alge166</td>
<td>Graphing a compound inequality on the number line</td>
</tr>
<tr>
<td>alge847</td>
<td>Writing a compound inequality given a graph on the number line</td>
</tr>
<tr>
<td>set001</td>
<td>Set builder notation</td>
</tr>
<tr>
<td>set002</td>
<td>Union and intersection of finite sets</td>
</tr>
<tr>
<td>alge844</td>
<td>Identifying solutions to a two-step linear inequality in one variable</td>
</tr>
<tr>
<td>alge848</td>
<td>Additive property of inequality with whole numbers</td>
</tr>
<tr>
<td>alge849</td>
<td>Additive property of inequality with integers</td>
</tr>
<tr>
<td>alge852</td>
<td>Additive property of inequality with signed fractions</td>
</tr>
<tr>
<td>alge853</td>
<td>Additive property of inequality with signed decimals</td>
</tr>
<tr>
<td>alge854</td>
<td>Multiplicative property of inequality with integers</td>
</tr>
<tr>
<td>alge964</td>
<td>Multiplicative property of inequality with signed fractions</td>
</tr>
<tr>
<td>alge855</td>
<td>Solving a two-step linear inequality: Problem type 1</td>
</tr>
<tr>
<td>alge856</td>
<td>Solving a two-step linear inequality: Problem type 2</td>
</tr>
<tr>
<td>alge857</td>
<td>Solving a two-step linear inequality with a fractional coefficient</td>
</tr>
<tr>
<td>alge977</td>
<td>Solving a linear inequality with multiple occurrences of the variable: Problem type 1</td>
</tr>
<tr>
<td>alge858</td>
<td>Solving a linear inequality with multiple occurrences of the variable: Problem type 2</td>
</tr>
<tr>
<td>alge859</td>
<td>Solving a linear inequality with multiple occurrences of the variable: Problem type 3</td>
</tr>
<tr>
<td>alge860</td>
<td>Solving inequalities with no solution or all real numbers as solutions</td>
</tr>
<tr>
<td>alge746</td>
<td>Solving a compound linear inequality: Graph solution, basic</td>
</tr>
<tr>
<td>alge747</td>
<td>Solving a compound linear inequality: Interval notation</td>
</tr>
<tr>
<td>alge868</td>
<td>Solving an absolute value inequality: Problem type 1</td>
</tr>
<tr>
<td>alge749</td>
<td>Solving a decimal word problem using a two-step linear inequality</td>
</tr>
<tr>
<td>alge750</td>
<td>Solving a decimal word problem using a linear inequality with the variable on both sides</td>
</tr>
<tr>
<td>alge064</td>
<td>Reading a point in the coordinate plane</td>
</tr>
<tr>
<td>alge067</td>
<td>Plotting a point in the coordinate plane</td>
</tr>
<tr>
<td>alge850</td>
<td>Table for a linear equation</td>
</tr>
<tr>
<td>alge873</td>
<td>Identifying solutions to a linear equation in two variables</td>
</tr>
<tr>
<td>alge066</td>
<td>Finding a solution to a linear equation in two variables</td>
</tr>
<tr>
<td>alge191</td>
<td>Midpoint of a line segment in the plane</td>
</tr>
<tr>
<td>alge877</td>
<td>Graphing a linear equation of the form y = mx</td>
</tr>
<tr>
<td>alge878</td>
<td>Graphing a line given its equation in slope-intercept form: Integer slope</td>
</tr>
<tr>
<td>alge879</td>
<td>Graphing a line given its equation in slope-intercept form: Fractional slope</td>
</tr>
</tbody>
</table>
APPENDIX B. SYLLABI IN ALEKS

alge880  Graphing a line given its equation in standard form
alge198  Graphing a vertical or horizontal line
alge884  Finding x- and y-intercepts given the graph of a line on a grid
alge924  Finding x- and y-intercepts of a line given the equation: Basic
alge210  Finding x- and y-intercepts of a line given the equation: Advanced
alge197  Graphing a line given its x- and y-intercepts
alge881  Graphing a line by first finding its x- and y-intercepts
alge875  Classifying slopes given graphs of lines
alge886  Finding slope given the graph of a line on a grid
alge887  Finding slope given two points on the line
alge885  Finding the slope of horizontal and vertical lines
alge888  Finding the coordinate that yields a given slope
alge259  Graphing a line given its slope and y-intercept
alge196  Graphing a line through a given point with a given slope
alge876  Identifying linear equations: Advanced
alge874  Identifying linear functions given ordered pairs
alge891  Rewriting a linear equation in the form Ax + By = C
alge889  Finding the slope and y-intercept of a line given its equation in the form y = mx + b
alge890  Finding the slope and y-intercept of a line given its equation in the form Ax + By = C
alge882  Graphing a line by first finding its slope and y-intercept
alge258  Writing an equation of a line given its slope and y-intercept
alge892  Writing an equation and graphing a line given its slope and y-intercept
alge893  Writing an equation in slope-intercept form given the slope and a point
alge883  Graphing a line given its equation in point-slope form
alge894  Writing an equation in point-slope form given the slope and a point
alge070  Writing an equation of a line given the y-intercept and another point
alge072  Writing the equation of the line through two given points
alge073  Writing the equations of vertical and horizontal lines through a given point
gem806  Finding slopes of lines parallel and perpendicular to a line given in slope-intercept form
gem807  Finding slopes of lines parallel and perpendicular to a line given in the form Ax + By = C
alge895  Identifying parallel and perpendicular lines from equations
gem808  Writing equations of lines parallel and perpendicular to a given line through a point
alge897  Writing and evaluating a function that models a real-world situation: Advanced
alge701  Writing an equation and drawing its graph to model a real-world situation: Advanced
fun005  Writing a function rule given a table of ordered pairs: One-step rules
fun006  Writing a function rule given a table of ordered pairs: Two-step rules
alge992  Combining functions to write a new function that models a real-world situation
alge987  Comparing properties of linear functions given in different forms
alge899  Interpreting the parameters of a linear function that models a real-world situation
alge805  Application problem with a linear function: Finding a coordinate given the slope and a point
alge806  Application problem with a linear function: Finding a coordinate given two points
mstat052  Identifying independent and dependent variables from equations or real-world situations
alge991  Solving a linear equation by graphing
mstat030  Sketching the line of best fit
mstat024  Scatter plots and correlation
mstat068  Predictions from the line of best fit
mstat067  Approximating the equation of a line of best fit and making predictions
mstat069  Computing residuals
mstat070  Interpreting residual plots
mstat071  Linear relationship and the correlation coefficient
mstat074  Identifying correlation and causation
alge898  Translating the graph of an absolute value function: One step
alge899  Translating the graph of an absolute value function: Two steps
alge913  Graphing an absolute value equation of the form y = A−x—
alge900  Graphing an absolute value equation in the plane: Basic
alge168  Graphing an absolute value equation in the plane: Advanced
alge901  How the leading coefficient affects the graph of an absolute value function
fun032  Identifying functions from relations
fun010  Vertical line test
fun016  Domain and range from ordered pairs
fun001  Table for a linear function
pcalc760  Evaluating functions: Linear and quadratic or cubic
fun033 Variable expressions as inputs of functions: Problem type 1
alge294 Finding outputs of a one-step function that models a real-world situation: Function notation
alge295 Finding outputs of a two-step function with decimals that models a real-world situation: Function notation
alge296 Finding inputs and outputs of a two-step function that models a real-world situation: Function notation
alge990 Domain and range of a linear function that models a real-world situation
fun026 Finding an output of a function from its graph
pcalc761 Finding inputs and outputs of a function from its graph
fun077 Domain and range from the graph of a discrete relation
set004 Set builder and interval notation
fun024 Domain and range from the graph of a continuous function
alge896 Graphing an integer function and finding its range for a given domain
alge570 Graphing a function of the form \( f(x) = ax + b \): Integer slope
alge571 Graphing a function of the form \( f(x) = ax + b \): Fractional slope
alge572 Graphing a function of the form \( f(x) = ax^2 \)
alge573 Graphing a function of the form \( f(x) = ax^2 + c \)
pcalc750 Finding intercepts of a nonlinear function given its graph
pcalc751 Finding where a function is increasing, decreasing, or constant given the graph: Interval notation
pcalc752 Finding local maxima and minima of a function given the graph
mstat018 Choosing a graph to fit a narrative: Basic
mstat051 Choosing a graph to fit a narrative: Advanced

Systems

alge914 Identifying solutions to a system of linear equations
alge075 Classifying systems of linear equations from graphs
alge725 Graphically solving a system of linear equations
alge751 Solving a system of linear equations using substitution
alge915 Solving a system of linear equations using elimination with addition
alge076 Solving a system of linear equations using elimination with multiplication and addition
alge916 Solving a system of linear equations with fractional coefficients
alge917 Solving a system of linear equations with decimal coefficients
alge752 Solving a 2x2 system of linear equations that is inconsistent or consistent dependent
alge988 Identifying the operations used to create equivalent systems of equations
alge753 Solving a 3x3 system of linear equations: Problem type 1
alge263 Interpreting the graphs of two functions
alge078 Solving a word problem involving a sum and another basic relationship using a system of linear equations
alge919 Solving a word problem using a system of linear equations of the form \( Ax + By = C \)
alge918 Solving a word problem using a system of linear equations of the form \( y = mx + b \)
alge184 Solving a value mixture problem using a system of linear equations
alge192 Solving a percent mixture problem using a system of linear equations
alge224 Solving a distance, rate, time problem using a system of linear equations
alge172 Solving a tax rate or interest rate problem using a system of linear equations
alge793 Solving a word problem using a 3x3 system of linear equations: Problem type 1
alge912 Identifying solutions to a linear inequality in two variables
alge225 Graphing a linear inequality in the plane: Vertical or horizontal line
alge720 Graphing a linear inequality in the plane: Slope-intercept form
alge018 Graphing a linear inequality in the plane: Standard form
alge079 Graphing a system of two linear inequalities: Basic
alge921 Graphing a system of two linear inequalities: Advanced
alge922 Graphing a system of three linear inequalities
alge729 Writing a multi-step inequality for a real-world situation
pcalc093 Solving a word problem using a system of linear inequalities: Problem type 1

Exponents and Polynomials

alge821 Understanding the product rule of exponents
alge024 Introduction to the product rule of exponents
APPENDIX B. SYLLABI IN ALEKS

alge311 Product rule with positive exponents: Univariate
alge030 Product rule with positive exponents: Multivariate
arith029 Ordering numbers with positive exponents
alge826 Understanding the power rules of exponents
alge306 Introduction to the power of a power rule of exponents
alge305 Introduction to the power of a product rule of exponents
alge307 Power rules with positive exponents: Multivariate products
alge308 Power rules with positive exponents: Multivariate quotients
alge451 Simplifying a ratio of multivariate monomials: Basic
alge827 Introduction to the quotient rule of exponents
alge452 Simplifying a ratio of univariate monomials: Basic
alge453 Simplifying a ratio of multivariate monomials: Advanced
alge927 Power and quotient rules with positive exponents
alge790 Evaluating expressions with exponents of zero
arith084 Power of 10: Negative exponent
arith729 Evaluating an expression with a negative exponent: Whole number base
arith042 Evaluating an expression with a negative exponent: Positive fraction base
arith043 Evaluating an expression with a negative exponent: Negative integer base
arith024 Ordering numbers with negative exponents
alge791 Rewriting an algebraic expression without a negative exponent
alge961 Introduction to the product rule with negative exponents
alge028 Product rule with negative exponents
alge755 Quotient rule with negative exponents: Problem type 1
alge926 Quotient rule with negative exponents: Problem type 2
alge925 Power of a power rule with negative exponents
alge799 Power rules with negative exponents
alge928 Power and quotient rules with negative exponents: Problem type 1
alge929 Power and quotient rules with negative exponents: Problem type 2
alge757 Power, product, and quotient rules with negative exponents
arith36 Scientific notation with positive exponent
arith037 Scientific notation with negative exponent
scinot012 Converting between scientific notation and standard form in a real-world situation
scinot008 Multiplying numbers written in scientific notation: Basic
scinot009 Multiplying numbers written in scientific notation: Advanced
scinot010 Dividing numbers written in scientific notation: Basic
scinot011 Dividing numbers written in scientific notation: Advanced
alge971 Table for an exponential function
alge830 Evaluating an exponential function that models a real-world situation
arith853 Introduction to compound interest
alge177 Finding a final amount in a word problem on exponential growth or decay
alge741 Finding the final amount in a word problem on compound interest
alge961 Finding the initial amount and rate of change given an exponential function
alge968 Writing an equation that models exponential growth or decay
alge301 Solving an exponential equation by finding common bases: Linear exponents
alge969 Graphing an exponential function: \( f(x) = ax \)
alge970 Graphing an exponential function: \( f(x) = a(b)x \)
alge967 Writing an exponential function rule given a table of ordered pairs
alge993 Comparing linear, polynomial, and exponential functions
alge758 Degree and leading coefficient of a univariate polynomial
alge031 Degree of a multivariate polynomial
alge798 Simplifying a sum or difference of two univariate polynomials
alge029 Simplifying a sum or difference of three univariate polynomials
alge932 Simplifying a sum or difference of multivariate polynomials
alge735 Multiplying a univariate polynomial by a monomial with a positive coefficient
alge972 Multiplying a univariate polynomial by a monomial with a negative coefficient
alge835 Multiplying a multivariate polynomial by a monomial
alge033 Multiplying binomials with leading coefficients of 1
alge963 Multiplying binomials with leading coefficients greater than 1
alge765 Multiplying binomials in two variables
alge764 Multiplying conjugate binomials: Univariate
alge081 Multiplying conjugate binomials: Multivariate
alge032 Squaring a binomial: Univariate
alge068 Squaring a binomial: Multivariate
alge973 Multiplying binomials with negative coefficients
alge935 Multiplication involving binomials and trinomials in one variable
alge180 Multiplication involving binomials and trinomials in two variables
alge759 Dividing a polynomial by a monomial: Univariate
alge760 Dividing a polynomial by a monomial: Multivariate
alge761 Polynomial long division: Problem type 1
alge762 Polynomial long division: Problem type 2
alge763 Polynomial long division: Problem type 3
alge985 Closure properties of integers and polynomials
alge605 Factoring a linear binomial
alge736 Introduction to the GCF of two monomials
alge930 Greatest common factor of three univariate monomials
alge037 Greatest common factor of two multivariate monomials
alge738 Factoring out a monomial from a polynomial: Univariate
alge949 Factoring out a monomial from a polynomial: Multivariate
alge923 Factoring a univariate polynomial by grouping: Problem type 1
alge950 Factoring a univariate polynomial by grouping: Problem type 2
alge951 Factoring a multivariate polynomial by grouping: Problem type 1
alge952 Factoring a multivariate polynomial by grouping: Problem type 2
alge039 Factoring a quadratic with leading coefficient 1
alge942 Factoring a quadratic in two variables with leading coefficient 1
alge936 Factoring out a constant before factoring a quadratic
alge939 Factoring a quadratic with leading coefficient greater than 1: Problem type 1
alge940 Factoring a quadratic with leading coefficient greater than 1: Problem type 2
alge941 Factoring a quadratic with leading coefficient greater than 1: Problem type 3
alge978 Factoring a quadratic by the ac-method
alge265 Factoring a quadratic in two variables with leading coefficient greater than 1
alge937 Factoring a quadratic with a negative leading coefficient
alge944 Factoring a perfect square trinomial with leading coefficient 1
alge945 Factoring a perfect square trinomial with leading coefficient greater than 1
alge946 Factoring a perfect square trinomial in two variables
alge290 Factoring a difference of squares in one variable: Basic
alge947 Factoring a difference of squares in one variable: Advanced
alge839 Factoring a difference of squares in two variables
alge948 Factoring a polynomial involving a GCF and a difference of squares: Univariate
alge833 Factoring a polynomial involving a GCF and a difference of squares: Multivariate
alge041 Factoring a product of a quadratic trinomial and a monomial
alge042 Factoring with repeated use of the difference of squares formula
alge044 Factoring a sum or difference of two cubes

Rational Expressions

alge467 Restriction on a variable in a denominator: Quadratic
alge468 Evaluating a rational function: Problem type 1
alge469 Evaluating a rational function: Problem type 2
alge715 Domain of a rational function: Excluded values
alge454 Simplifying a ratio of factored polynomials: Linear factors
alge455 Simplifying a ratio of factored polynomials: Factors with exponents
alge456 Simplifying a ratio of polynomials using GCF factoring
alge457 Simplifying a ratio of linear polynomials: 1, -1, and no simplification
alge458 Simplifying a ratio of polynomials by factoring a quadratic with leading coefficient 1
alge710 Simplifying a ratio of polynomials: Problem type 1
alge682 Simplifying a ratio of polynomials: Problem type 2
alge459 Simplifying a ratio of polynomials: Problem type 3
alge034 Simplifying a ratio of multivariate polynomials
APPENDIX B. SYLLABI IN ALEKS

alge053 Multiplying rational expressions involving multivariate monomials
alge460 Multiplying rational expressions made up of linear expressions
alge620 Multiplying rational expressions involving quadratics with leading coefficients of 1
alge461 Multiplying rational expressions involving quadratics with leading coefficients greater than 1
alge462 Multiplying rational expressions involving multivariate quadratics
alge054 Dividing rational expressions involving multivariate monomials
alge463 Dividing rational expressions involving linear expressions
alge766 Dividing rational expressions involving quadratics with leading coefficients of 1
alge464 Dividing rational expressions involving quadratics with leading coefficients greater than 1
alge465 Dividing rational expressions involving multivariate quadratics
alge466 Multiplication and division of 3 rational expressions
alge737 Introduction to the LCM of two monomials
alge055 Least common multiple of two monomials
alge427 Finding the LCD of rational expressions with linear denominators: Relatively prime
alge428 Finding the LCD of rational expressions with linear denominators: Common factors
alge429 Finding the LCD of rational expressions with quadratic denominators
alge430 Writing equivalent rational expressions with monomial denominators
alge431 Writing equivalent rational expressions with polynomial denominators
alge304 Writing equivalent rational expressions involving opposite factors
alge433 Adding rational expressions with common denominators and monomial numerators
alge056 Adding rational expressions with common denominators and binomial numerators
alge434 Adding rational expressions with common denominators and GCF factoring
alge435 Adding rational expressions with common denominators and quadratic factoring
alge437 Adding rational expressions with denominators ax and bx: Basic
alge438 Adding rational expressions with denominators ax and bx: Advanced
alge439 Adding rational expressions with denominators axn and bxm
alge440 Adding rational expressions with multivariate monomial denominators: Basic
alge226 Adding rational expressions with multivariate monomial denominators: Advanced
alge441 Adding rational expressions with linear denominators without common factors: Basic
alge442 Adding rational expressions with linear denominators without common factors: Advanced
alge443 Adding rational expressions with linear denominators with common factors: Basic
alge444 Adding rational expressions with linear denominators with common factors: Advanced
alge445 Adding rational expressions with denominators ax-b and b-ax
alge661 Adding rational expressions involving different quadratic denominators
alge446 Adding 3 rational expressions with different quadratic denominators
alge470 Complex fraction involving univariate monomials
alge058 Complex fraction involving multivariate monomials
alge471 Complex fraction: GCF factoring
alge472 Complex fraction: Quadratic factoring
alge473 Complex fraction made of sums involving rational expressions: Problem type 1
alge474 Complex fraction made of sums involving rational expressions: Problem type 2
alge475 Complex fraction made of sums involving rational expressions: Problem type 3
alge476 Complex fraction made of sums involving rational expressions: Problem type 4
alge477 Complex fraction made of sums involving rational expressions: Problem type 5
alge478 Complex fraction made of sums involving rational expressions: Problem type 6
alge479 Complex fraction made of sums involving rational expressions: Multivariate
alge480 Complex fraction with negative exponents: Problem type 1
alge481 Complex fraction with negative exponents: Problem type 2
alge162 Complex fraction that contains a complex fraction
alge060 Solving a rational equation that simplifies to linear: Denominator x
alge205 Solving a rational equation that simplifies to linear: Denominator x+a
alge769 Solving a rational equation that simplifies to linear: Denominators a, x, or ax
alge421 Solving a rational equation that simplifies to linear: Denominators ax and bx
alge422 Solving a rational equation that simplifies to linear: Like binomial denominators
alge206 Solving a rational equation that simplifies to linear: Unlike binomial denominators
alge423 Solving a rational equation that simplifies to linear: Factorable quadratic denominator
alge424 Solving a rational equation that simplifies to quadratic: Proportional form, basic
alge425 Solving a rational equation that simplifies to quadratic: Denominator x
alge212 Solving a rational equation that simplifies to quadratic: Binomial denominators, constant numerators
alge062 Solving a rational equation that simplifies to quadratic: Binomial denominators and numerators
alge426 Solving a rational equation that simplifies to quadratic: Factorable quadratic denominator
alge047 Solving a rational equation that simplifies to quadratic: Proportional form, advanced
Quadratic Equations and Functions

alg0681 Solving an equation written in factored form
alg0956 Finding the roots of a quadratic equation of the form ax^2 + bx = 0
alg045 Finding the roots of a quadratic equation with leading coefficient 1
alg048 Finding the roots of a quadratic equation with leading coefficient greater than 1
alg211 Solving a quadratic equation needing simplification
alg703 Solving a word problem using a quadratic equation with rational roots
alg713 Using the Pythagorean Theorem and a quadratic equation to find side lengths of a right triangle
alg413 Finding all square roots of a number
arith760 Square roots of perfect squares with signs
alg415 Introduction to simplifying a radical expression with an even exponent
alg264 Square root of a perfect square monomial
arith094 Cube root of an integer
alg549 Finding nth roots of perfect nth powers with signs
arith768 Finding the nth root of a perfect nth power fraction
alg550 Finding the nth root of a perfect nth power monomial
arith093 Simplifying the square root of a whole number less than 100
arith762 Simplifying the square root of a whole number greater than 100
alg080 Simplifying a radical expression with an even exponent
alg520 Introduction to simplifying a radical expression with an odd exponent
alg521 Simplifying a radical expression with an odd exponent
alg275 Simplifying a radical expression with two variables
alg273 Simplifying a higher root of a whole number
alg551 Introduction to simplifying a higher radical expression
alg552 Simplifying a higher radical expression: Univariate
alg811 Simplifying a higher radical expression: Multivariate
arith767 Introduction to square root addition or subtraction
arith632 Square root addition or subtraction
alg543 Square root addition or subtraction with three terms
alg531 Introduction to simplifying a sum or difference of radical expressions: Univariate
alg532 Simplifying a sum or difference of radical expressions: Univariate
alg084 Simplifying a sum or difference of radical expressions: Multivariate
alg554 Simplifying a sum or difference of higher roots
alg555 Simplifying a sum or difference of higher radical expressions
arith764 Introduction to square root multiplication
arith765 Square root multiplication: Basic
arith639 Square root multiplication: Advanced
alg522 Introduction to simplifying a product of radical expressions: Univariate
alg523 Simplifying a product of radical expressions: Univariate
alge640 Simplifying a product of radical expressions: Multivariate
alge556 Introduction to simplifying a product of higher roots
alge557 Simplifying a product of higher radical expressions
alge525 Introduction to simplifying a product involving square roots using the distributive property
alge526 Simplifying a product involving square roots using the distributive property: Basic
alge276 Simplifying a product of higher radical expressions
alge774 Special products of radical expressions: Conjugates and squaring
alge984 Classifying sums and products as rational or irrational
arith766 Simplifying a quotient of square roots
alge530 Simplifying a quotient involving a sum or difference with a square root
alge527 Rationalizing a denominator: Quotient involving square roots
alge528 Rationalizing a denominator: Square root of a fraction
alge529 Rationalizing a denominator: Quotient involving a monomial
alge534 Rationalizing a denominator using conjugates: Integer numerator
alge535 Rationalizing a denominator using conjugates: Square root in numerator
alge536 Rationalizing a denominator using conjugates: Variable in denominator
alge564 Rationalizing a denominator: Quotient involving a higher radical
alge089 Solving a radical equation that simplifies to a linear equation: One radical, basic
alge150 Solving a radical equation that simplifies to a linear equation: Two radicals
alge090 Solving a radical equation that simplifies to a linear equation: Two radicals
alge105 Solving a radical equation with two radicals that simplifies to $\sqrt{x} = a$
alge103 Solving a radical equation that simplifies to a quadratic equation: One radical, basic
alge104 Solving a radical equation that simplifies to a quadratic equation: One radical, advanced
alge111 Solving a radical equation with a quadratic expression under the radical
alge182 Solving a radical equation that simplifies to a quadratic equation: Two radicals
alge410 Solving an equation with a root index greater than 2: Problem type 1
alge417 Solving an equation with a root index greater than 2: Problem type 2
alge122 Algebraic symbol manipulation with radicals
alge542 Word problem involving radical equations: Basic
alge409 Word problem involving radical equations: Advanced
alge132 Distance between two points in the plane: Exact answers
alge539 Table for a square root function
alge540 Domain of a square root function: Basic
pcalc763 Domain of a square root function: Advanced
alge543 Graphing a square root function: Problem type 1
alge544 Graphing a square root function: Problem type 2
alge812 Converting between radical form and exponent form
alge560 Rational exponents: Unit fraction exponents and whole number bases
alge561 Rational exponents: Unit fraction exponents and bases involving signs
alge250 Rational exponents: Non-unit fraction exponent with a whole number base
alge251 Rational exponents: Negative exponents and fractional bases
alge558 Rational exponents: Product rule
alge559 Rational exponents: Quotient rule
alge773 Rational exponents: Products and quotients with negative exponents
alge562 Rational exponents: Power of a power rule
alge249 Rational exponents: Powers of powers with negative exponents
alge563 Simplifying products or quotients of higher radicals with different indices: Univariate
alge778 Using $i$ to rewrite square roots of negative numbers
alge779 Simplifying a product and quotient involving square roots of negative numbers
pcalc048 Adding or subtracting complex numbers
pcalc049 Multiplying complex numbers
pcalc050 Dividing complex numbers
pcalc053 Simplifying a power of $i$
alge962 Solving an equation of the form $x^2 = a$ using the square root property
alge092 Solving a quadratic equation using the square root property: Exact answers, basic
alge227 Solving a quadratic equation using the square root property: Exact answers, advanced
alge094 Completing the square
alge780 Solving a quadratic equation by completing the square: Exact answers
alge965 Applying the quadratic formula: Exact answers
alge963 Applying the quadratic formula: Decimal answers
pcalc051 Solving a quadratic equation with complex roots
B.39 NCCCS Developmental Math Module 070

Whole Numbers

arith124 Whole number place value: Problem type 1
arith125 Whole number place value: Problem type 2
arith066 Expanded form
arith643 Expanded form with zeros
arith028 Numeral translation: Problem type 1
arith060 Numeral translation: Problem type 2
arith633 One-digit addition with carry
arith634 Addition of 3 or 4 one-digit numbers
arith001 Addition without carry
arith635 Adding a 2-digit number and a 1-digit number with carry
arith050 Addition with carry
arith630 Addition with carry to the hundreds place
arith012 Addition of large numbers
arith636 Subtracting a 1-digit number from a 2-digit number
arith007 Subtraction without borrowing
arith128 Adding or subtracting 10, 100, or 1000
arith006 Subtraction with borrowing
arith682 Subtraction with multiple regrouping steps
arith637 Subtraction and regrouping with zeros
arith613 Word problem with addition or subtraction of whole numbers
arith655 Introduction to properties of addition
arith126 Multiplication as repeated addition
arith008 One-digit multiplication
arith679 Multiplication by 10, 100, and 1000
arith003 Multiplication without carry
arith004 Multiplication with carry
APPENDIX B. SYLLABI IN ALEKS

arith632 Multiplication with trailing zeros: Problem type 1
arith615 Introduction to multiplication of large numbers
arith638 Multiplication with trailing zeros: Problem type 2
arith614 Multiplication of large numbers
arith641 Multiples: Problem type 1
arith642 Multiples: Problem type 2
arith656 Introduction to properties of multiplication
arith675 Division facts
arith614 Word problem with multiplication or division of whole numbers
arith130 Word problem with multiplication and addition or subtraction of whole numbers
arith243 Division of whole numbers given in fractional form
arith711 Division involving zero
arith652 Division without carry
arith605 Division with carry
arith680 Division with trailing zeros: Problem type 1
arith649 Division with trailing zeros: Problem type 2
arith616 Quotient and remainder: Problem type 1
arith644 Word problem on quotient and remainder
arith617 Quotient and remainder: Problem type 2
arith631 Quotient and remainder: Problem type 3
arith650 Division involving quotients with intermediate zeros
arith623 Word problem with division of whole numbers and rounding
arith651 Introduction to inequalities
arith677 Ordering large numbers
arith678 Rounding to tens or hundreds
arith623 Rounding to hundreds or thousands
arith661 Rounding to thousands, ten thousands, or hundred thousands
arith101 Estimating a sum of whole numbers
arith102 Estimating a difference of whole numbers
arith692 Writing expressions using exponents
arith233 Introduction to exponents
arith683 Power of 10: Positive exponent
arith645 Introduction to parentheses
arith681 Introduction to order of operations
arith648 Order of operations with whole numbers
arith551 Order of operations with whole numbers and grouping symbols
arith693 Order of operations with whole numbers and exponents: Basic
arith713 Order of operations with whole numbers and exponents: Advanced
arith657 Understanding the distributive property
alge284 Evaluating an algebraic expression: Whole number addition or subtraction
alge683 Evaluating an algebraic expression: Whole number multiplication or division
alge285 Evaluating an algebraic expression: Whole numbers with two operations
alge512 Evaluating an algebraic expression: Whole number operations and exponents
alge09 Additive property of equality with whole numbers
alge008 Multiplicative property of equality with whole numbers
alge803 Using two steps to solve an equation with whole numbers
arith646 Even and odd numbers
arith647 Divisibility rules for 2, 5, and 10
arith648 Divisibility rules for 3 and 9
arith656 Factors
arith634 Prime numbers
arith635 Prime factorization
arith633 Greatest common factor of 2 numbers
arith070 Least common multiple of 2 numbers
arith804 Least common multiple of 3 numbers
arith240 Word problem with common multiples
alge925 Finding the next terms of an arithmetic sequence with whole numbers
alge933 Finding the next terms of a geometric sequence with whole numbers
alge732 Finding patterns in shapes
Fractions

arith623 Introduction to fractions
arith665 Understanding equivalent fractions
arith212 Equivalent fractions
arith666 Introduction to simplifying a fraction
arith687 Simplifying a fraction
arith687 Fractional position on a number line
arith667 Plotting fractions on a number line
arith044 Ordering fractions with the same denominator
arith091 Ordering fractions with the same numerator
arith092 Using a common denominator to order fractions
arith079 Product of a unit fraction and a whole number
arith086 Product of a fraction and a whole number: Problem type 1
arith119 Introduction to fraction multiplication
arith653 Fraction multiplication
arith812 Product of a fraction and a whole number: Problem type 2
arith813 Multiplication of 3 fractions
arith818 Word problem involving fractions and multiplication
arith095 Multi-step word problem involving fractions and multiplication
arith888 The reciprocal of a number
arith694 Division involving a whole number and a fraction
arith622 Fraction division
arith819 Word problem involving fractions and division
arith618 Addition or subtraction of fractions with the same denominator
arith802 Addition or subtraction of fractions with the same denominator and simplification
arith801 Finding the LCD of two fractions
arith109 Addition or subtraction of unit fractions
arith664 Introduction to addition or subtraction of fractions with different denominators
arith230 Addition or subtraction of fractions with different denominators
arith803 Addition and subtraction of 3 fractions with different denominators
arith805 Word problem involving addition or subtraction of fractions with different denominators
arith100 Fractional part of a circle
arith662 Writing a mixed number and an improper fraction for a shaded region
arith015 Writing an improper fraction as a mixed number
arith619 Writing a mixed number as an improper fraction
arith215 Addition or subtraction of mixed numbers with the same denominator
arith084 Addition of mixed numbers with the same denominator and carry
arith216 Subtraction of mixed numbers with the same denominator and borrowing
arith806 Addition or subtraction of mixed numbers with different denominators and no carry or borrow
arith808 Addition of mixed numbers with different denominators and carry
arith809 Subtraction of mixed numbers with different denominators and borrowing
arith807 Addition and subtraction of 3 mixed numbers with different denominators
arith810 Word problem involving addition or subtraction of mixed numbers with different denominators
arith815 Mixed number multiplication
arith816 Multiplication of a mixed number and a whole number
arith817 Division with a mixed number and a whole number
arith068 Mixed number division
arith820 Word problem involving multiplication or division with mixed numbers
arith821 Exponents and fractions
arith859 Order of operations with fractions: Problem type 1
arith860 Order of operations with fractions: Problem type 2
arith861 Order of operations with fractions: Problem type 3
arith695 Complex fraction without variables: Problem type 1

Decimals, Proportions, and Percents

arith127 Writing a decimal and a fraction for a shaded region
arith110 Decimal place value: Tenths and hundredths
APPENDIX B. SYLLABI IN ALEKS

arith220 Decimal place value: Hundreds to ten thousandths
arith714 Writing a decimal number less than 1 given its name
arith715 Writing a decimal number greater than 1 given its name
arith716 Writing a decimal number given its name: Advanced
arith829 Reading decimal position on a number line: Tenths
arith830 Reading decimal position on a number line: Hundredths
arith831 Understanding decimal position on a number line using zoom: Hundredths
arith832 Understanding decimal position on a number line using zoom: Thousandths
arith129 Introduction to ordering decimals
arith608 Ordering decimals
arith717 Converting a decimal to a proper fraction without simplifying: Basic
arith719 Converting a decimal to a proper fraction without simplifying: Advanced
arith718 Converting a decimal to a proper fraction in simplest form: Basic
arith887 Converting a decimal to a proper fraction in simplest form: Advanced
arith721 Converting a decimal to a mixed number and an improper fraction without simplifying
arith722 Converting a decimal to a mixed number and an improper fraction in simplest form: Basic
arith724 Converting a decimal to a mixed number and an improper fraction in simplest form: Advanced
arith664 Addition of aligned decimals
arith013 Decimal addition with 3 numbers
arith734 Subtraction of aligned decimals
arith735 Decimal subtraction: Basic
arith736 Decimal subtraction: Advanced
arith737 Decimal addition and subtraction with 3 or more numbers
arith131 Estimating a decimal sum or difference
arith132 Word problem with addition or subtraction of 2 decimals
arith133 Word problem with addition of 3 or 4 decimals and whole numbers
arith134 Word problem with subtraction of a whole number and a decimal: Regrouping with zeros
arith739 Introduction to decimal multiplication
arith017 Multiplication of a decimal by a whole number
arith055 Decimal multiplication: Problem type 1
arith046 Decimal multiplication: Problem type 2
arith882 Multiplication of a decimal by a power of ten
arith738 Multiplication of a decimal by a power of 0.1
arith740 Multiplication of decimals that have a product less than 0.1
arith752 Estimating a product of decimals
arith135 Word problem with multiplication of a decimal and a whole number
arith137 Word problem with multiplication of two decimals
arith224 Word problem with decimal addition and multiplication
arith744 Whole number division with decimal answers
arith881 Division of a decimal by a whole number
arith743 Division of a decimal by a 1-digit decimal
arith819 Division of a decimal by a 2-digit decimal
arith883 Division of a decimal by a power of ten
arith742 Division of a decimal by a power of 0.1
arith745 Decimal division with rounding
arith136 Word problem with division of a decimal and a whole number
arith138 Word problem with division of two decimals
arith227 Word problem with decimal subtraction and division
alge823 Solving a one-step word problem using the formula d = rt
arith725 Converting a fraction with a denominator of 10 or 100 to a decimal
arith726 Converting a fraction with a denominator of 100 or 1000 to a decimal
arith609 Ordering fractions and decimals
arith727 Converting a fraction to a terminating decimal: Basic
arith728 Converting a fraction to a repeating decimal: Advanced
arith730 Converting a fraction to a repeating decimal: Basic
arith731 Converting a fraction to a repeating decimal: Advanced
arith733 Using a calculator to convert a fraction to a rounded decimal
arith111 Converting a mixed number to a terminating decimal: Basic
arith112 Converting a mixed number to a terminating decimal: Advanced
arith732 Converting a fraction or mixed number to a rounded decimal
arith753 Squaring decimal bases: Products greater than 0.1
arith741 Exponents and decimals: Products less than 0.1
arith720 Order of operations with decimals: Problem type 1
arith746 Order of operations with decimals: Problem type 2
arith747 Order of operations with decimals: Problem type 3
arith748 Addition or subtraction with a decimal and a mixed number
arith749 Multiplication with a decimal and a fraction
arith823 Writing ratios using different notations
arith824 Simplifying a ratio of whole numbers: Problem type 1
arith825 Simplifying a ratio of decimals
arith827 Finding a unit price
arith828 Computing unit prices to find the better buy
arith064 Solving a word problem on proportions using a unit rate
arith228 Word problem on unit rates associated with ratios of whole numbers: Decimal answers
arith061 Word problem on proportions: Problem type 2
alge063 Word problem on mixed number proportions
arith047 Word problem with powers of ten
arith836 Converting a fraction with a denominator of 100 to a percentage
arith837 Converting a percentage to a fraction with a denominator of 100
arith674 Finding the percentage of a grid that is shaded
arith723 Introduction to converting a percentage to a decimal
arith833 Introduction to converting a decimal to a percentage
arith834 Converting between percentages and decimals
arith841 Converting a mixed number percentage to a decimal
arith835 Converting between percentages and decimals in a real-world situation
arith836 Converting a percentage to a fraction in simplest form
arith839 Converting a decimal percentage to a fraction
arith838 Converting a fraction to a percentage: Denominator of 4, 5, or 10
arith8002 Converting a fraction to a percentage: Denominator of 20, 25, or 50
arith843 Using a calculator to convert a fraction to a rounded percentage
arith842 Converting a fraction to a percentage in a real-world situation
arith840 Finding a percentage of a whole number
arith841 Finding a percentage of a whole number without a calculator: Basic
arith844 Finding a percentage of a whole number without a calculator: Advanced
arith862 Applying the percent equation: Problem type 1
arith863 Applying the percent equation: Problem type 2
arith845 Finding a percentage of a total amount: Real-world situations
arith846 Finding a percentage of a total amount without a calculator: Sales tax, commission, discount
arith857 Estimating a tip without a calculator
arith096 Writing a ratio as a percentage without a calculator
mstat049 Computing a percentage from a table of values
arith850 Finding the rate of a tax or commission
arith849 Finding the total amount given the percentage of a partial amount
arith852 Finding the multiplier to give a final amount after a percentage increase or decrease
arith851 Finding the final amount given the original amount and a percentage increase or decrease
arith847 Finding the sale price given the original price and percent discount
arith874 Finding the sale price without a calculator given the original price and percent discount
arith848 Finding the total cost including tax or markup
arith855 Finding the original amount given the result of a percentage increase or decrease
arith831 Finding the original price given the sale price and percent discount
arith858 Finding the percentage increase or decrease: Basic
arith825 Finding the percentage increase or decrease: Advanced
arith832 Finding simple interest without a calculator
arith856 Finding a percentage of a total amount in a circle graph
stat801 Computations from a circle graph

Geometry

geom339 Perimeter of a polygon
geom300 Perimeter of a square or a rectangle
geom618 Perimeter of a polygon involving mixed numbers and fractions
geom078 Sides of polygons having the same perimeter
geom221 Finding the missing length in a figure
geom353 Perimeter of a piecewise rectangular figure
geom358 Identifying parallel and perpendicular lines
geom349 Naming segments, rays, and lines
geom151 Measuring an angle with the protractor
geom152 Drawing an angle with the protractor
geom303 Acute, obtuse, and right angles
geom039 Finding supplementary and complementary angles
geom305 Identifying supplementary and vertical angles
geom304 Identifying corresponding and alternate angles
geom306 Acute, obtuse, and right triangles
geom307 Classifying scalene, isosceles, and equilateral triangles by side lengths or angles
geom901 Finding an angle measure of a triangle given two angles
geom908 Finding an angle measure for a triangle with an extended side
geom812 Finding an angle measure given extended triangles
geom813 Finding an angle measure given a triangle and parallel lines
geom361 Naming polygons
mstat042 Interpreting a Venn diagram of 2 sets
geom867 Identifying parallelograms, rectangles, and squares
geom310 Properties of quadrilaterals
geom532 Classifying parallelograms
geom909 Area of a square or a rectangle
geom866 Perimeter and area on a grid
geom620 Area of a rectangle involving fractions
geom619 Area of a rectangle involving mixed numbers and fractions
geom350 Distinguishing between the area and perimeter of a rectangle
geom351 Areas of rectangles with the same perimeter
geom217 Finding the side length of a rectangle given its perimeter or area
geom340 Area of a piecewise rectangular figure
geom142 Word problem involving the area between two rectangles
geom801 Area of a triangle
geom344 Area involving rectangles and triangles
geom022 Area of a parallelogram
geom023 Area of a trapezoid
geom347 Introduction to a circle: Diameter, radius, and chord
geom016 Circumference of a circle
geom301 Perimeter involving rectangles and circles
geom802 Circumference and area of a circle
geom302 Area involving rectangles and circles
geom836 Word problem involving the area between two concentric circles
geom214 Area involving inscribed figures
geom814 Angle measure in a circle graph
geom868 Classifying solids
geom348 Vertices, edges, and faces of a solid
geom830 Counting the cubes in a solid made of cubes
geom354 Volume of a rectangular prism made of unit cubes
geom341 Volume of a rectangular prism
geom305 Volume of a piecewise rectangular prism
geom890 Volume of a triangular prism
geom333 Volume of a pyramid
geom035 Volume of a cylinder
geom092 Word problem involving the rate of filling or emptying a cylinder
geom622 Volume of a cone
geom841 Volume of a sphere
geom219 Nets of solids
geom816 Side views of a solid made of cubes
geom831 Surface area of a cube or a rectangular prism
geom345 Surface area of a piecewise rectangular prism made of unit cubes
geom891 Surface area of a triangular prism
geom621 Surface area of a cylinder
Measurement and Data Analysis

mstat059 Choosing U.S. Customary measurement units
unit005 U.S. Customary unit conversion with whole number values
mstat035 Conversions involving measurements in feet and inches
mstat036 Adding measurements in feet and inches
unit006 U.S. Customary unit conversion with whole number values: Two-step conversion
unit007 U.S. Customary unit conversion with mixed number values: One-step conversion
unit008 U.S. Customary unit conversion with mixed number values: Two-step conversion
unit009 U.S. Customary area unit conversion with whole number values
mstat060 Choosing metric measurement units
unit001 Metric distance conversion with whole number values
unit002 Metric mass or capacity conversion with whole number values
unit003 Metric distance conversion with decimal values
unit004 Metric conversion with decimal values: Two-step problem
unit010 Metric area unit conversion with decimal values
unit012 Time unit conversion with whole number values
time006 Adding time
time007 Elapsed time
arith063 Word problem with clocks
mstat065 Converting between temperatures in Fahrenheit and Celsius
arith826 Simplifying a ratio of whole numbers: Problem type 2
unit034 Converting between metric and U.S. Customary unit systems
unit035 Converting between compound units: Basic
unit036 Converting between compound units: Advanced
mstat036 Interpreting a tally table
mstat037 Constructing a line plot
mstat005 Constructing a bar graph for non-numerical data
mstat004 Constructing a histogram for numerical data
mstat024 Interpreting a bar graph
mstat044 Interpreting a double bar graph
mstat057 Interpreting a pictograph table
mstat007 Interpreting a line graph
mstat031 Interpreting a stem-and-leaf plot
stat804 Interpreting a circle graph or pie chart
stat020 Calculating relative frequencies in a contingency table
stat805 Making a reasonable inference based on proportion statistics
mstat025 Finding if a question can be answered by the data
mstat003 Mode of a data set
mstat055 Finding the mode and range of a data set
arith103 Average of two numbers
mstat001 Mean of a data set
mstat028 Mean and median of a data set
mstat029 How changing a value affects the mean and median
mstat053 Choosing the best measure to describe data
APPENDIX B. SYLLABI IN ALEKS

stat802 Rejecting unreasonable claims based on average statistics
mstat066 Weighted mean
mstat027 Using back-to-back stem-and-leaf plots to compare data sets
mstat072 Five-number summary and interquartile range
mstat006 Constructing a box-and-whisker plot
mstat073 Using box-and-whisker plots to compare data sets
mstat043 Interpreting a Venn diagram of 3 sets
mstat041 Interpreting a tree diagram
mstat040 Introduction to the counting principle
mstat015 Counting principle
pcalc082 Factorial expressions
mstat017 Computing permutations and combinations
mstat008 Word problem involving permutations
mstat009 Word problem involving combinations
mstat026 Introduction to the probability of an event
mstat039 Understanding likelihood
mstat048 Odds of an event
stat106 Outcomes and event probability
stat112 Probabilities involving two dice
mstat011 Area as probability
mstat046 Experimental and theoretical probability
mstat047 Introduction to expectation
mstat012 Probability of independent events
mstat013 Probability of dependent events
mstat032 Probability of the union of two events

Real Numbers and Algebraic Expressions

alge286 Plotting integers on a number line
arith605 Plotting rational numbers on a number line
mstat038 Reading the temperature from a thermometer
arith699 Writing a signed number for a real-world situation
arith691 Ordering integers
arith712 Ordering real numbers
arith671 Absolute value of a number
arith200 Integer addition: Problem type 1
arith108 Integer addition: Problem type 2
arith688 Integer subtraction: Problem type 1
arith689 Integer subtraction: Problem type 2
arith690 Integer subtraction: Problem type 3
arith754 Addition and subtraction with 3 integers
arith755 Addition and subtraction with 4 or 5 integers
arith701 Word problem with addition or subtraction of integers
arith231 Integer multiplication and division
arith800 Multiplication of 3 or 4 integers
alge001 Identifying numbers as integers or non-integers
alge002 Identifying numbers as rational or irrational
arith116 Signed fraction addition or subtraction: Basic
arith864 Signed fraction subtraction involving double negation
arith806 Signed fraction addition or subtraction: Advanced
arith811 Addition and subtraction of 3 fractions involving signs
arith822 Signed fraction multiplication: Basic
arith815 Signed fraction multiplication: Advanced
arith814 Signed fraction division
arith117 Signed decimal addition and subtraction
arith234 Signed decimal addition and subtraction with 3 numbers
arith750 Signed decimal multiplication
arith751 Signed decimal division
arith104 Operations with absolute value: Problem type 2
B.39. NCCCS DEVELOPMENTAL MATH MODULE 070

geom525 Computing distances between decimals on the number line
unit052 Finding the absolute error and percent error of a measurement
arith704 Exponents and signed fractions
arith702 Exponents and integers: Problem type 1
arith703 Exponents and integers: Problem type 2
arith118 Order of operations with integers
arith600 Order of operations with integers and exponents
arith606 Complex fraction without variables: Problem type 2
alge808 Evaluating a linear expression: Signed fraction multiplication with addition or subtraction
alge302 Evaluating a linear expression: Signed decimal addition and subtraction
alge302 Evaluating a linear expression: Signed decimal multiplication with addition or subtraction
alge004 Evaluating a quadratic expression: Integers
alge700 Combining like terms: Whole number coefficients
alge607 Combining like terms: Integer coefficients
alge187 Properties of addition
alge606 Distributive property: Whole number coefficients
alge604 Distributive property: Integer coefficients
alge188 Properties of real numbers
alge608 Using distribution and combining like terms to simplify: Univariate
alge609 Using distribution with double negation and combining like terms to simplify: Multivariate
alge293 Combining like terms in a quadratic expression
alge432 Introduction to adding fractions with variables and common denominators
alge436 Adding rational expressions with different denominators and a single occurrence of a variable

Linear Equations

alge801 Additive property of equality with fractions and mixed numbers
alge800 Additive property of equality with decimals
alge010 Additive property of equality with integers
alge836 Additive property of equality with signed fractions
alge820 Multiplicative property of equality with fractions
alge825 Multiplicative property of equality with decimals
alge797 Multiplicative property of equality with integers
alge012 Multiplicative property of equality with signed fractions
alge834 Identifying solutions to a linear equation in one variable: Two-step equations
alge206 Additive property of equality with a negative coefficient
alge606 Solving a two-step equation with integers
alge209 Solving an equation to find the value of an expression
alge620 Introduction to solving an equation with parentheses
alge837 Solving a multi-step equation given in fractional form
alge986 Identifying properties used to solve a linear equation
alge824 Solving a two-step equation with signed decimals
alge838 Introduction to solving an equation with variables on the same side
alge862 Solving a linear equation with several occurrences of the variable: Variables on the same side
alge863 Solving a linear equation with several occurrences of the variable: Variables on both sides
alge011 Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
alge013 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
alge209 Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions
alge420 Solving a linear equation with several occurrences of the variable: Fractional forms with monomial numerators
alge208 Solving a two-step equation with signed fractions
alge601 Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
alge179 Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators
APPENDIX B. SYLLABI IN ALEKS

alge742 Solving equations with zero, one, or infinitely many solutions
alge840 Solving a proportion of the form \((x+a)\div b = c\div d\)
alge603 Introduction to solving an absolute value equation
alge864 Solving an absolute value equation: Problem type 1
alge511 Solving for a variable in terms of other variables using addition or subtraction: Basic
alge512 Solving for a variable in terms of other variables using addition or subtraction: Advanced
alge513 Solving for a variable in terms of other variables using multiplication or division: Basic
alge514 Solving for a variable in terms of other variables using multiplication or division: Advanced
alge517 Solving for a variable in terms of other variables using addition or subtraction with division
alge518 Solving for a variable inside parentheses in terms of other variables
alge507 Solving for a variable in terms of other variables in a linear equation with fractions
alge733 Writing a one-step expression for a real-world situation
alge831 Translating a phrase into a one-step expression
alge016 Translating a sentence into a one-step equation
alge841 Translating a sentence into a multi-step equation
alge802 Solving a fraction word problem using a linear equation of the form \(Ax = B\)
alge014 Solving a word problem with two unknowns using a linear equation
alge842 Solving a word problem with three unknowns using a linear equation
alge794 Solving a value mixture problem using a linear equation
alge218 Solving a word problem involving rates and time conversion
alge796 Solving a distance, rate, time problem using a linear equation
arith854 Computing a percent mixture
alge795 Solving a percent mixture problem using a linear equation
geom817 Finding a side length given the perimeter and side lengths with variables
geom143 Finding the perimeter or area of a rectangle given one of these values
geom218 Finding the radius or the diameter of a circle given its circumference
geom838 Circumference ratios
geom530 Solving equations involving vertical angles
geom531 Solving equations involving angles and a pair of parallel lines
geom623 Finding angle measures of a triangle given angles with variables
geom502 Finding angle measures of a right or isosceles triangle given angles with variables
stat803 Finding the value for a new score that will yield a given mean
alge015 Translating a sentence by using an inequality symbol
alge845 Translating a sentence into a one-step inequality
alge846 Translating a sentence into a multi-step inequality
alge748 Writing an inequality for a real-world situation
alge017 Graphing a linear inequality on the number line
alge822 Writing an inequality given a graph on the number line
alge186 Translating a sentence into a compound inequality
alge166 Graphing a compound inequality on the number line
alge847 Writing a compound inequality given a graph on the number line
set001 Set builder notation
set004 Set builder and interval notation
set002 Union and intersection of finite sets
alge844 Identifying solutions to a two-step linear inequality in one variable
alge848 Additive property of inequality with whole numbers
alge849 Additive property of inequality with integers
alge852 Additive property of inequality with signed fractions
alge853 Additive property of inequality with signed decimals
alge854 Multiplicative property of inequality with integers
alge964 Multiplicative property of inequality with signed fractions
alge855 Solving a two-step linear inequality: Problem type 1
alge856 Solving a two-step linear inequality: Problem type 2
alge857 Solving a two-step linear inequality with a fractional coefficient
alge977 Solving a linear inequality with multiple occurrences of the variable: Problem type 1
alge858 Solving a linear inequality with multiple occurrences of the variable: Problem type 2
alge859 Solving a linear inequality with multiple occurrences of the variable: Problem type 3
alge860 Solving inequalities with no solution or all real numbers as solutions
alge746 Solving a compound linear inequality: Graph solution, basic
alge747 Solving a compound linear inequality: Interval notation
alge868 Solving an absolute value inequality: Problem type 1
alge749 Solving a decimal word problem using a two-step linear inequality
alge750 Solving a decimal word problem using a linear inequality with the variable on both sides

Lines and Functions

alge064 Reading a point in the coordinate plane
alge067 Plotting a point in the coordinate plane
alge850 Table for a linear equation
alge873 Identifying solutions to a linear equation in two variables
alge066 Finding a solution to a linear equation in two variables
alge191 Midpoint of a line segment in the plane
alge877 Graphing a linear equation of the form \( y = mx \)
alge878 Graphing a line given its equation in slope-intercept form: Integer slope
alge879 Graphing a line given its equation in slope-intercept form: Fractional slope
alge880 Graphing a line given its equation in standard form
alge198 Graphing a vertical or horizontal line
alge884 Finding \( x \)- and \( y \)-intercepts given the graph of a line on a grid
alge924 Finding \( x \)- and \( y \)-intercepts of a line given the equation: Basic
alge210 Finding \( x \)- and \( y \)-intercepts of a line given the equation: Advanced
alge197 Graphing a line given its \( x \)- and \( y \)-intercepts
alge881 Graphing a line by first finding its \( x \)- and \( y \)-intercepts
alge875 Classifying slopes given graphs of lines
alge886 Finding slope given the graph of a line on a grid
alge887 Finding slope given two points on the line
alge885 Finding the slope of horizontal and vertical lines
alge888 Finding the coordinate that yields a given slope
alge259 Graphing a line given its slope and \( y \)-intercept
alge196 Graphing a line through a given point with a given slope
alge876 Identifying linear equations: Advanced
alge874 Identifying linear functions given ordered pairs
alge891 Rewriting a linear equation in the form \( Ax + By = C \)
alge889 Finding the slope and \( y \)-intercept of a line given its equation in the form \( y = mx + b \)
alge890 Finding the slope and \( y \)-intercept of a line given its equation in the form \( Ax + By = C \)
alge882 Graphing a line by first finding its slope and \( y \)-intercept
alge258 Writing an equation of a line given its slope and \( y \)-intercept
alge892 Writing an equation and graphing a line given its slope and \( y \)-intercept
alge893 Writing an equation in slope-intercept form given the slope and a point
alge883 Graphing a line given its equation in point-slope form
alge894 Writing an equation in point-slope form given the slope and a point
alge070 Writing an equation of a line given the \( y \)-intercept and another point
alge072 Writing the equation of the line through two given points
alge073 Writing the equations of vertical and horizontal lines through a given point
geom806 Finding slopes of lines parallel and perpendicular to a line given in slope-intercept form
geom807 Finding slopes of lines parallel and perpendicular to a line given in the form \( Ax + By = C \)
alge895 Identifying parallel and perpendicular lines from equations
geom808 Writing equations of lines parallel and perpendicular to a given line through a point
alge897 Writing and evaluating a function that models a real-world situation: Advanced
alge701 Writing an equation and drawing its graph to model a real-world situation: Advanced
fun005 Writing a function rule given a table of ordered pairs: One-step rules
fun006 Writing a function rule given a table of ordered pairs: Two-step rules
alge992 Combining functions to write a new function that models a real-world situation
alge987 Comparing properties of linear functions given in different forms
alge989 Interpreting the parameters of a linear function that models a real-world situation
alge805 Application problem with a linear function: Finding a coordinate given the slope and a point
alge806 Application problem with a linear function: Finding a coordinate given two points
APPENDIX B. SYLLABI IN ALEKS

mstat052 Identifying independent and dependent variables from equations or real-world situations
alge991 Solving a linear equation by graphing
mstat030 Sketching the line of best fit
mstat023 Scatter plots and correlation
mstat068 Predictions from the line of best fit
mstat069 Computing residuals
mstat070 Interpreting residual plots
mstat071 Linear relationship and the correlation coefficient
mstat074 Identifying correlation and causation
alge898 Translating the graph of an absolute value function: One step
alge899 Translating the graph of an absolute value function: Two steps
alge913 Graphing an absolute value equation of the form y = A — x —
alge900 Graphing an absolute value equation in the plane: Basic
alge168 Graphing an absolute value equation in the plane: Advanced
alge901 How the leading coefficient affects the graph of an absolute value function
fun032 Identifying functions from relations
fun010 Vertical line test
fun016 Domain and range from ordered pairs
fun001 Table for a linear function
pcalc760 Evaluating functions: Linear and quadratic or cubic
fun033 Variable expressions as inputs of functions: Problem type 1
alge294 Finding outputs of a one-step function that models a real-world situation: Function notation
alge295 Finding outputs of a two-step function with decimals that models a real-world situation: Function notation
alge296 Finding inputs and outputs of a two-step function that models a real-world situation: Function notation
alge990 Domain and range of a linear function that models a real-world situation
fun026 Finding an output of a function from its graph
pcalc761 Finding inputs and outputs of a function from its graph
fun007 Domain and range from the graph of a discrete relation
fun024 Domain and range from the graph of a continuous function
alge896 Graphing an integer function and finding its range for a given domain
alge570 Graphing a function of the form f(x) = ax + b: Integer slope
alge571 Graphing a function of the form f(x) = ax + b: Fractional slope
alge954 Graphing a parabola of the form y = ax2
alge955 Graphing a parabola of the form y = ax2 + c
alge572 Graphing a function of the form f(x) = ax2
alge573 Graphing a function of the form f(x) = ax2 + c
pcalc750 Finding intercepts of a nonlinear function given its graph
pcalc751 Finding where a function is increasing, decreasing, or constant given the graph: Interval notation
pcalc752 Finding local maxima and minima of a function given the graph
mstat018 Choosing a graph to fit a narrative: Basic
mstat051 Choosing a graph to fit a narrative: Advanced

Systems

alge914 Identifying solutions to a system of linear equations
alge075 Classifying systems of linear equations from graphs
alge725 Graphically solving a system of linear equations
alge751 Solving a system of linear equations using substitution
alge915 Solving a system of linear equations using elimination with addition
alge076 Solving a system of linear equations using elimination with multiplication and addition
alge916 Solving a system of linear equations with fractional coefficients
alge917 Solving a system of linear equations with decimal coefficients
alge752 Solving a 2x2 system of linear equations that is inconsistent or consistent dependent
alge988 Identifying the operations used to create equivalent systems of equations
alge753 Solving a 3x3 system of linear equations: Problem type 1
alge263 Interpreting the graphs of two functions
alge078 Solving a word problem involving a sum and another basic relationship using a system of linear equations
alge919 Solving a word problem using a system of linear equations of the form Ax + By = C
Exponents and Polynomials

alge821 Understanding the product rule of exponents
alge024 Introduction to the product rule of exponents
alge311 Product rule with positive exponents: Univariate
alge030 Product rule with positive exponents: Multivariate
arith629 Ordering numbers with positive exponents
alge826 Understanding the power rules of exponents
alge306 Introduction to the power of a power rule of exponents
alge305 Introduction to the power of a product rule of exponents
alge307 Power rules with positive exponents: Multivariate products
alge308 Power rules with positive exponents: Multivariate quotients
alge756 Power and product rules with positive exponents
alge451 Simplifying a ratio of multivariate monomials: Basic
alge827 Introduction to the quotient rule of exponents
alge452 Simplifying a ratio of univariate monomials
alge026 Quotient of expressions involving exponents
alge453 Simplifying a ratio of multivariate monomials: Advanced
alge927 Power and quotient rules with positive exponents
alge790 Evaluating expressions with exponents of zero
arith68 Power of 10: Negative exponent
arith729 Evaluating an expression with a negative exponent: Whole number base
arith042 Evaluating an expression with a negative exponent: Positive fraction base
arith043 Evaluating an expression with a negative exponent: Negative integer base
arith624 Ordering numbers with negative exponents
alge791 Rewriting an algebraic expression without a negative exponent
alge961 Introduction to the product rule with negative exponents
alge028 Product rule with negative exponents
alge755 Quotient rule with negative exponents: Problem type 1
alge926 Quotient rule with negative exponents: Problem type 2
alge025 Power of a power rule with negative exponents
alge799 Power rules with negative exponents
alge928 Power and quotient rules with negative exponents: Problem type 1
alge929 Power and quotient rules with negative exponents: Problem type 2
alge757 Power, product, and quotient rules with negative exponents
arith036 Scientific notation with positive exponent
arith037 Scientific notation with negative exponent
arith012 Converting between scientific notation and standard form in a real-world situation
scinot008 Multiplying numbers written in scientific notation: Basic
scinot009 Multiplying numbers written in scientific notation: Advanced
scinot010 Dividing numbers written in scientific notation: Basic
scinot011 Dividing numbers written in scientific notation: Advanced
alge971 Table for an exponential function
alge830 Evaluating an exponential function that models a real-world situation
APPENDIX B. SYLLABI IN ALEKS

arith853 Introduction to compound interest
alge177 Finding a final amount in a word problem on exponential growth or decay
alge741 Finding the final amount in a word problem on compound interest
alge966 Finding the initial amount and rate of change given an exponential function
alge968 Writing an equation that models exponential growth or decay
alge301 Solving an exponential equation by finding common bases: Linear exponents
alge969 Graphing an exponential function: \( f(x) = ax \)
alge970 Graphing an exponential function: \( f(x) = a(b)x \)
alge967 Writing an exponential function rule given a table of ordered pairs
alge993 Comparing linear, polynomial, and exponential functions
alge758 Degree and leading coefficient of a univariate polynomial
alge031 Degree of a multivariate polynomial
alge798 Multiplying a sum or difference of two univariate polynomials
alge029 Simplifying a sum or difference of three univariate polynomials
alge932 Simplifying a sum or difference of multivariate polynomials
alge735 Multiplying a univariate polynomial by a monomial with a positive coefficient
alge972 Multiplying a univariate polynomial by a monomial with a negative coefficient
alge835 Multiplying a multivariate polynomial by a monomial
alge033 Multiplying binomials with leading coefficients of 1
alge983 Multiplying binomials with leading coefficients greater than 1
alge765 Multiplying binomials in two variables
alge764 Multiplying conjugate binomials: Univariate
alge081 Multiplying conjugate binomials: Multivariate
alge032 Squaring a binomial: Univariate
alge068 Squaring a binomial: Multivariate
alge973 Multiplying binomials with negative coefficients
alge934 Multiplication involving binomials and trinomials in one variable
alge180 Multiplication involving binomials and trinomials in two variables
alge759 Dividing a polynomial by a monomial: Univariate
alge760 Dividing a polynomial by a monomial: Multivariate
alge761 Polynomial long division: Problem type 1
alge762 Polynomial long division: Problem type 2
alge763 Polynomial long division: Problem type 3
alge985 Closure properties of integers and polynomials
alge605 Factoring a linear binomial
alge746 Introduction to the GCF of two monomials
alge930 Greatest common factor of three univariate monomials
alge037 Greatest common factor of two multivariate monomials
alge739 Factoring out a monomial from a polynomial: Univariate
alge949 Factoring out a monomial from a polynomial: GCF factoring, basic
alge923 Factoring a univariate polynomial by grouping: Problem type 1
alge950 Factoring a univariate polynomial by grouping: Problem type 2
alge951 Factoring a multivariate polynomial by grouping: Problem type 1
alge952 Factoring a multivariate polynomial by grouping: Problem type 2
alge039 Factoring a quadratic with leading coefficient 1
alge942 Factoring a quadratic in two variables with leading coefficient 1
alge936 Factoring a constant before factoring a quadratic
alge939 Factoring a quadratic with leading coefficient greater than 1: Problem type 1
alge940 Factoring a quadratic with leading coefficient greater than 1: Problem type 2
alge941 Factoring a quadratic with leading coefficient greater than 1: Problem type 3
alge978 Factoring a quadratic by the ac-method
alge265 Factoring a quadratic in two variables with leading coefficient greater than 1
alge937 Factoring a quadratic with a negative leading coefficient
alge944 Factoring a perfect square trinomial with leading coefficient 1
alge945 Factoring a perfect square trinomial with leading coefficient greater than 1
alge946 Factoring a perfect square trinomial in two variables
alge290 Factoring a difference of squares in one variable: Basic
alge947 Factoring a difference of squares in one variable: Advanced
alge839 Factoring a difference of squares in two variables
alge948 Factoring a polynomial involving a GCF and a difference of squares: Univariate
alge833 Factoring a polynomial involving a GCF and a difference of squares: Multivariate
alge041 Factoring a product of a quadratic trinomial and a monomial
alge042 Factoring with repeated use of the difference of squares formula
alge044 Factoring a sum or difference of two cubes
alge681 Solving an equation written in factored form
alge956 Finding the roots of a quadratic equation of the form $ax^2 + bx = 0$
alge045 Finding the roots of a quadratic equation with leading coefficient 1
alge048 Finding the roots of a quadratic equation with leading coefficient greater than 1
alge211 Solving a quadratic equation needing simplification
alge703 Solving a word problem using a quadratic equation with rational roots
alge713 Using the Pythagorean Theorem and a quadratic equation to find side lengths of a right triangle

Rational Expressions

alge049 Restriction on a variable in a denominator: Linear
alge647 Restriction on a variable in a denominator: Quadratic
alge468 Evaluating a rational function: Problem type 1
alge469 Evaluating a rational function: Problem type 2
alge715 Domain of a rational function: Excluded values
alge454 Simplifying a ratio of factored polynomials: Linear factors
alge455 Simplifying a ratio of factored polynomials: Factors with exponents
alge456 Simplifying a ratio of polynomials using GCF factoring
alge457 Simplifying a ratio of linear polynomials: 1, -1, and no simplification
alge458 Simplifying a ratio of polynomials by factoring a quadratic with leading coefficient 1
alge710 Simplifying a ratio of polynomials: Problem type 1
alge682 Simplifying a ratio of polynomials: Problem type 2
alge459 Simplifying a ratio of polynomials: Problem type 3
alge034 Simplifying a ratio of multivariate polynomials
alge053 Multiplying rational expressions involving multivariate monomials
alge460 Multiplying rational expressions made up of linear expressions
alge620 Multiplying rational expressions involving quadratics with leading coefficients of 1
alge461 Multiplying rational expressions involving quadratics with leading coefficients greater than 1
alge462 Multiplying rational expressions involving multivariate quadratics
alge054 Dividing rational expressions involving multivariate monomials
alge463 Dividing rational expressions involving linear expressions
alge766 Dividing rational expressions involving quadratics with leading coefficients of 1
alge464 Dividing rational expressions involving quadratics with leading coefficients greater than 1
alge465 Dividing rational expressions involving multivariate quadratics
alge466 Multiplication and division of 3 rational expressions
alge737 Introduction to the LCM of two monomials
alge055 Least common multiple of two monomials
alge427 Finding the LCD of rational expressions with linear denominators: Relatively prime
alge428 Finding the LCD of rational expressions with linear denominators: Common factors
alge429 Finding the LCD of rational expressions with quadratic denominators
alge430 Writing equivalent rational expressions with monomial denominators
alge431 Writing equivalent rational expressions with polynomial denominators
alge304 Writing equivalent rational expressions involving opposite factors
alge433 Adding rational expressions with common denominators and monomial numerators
alge056 Adding rational expressions with common denominators and binomial numerators
alge434 Adding rational expressions with common denominators and GCF factoring
alge435 Adding rational expressions with common denominators and quadratic factoring
alge437 Adding rational expressions with denominators $ax$ and $bx$: Basic
alge438 Adding rational expressions with denominators $ax$ and $bx$: Advanced
alge439 Adding rational expressions with denominators $axn$ and $bxm$
alge440 Adding rational expressions with multivariate monomial denominators: Basic
alge226 Adding rational expressions with multivariate monomial denominators: Advanced
alge441 Adding rational expressions with linear denominators without common factors: Basic
alge442 Adding rational expressions with linear denominators without common factors: Advanced
alge443 Adding rational expressions with linear denominators with common factors: Basic
alge444 Adding rational expressions with linear denominators with common factors: Advanced
alge445 Adding rational expressions with denominators $ax-b$ and $b-ax$
APPENDIX B. SYLLABI IN ALEKS

alge061 Adding rational expressions involving different quadratic denominators
alge446 Adding 3 rational expressions with different quadratic denominators
alge470 Complex fraction involving univariate monomials
alge058 Complex fraction involving multivariate monomials
alge471 Complex fraction: GCF factoring
alge472 Complex fraction: Quadratic factoring
alge473 Complex fraction made of sums involving rational expressions: Problem type 1
alge474 Complex fraction made of sums involving rational expressions: Problem type 2
alge475 Complex fraction made of sums involving rational expressions: Problem type 3
alge476 Complex fraction made of sums involving rational expressions: Problem type 4
alge477 Complex fraction made of sums involving rational expressions: Problem type 5
alge478 Complex fraction made of sums involving rational expressions: Problem type 6
alge479 Complex fraction made of sums involving rational expressions: Multivariate
alge480 Complex fraction with negative exponents: Problem type 1
alge481 Complex fraction with negative exponents: Problem type 2
alge162 Complex fraction that contains a complex fraction
alge069 Solving a rational equation that simplifies to linear: Denominator x
alge205 Solving a rational equation that simplifies to linear: Denominator x+a
alge769 Solving a rational equation that simplifies to linear: Denominators a, x, or ax
alge421 Solving a rational equation that simplifies to linear: Denominators ax and bx
alge422 Solving a rational equation that simplifies to linear: Like binomial denominators
alge206 Solving a rational equation that simplifies to linear: Unlike binomial denominators
alge423 Solving a rational equation that simplifies to linear: Factorable quadratic denominator
alge424 Solving a rational equation that simplifies to quadratic: Proportional form, basic
alge425 Solving a rational equation that simplifies to quadratic: Denominator x
alge212 Solving a rational equation that simplifies to quadratic: Binomial denominators, constant numerators
alge062 Solving a rational equation that simplifies to quadratic: Binomial denominators and numerators
alge426 Solving a rational equation that simplifies to quadratic: Factorable quadratic denominator
alge047 Solving a rational equation that simplifies to quadratic: Proportional form, advanced
alge272 Solving a proportion of the form x/a = b/c
arith610 Word problem on proportions: Problem type 1
alge271 Solving a proportion of the form a/(x+b) = c/x
alge508 Solving for a variable in terms of other variables in a rational equation: Problem type 1
alge509 Solving for a variable in terms of other variables in a rational equation: Problem type 2
alge510 Solving for a variable in terms of other variables in a rational equation: Problem type 3
arith612 Word problem involving multiple rates
alge770 Solving a work problem using a rational equation
alge450 Solving a distance, rate, time problem using a rational equation
alge059 Ordering fractions with variables
alge982 Identifying direct variation equations
alge938 Identifying direct variation from ordered pairs and writing equations
alge904 Writing a direct variation equation
alge175 Word problem on direct variation
alge828 Interpreting direct variation from a graph
alge905 Writing an inverse variation equation
alge903 Identifying direct and inverse variation equations
alge902 Identifying direct and inverse variation from ordered pairs and writing equations
alge176 Word problem on inverse variation
alge220 Word problem on inverse proportions
pcalc681 Writing an equation that models variation
alge772 Word problem on combined variation

Radicals and Quadratic Equations

alge413 Finding all square roots of a number
arith760 Square roots of perfect squares with signs
alge415 Introduction to simplifying a radical expression with an even exponent
alge264 Square root of a perfect square monomial
arith904 Cube root of an integer
alge549 Finding nth roots of perfect nth powers with signs
B.39. NCCCS DEVELOPMENTAL MATH MODULE 070

arith768 Finding the nth root of a perfect nth power fraction
alge550 Finding the nth root of a perfect nth power monomial
arith093 Simplifying the square root of a whole number less than 100
arith762 Simplifying the square root of a whole number greater than 100
alge080 Simplifying a radical expression with an even exponent
alge520 Introduction to simplifying a radical expression with an odd exponent
alge521 Simplifying a radical expression with an odd exponent
alge275 Simplifying a radical expression with two variables
alge273 Simplifying a higher root of a whole number
alge551 Introduction to simplifying a higher radical expression
alge552 Simplifying a higher radical expression: Univariate
alge811 Simplifying a higher radical expression: Multivariate
arith767 Finding the nth root of a perfect nth power fraction
arith032 Square root addition or subtraction
alge533 Square root addition or subtraction with three terms
alge531 Introduction to simplifying a sum or difference of radical expressions: Univariate
alge532 Simplifying a sum or difference of radical expressions: Univariate
alge534 Simplifying a sum or difference of radical expressions: Multivariate
alge554 Simplifying a sum or difference of higher roots
alge555 Simplifying a sum or difference of higher radical expressions
arith764 Introduction to square root multiplication
arith765 Square root multiplication: Basic
arith639 Square root multiplication: Advanced
alge522 Introduction to simplifying a product of radical expressions: Univariate
alge523 Simplifying a product of radical expressions: Univariate
alge640 Simplifying a product of radical expressions: Multivariate
alge556 Introduction to simplifying a product of higher roots
alge557 Simplifying a product of higher radical expressions
alge525 Introduction to simplifying a product involving square roots using the distributive property
alge526 Simplifying a product involving square roots using the distributive property: Basic
alge276 Simplifying a product involving square roots using the distributive property: Advanced
alge774 Special products of radical expressions: Conjugates and squaring
alge984 Classifying sums and products as rational or irrational
arith766 Simplifying a quotient of square roots
alge530 Simplifying a quotient involving a sum or difference with a square root
alge527 Rationalizing a denominator: Quotient involving square roots
alge528 Rationalizing a denominator: Square root of a fraction
alge529 Rationalizing a denominator: Quotient involving a monomial
alge534 Rationalizing a denominator using conjugates: Integer numerator
alge535 Rationalizing a denominator using conjugates: Square root in numerator
alge536 Rationalizing a denominator using conjugates: Variable in denominator
alge564 Rationalizing a denominator: Quotient involving a higher radical
alge480 Introduction to solving a radical equation
alge089 Solving a radical equation that simplifies to a linear equation: One radical, basic
alge492 Solving a radical equation that simplifies to a linear equation: One radical, advanced
alge090 Solving a radical equation that simplifies to a linear equation: Two radicals
alge405 Solving a radical equation with two radicals that simplifies to sqrt(x) = a
alge403 Solving a radical equation that simplifies to a quadratic equation: One radical, basic
alge404 Solving a radical equation that simplifies to a quadratic equation: One radical, advanced
alge411 Solving a radical equation with a quadratic expression under the radical
alge182 Solving a radical equation that simplifies to a quadratic equation: Two radicals
alge410 Solving an equation with a root index greater than 2: Problem type 1
alge417 Solving an equation with a root index greater than 2: Problem type 2
alge412 Algebraic symbol manipulation with radicals
alge542 Word problem involving radical equations: Basic
alge409 Word problem involving radical equations: Advanced
alge132 Distance between two points in the plane: Exact answers
alge539 Table for a square root function
alge540 Domain of a square root function: Basic
pcalc763 Domain of a square root function: Advanced
alge543 Graphing a square root function: Problem type 1
alge544 Graphing a square root function: Problem type 2
Appendix B. Syllabi in ALEKS

- alge812 Converting between radical form and exponent form
- alge560 Rational exponents: Unit fraction exponents and whole number bases
- alge561 Rational exponents: Unit fraction exponents and bases involving signs
- alge250 Rational exponents: Non-unit fraction exponent with a whole number base
- alge562 Rational exponents: Power of a power rule
- alge563 Simplifying products or quotients of higher radicals with different indices: Univariate
- alge780 Solving a quadratic equation by completing the square: Exact answers
- alge975 Domain and range from the graph of a parabola
- pcalc762 Range of a quadratic function
- pcalc776 Expressing a function as a composition of two functions
- pcalc924 Determining whether an equation defines a function: Basic
- pcalc757 Determining whether an equation defines a function: Advanced

B.40 NCCCS Developmental Math Module 080

Whole Numbers

- arith124 Whole number place value: Problem type 1
- arith125 Whole number place value: Problem type 2
- arith066 Expanded form
B.40. NCCCS DEVELOPMENTAL MATH MODULE 080

arith643 Expanded form with zeros
arith028 Numeral translation: Problem type 1
arith060 Numeral translation: Problem type 2
arith633 One-digit addition with carry
arith634 Addition of 3 or 4 one-digit numbers
arith001 Addition without carry
arith635 Adding a 2-digit number and a 1-digit number with carry
arith050 Addition with carry
arith630 Addition with carry to the hundreds place
arith012 Addition of large numbers
arith636 Subtracting a 1-digit number from a 2-digit number
arith007 Subtraction without borrowing
arith128 Adding or subtracting 10, 100, or 1000
arith006 Subtraction with borrowing
arith682 Subtraction with multiple regrouping steps
arith637 Subtraction and regrouping with zeros
arith613 Word problem with addition or subtraction of whole numbers
arith655 Introduction to properties of addition
arith126 Multiplication as repeated addition
arith008 One-digit multiplication
arith679 Multiplication by 10, 100, and 1000
arith003 Multiplication without carry
arith004 Multiplication with carry
arith632 Multiplication with trailing zeros: Problem type 1
arith615 Introduction to multiplication of large numbers
arith638 Multiplication with trailing zeros: Problem type 2
arith614 Multiplication of large numbers
arith641 Multiples: Problem type 1
arith642 Multiples: Problem type 2
arith656 Introduction to properties of multiplication
arith075 Division facts
arith614 Word problem with multiplication or division of whole numbers
arith130 Word problem with multiplication and addition or subtraction of whole numbers
arith243 Division of whole numbers given in fractional form
arith711 Division involving zero
arith052 Division without carry
arith680 Division with trailing zeros: Problem type 1
arith649 Division with trailing zeros: Problem type 2
arith616 Quotient and remainder: Problem type 1
arith615 Word problem on quotient and remainder
arith617 Quotient and remainder: Problem type 2
arith631 Quotient and remainder: Problem type 3
arith650 Division involving quotients with intermediate zeros
arith623 Word problem with division of whole numbers and rounding
arith651 Introduction to inequalities
arith777 Ordering large numbers
arith078 Rounding to tens or hundreds
arith123 Rounding to hundreds or thousands
arith601 Rounding to thousands, ten thousands, or hundred thousands
arith101 Estimating a sum of whole numbers
arith102 Estimating a difference of whole numbers
arith604 Estimating a product or quotient of whole numbers
arith692 Writing expressions using exponents
arith233 Introduction to exponents
arith683 Power of 10: Positive exponent
arith645 Introduction to parentheses
arith681 Introduction to order of operations
arith048 Order of operations with whole numbers
arith651 Order of operations with whole numbers and grouping symbols
arith693 Order of operations with whole numbers and exponents: Basic
arith713 Order of operations with whole numbers and exponents: Advanced
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>arith657</td>
<td>Understanding the distributive property</td>
</tr>
<tr>
<td>alg284</td>
<td>Evaluating an algebraic expression: Whole number addition or subtraction</td>
</tr>
<tr>
<td>alg683</td>
<td>Evaluating an algebraic expression: Whole number multiplication or division</td>
</tr>
<tr>
<td>alg285</td>
<td>Evaluating an algebraic expression: Whole numbers with two operations</td>
</tr>
<tr>
<td>alg832</td>
<td>Evaluating an algebraic expression: Whole number operations and exponents</td>
</tr>
<tr>
<td>alg009</td>
<td>Additive property of equality with whole numbers</td>
</tr>
<tr>
<td>alg008</td>
<td>Multiplicative property of equality with whole numbers</td>
</tr>
<tr>
<td>alg803</td>
<td>Using two steps to solve an equation with whole numbers</td>
</tr>
<tr>
<td>arith646</td>
<td>Even and odd numbers</td>
</tr>
<tr>
<td>arith647</td>
<td>Divisibility rules for 2, 5, and 10</td>
</tr>
<tr>
<td>arith648</td>
<td>Divisibility rules for 3 and 9</td>
</tr>
<tr>
<td>arith056</td>
<td>Factors</td>
</tr>
<tr>
<td>arith034</td>
<td>Prime numbers</td>
</tr>
<tr>
<td>arith035</td>
<td>Prime factorization</td>
</tr>
<tr>
<td>arith033</td>
<td>Greatest common factor of 2 numbers</td>
</tr>
<tr>
<td>arith070</td>
<td>Least common multiple of 2 numbers</td>
</tr>
<tr>
<td>arith804</td>
<td>Least common multiple of 3 numbers</td>
</tr>
<tr>
<td>arith240</td>
<td>Word problem with common multiples</td>
</tr>
<tr>
<td>alg925</td>
<td>Finding the next terms of an arithmetic sequence with whole numbers</td>
</tr>
<tr>
<td>alg933</td>
<td>Finding the next terms of a geometric sequence with whole numbers</td>
</tr>
<tr>
<td>arith732</td>
<td>Finding patterns in shapes</td>
</tr>
<tr>
<td>arith623</td>
<td>Introduction to fractions</td>
</tr>
<tr>
<td>arith665</td>
<td>Understanding equivalent fractions</td>
</tr>
<tr>
<td>arith212</td>
<td>Equivalent fractions</td>
</tr>
<tr>
<td>arith666</td>
<td>Introduction to simplifying a fraction</td>
</tr>
<tr>
<td>arith067</td>
<td>Simplifying a fraction</td>
</tr>
<tr>
<td>arith687</td>
<td>Fractional position on a number line</td>
</tr>
<tr>
<td>arith667</td>
<td>Plotting fractions on a number line</td>
</tr>
<tr>
<td>arith044</td>
<td>Ordering fractions with the same denominator</td>
</tr>
<tr>
<td>arith091</td>
<td>Ordering fractions with the same numerator</td>
</tr>
<tr>
<td>arith092</td>
<td>Using a common denominator to order fractions</td>
</tr>
<tr>
<td>arith079</td>
<td>Product of a unit fraction and a whole number</td>
</tr>
<tr>
<td>arith086</td>
<td>Product of a fraction and a whole number: Problem type 1</td>
</tr>
<tr>
<td>arith119</td>
<td>Introduction to fraction multiplication</td>
</tr>
<tr>
<td>arith053</td>
<td>Fraction multiplication</td>
</tr>
<tr>
<td>arith812</td>
<td>Product of a fraction and a whole number: Problem type 2</td>
</tr>
<tr>
<td>arith813</td>
<td>Multiplication of 3 fractions</td>
</tr>
<tr>
<td>arith818</td>
<td>Word problem involving fractions and multiplication</td>
</tr>
<tr>
<td>arith095</td>
<td>Multi-step word problem involving fractions and multiplication</td>
</tr>
<tr>
<td>arith088</td>
<td>The reciprocal of a number</td>
</tr>
<tr>
<td>arith694</td>
<td>Division involving a whole number and a fraction</td>
</tr>
<tr>
<td>arith022</td>
<td>Fraction division</td>
</tr>
<tr>
<td>arith819</td>
<td>Word problem involving fractions and division</td>
</tr>
<tr>
<td>arith618</td>
<td>Addition or subtraction of fractions with the same denominator</td>
</tr>
<tr>
<td>arith802</td>
<td>Addition or subtraction of fractions with the same denominator and simplification</td>
</tr>
<tr>
<td>arith801</td>
<td>Finding the LCD of two fractions</td>
</tr>
<tr>
<td>arith109</td>
<td>Addition or subtraction of unit fractions</td>
</tr>
<tr>
<td>arith664</td>
<td>Introduction to addition or subtraction of fractions with different denominators</td>
</tr>
<tr>
<td>arith230</td>
<td>Addition or subtraction of fractions with different denominators</td>
</tr>
<tr>
<td>arith803</td>
<td>Addition and subtraction of 3 fractions with different denominators</td>
</tr>
<tr>
<td>arith805</td>
<td>Word problem involving addition or subtraction of fractions with different denominators</td>
</tr>
<tr>
<td>arith100</td>
<td>Fractional part of a circle</td>
</tr>
<tr>
<td>arith662</td>
<td>Writing a mixed number and an improper fraction for a shaded region</td>
</tr>
<tr>
<td>arith015</td>
<td>Writing an improper fraction as a mixed number</td>
</tr>
<tr>
<td>arith619</td>
<td>Writing a mixed number as an improper fraction</td>
</tr>
<tr>
<td>arith215</td>
<td>Addition or subtraction of mixed numbers with the same denominator</td>
</tr>
<tr>
<td>arith084</td>
<td>Addition of mixed numbers with the same denominator and carry</td>
</tr>
</tbody>
</table>
Decimals, Proportions, and Percents

arith127 Writing a decimal and a fraction for a shaded region
arith110 Decimal place value: Tenths and hundredths
arith220 Decimal place value: Hundreds to ten thousandths
arith714 Writing a decimal number less than 1 given its name
arith715 Writing a decimal number greater than 1 given its name
arith716 Writing a decimal number given its name: Advanced
arith829 Reading decimal position on a number line: Tenths
arith830 Reading decimal position on a number line: Hundredths
arith831 Understanding decimal position on a number line using zoom: Hundredths
arith832 Understanding decimal position on a number line using zoom: Thousandths
arith129 Introduction to ordering decimals
arith608 Ordering decimals
arith221 Rounding decimals
arith717 Converting a decimal to a proper fraction without simplifying: Basic
arith719 Converting a decimal to a proper fraction without simplifying: Advanced
arith718 Converting a decimal to a proper fraction in simplest form: Basic
arith807 Converting a decimal to a proper fraction in simplest form: Advanced
arith721 Converting a decimal to a mixed number and an improper fraction without simplifying
arith722 Converting a decimal to a mixed number and an improper fraction in simplest form: Basic
arith724 Converting a decimal to a mixed number and an improper fraction in simplest form: Advanced
arith624 Addition of aligned decimals
arith013 Decimal addition with 3 numbers
arith734 Subtraction of aligned decimals
arith735 Decimal subtraction: Basic
arith736 Decimal subtraction: Advanced
arith737 Decimal addition and subtraction with 3 or more numbers
arith131 Estimating a decimal sum or difference
arith132 Word problem with addition or subtraction of 2 decimals
arith133 Word problem with addition of 3 or 4 decimals and whole numbers
arith134 Word problem with subtraction of a whole number and a decimal: Regrouping with zeros
arith739 Introduction to decimal multiplication
arith017 Multiplication of a decimal by a whole number
arith055 Decimal multiplication: Problem type 1
arith046 Decimal multiplication: Problem type 2
arith082 Multiplication of a decimal by a power of ten
arith738 Multiplication of a decimal by a power of 0.1
arith740 Multiplication of decimals that have a product less than 0.1
arith752 Estimating a product of decimals
arith135 Word problem with multiplication of a decimal and a whole number
arith137 Word problem with multiplication of two decimals
arith224 Word problem with decimal addition and multiplication
Appendix B. Syllabi in ALEKS

arith744 Whole number division with decimal answers
arith081 Division of a decimal by a whole number
arith743 Division of a decimal by a 1-digit decimal
arith019 Division of a decimal by a 2-digit decimal
arith083 Division of a decimal by a power of ten
arith742 Division of a decimal by a power of 0.1
arith745 Decimal division with rounding
arith136 Word problem with division of a decimal and a whole number
arith138 Word problem with division of two decimals
arith227 Word problem with decimal subtraction and division
alge823 Solving a one-step word problem using the formula d = rt
arith725 Converting a fraction with a denominator of 10 or 100 to a decimal
arith726 Converting a fraction with a denominator of 100 or 1000 to a decimal
arith609 Ordering fractions and decimals
arith727 Converting a fraction to a terminating decimal: Basic
arith728 Converting a fraction to a terminating decimal: Advanced
arith730 Converting a fraction to a repeating decimal: Basic
arith731 Converting a fraction to a repeating decimal: Advanced
arith733 Using a calculator to convert a fraction to a rounded decimal
arith111 Converting a mixed number to a terminating decimal: Basic
arith112 Converting a mixed number to a terminating decimal: Advanced
arith753 Squaring decimal bases: Products greater than 0.1
arith741 Exponents and decimals: Products less than 0.1
arith720 Order of operations with decimals: Problem type 1
arith746 Order of operations with decimals: Problem type 2
arith747 Order of operations with decimals: Problem type 3
arith748 Multiplication with a decimal and a fraction
arith823 Writing ratios using different notations
arith824 Simplifying a ratio of whole numbers: Problem type 1
arith825 Simplifying a ratio of decimals
arith827 Finding a unit price
arith828 Computing unit prices to find the better buy
arith604 Solving a word problem on proportions using a unit rate
arith228 Word problem on unit rates associated with ratios of whole numbers: Decimal answers
alge272 Solving a proportion of the form x/a = b/c
arith610 Word problem on proportions: Problem type 1
arith611 Word problem on proportions: Problem type 2
alge063 Word problem on mixed number proportions
arith045 Word problem on proportions: Problem type 1
arith836 Converting a fraction with a denominator of 100 to a percentage
arith837 Converting a percentage to a fraction with a denominator of 100
arith838 Converting a fraction to a percentage: Denominator of 4, 5, or 10
arith002 Converting a fraction to a percentage: Denominator of 20, 25, or 50
arith843 Using a calculator to convert a fraction to a rounded percentage
arith844 Finding a percentage of a whole number without a calculator: Basic
arith845 Finding a percentage of a total amount: Real-world situations
arith846 Finding a percentage of a total amount without a calculator: Sales tax, commission, discount
arith857 Estimating a tip without a calculator
arith069 Writing a ratio as a percentage without a calculator
mstat049 Computing a percentage from a table of values
arith850 Finding the rate of a tax or commission
arith849 Finding the total amount given the percentage of a partial amount
arith852 Finding the multiplier to give a final amount after a percentage increase or decrease
arith851 Finding the final amount given the original amount and a percentage increase or decrease
arith847 Finding the sale price given the original price and percent discount
arith874 Finding the sale price without a calculator given the original price and percent discount
arith848 Finding the total cost including tax or markup
arith855 Finding the original amount given the result of a percentage increase or decrease
arith831 Finding the original price given the sale price and percent discount
arith225 Finding the percentage increase or decrease: Advanced
arith232 Finding simple interest without a calculator
arith856 Finding a percentage of a total amount in a circle graph
stat801 Computations from a circle graph

Geometry

geom339 Perimeter of a polygon
geom300 Perimeter of a square or a rectangle
geom618 Perimeter of a polygon involving mixed numbers and fractions
geom078 Sides of polygons having the same perimeter
geom221 Finding the missing length in a figure
geom353 Perimeter of a piecewise rectangular figure
geom358 Identifying parallel and perpendicular lines
geom349 Naming segments, rays, and lines
geom151 Measuring an angle with the protractor
geom152 Drawing an angle with the protractor
geom303 Acute, obtuse, and right angles
geom309 Finding supplementary and complementary angles
geom305 Identifying supplementary and vertical angles
geom304 Identifying corresponding and alternate angles
geom306 Acute, obtuse, and right triangles
geom307 Classifying scalene, isosceles, and equilateral triangles by side lengths or angles
geom401 Finding an angle measure of a triangle given two angles
geom908 Finding an angle measure for a triangle with an extended side
geom812 Finding an angle measure given extended triangles
geom813 Finding an angle measure given a triangle and parallel lines
geom361 Naming polygons
mstat042 Interpreting a Venn diagram of 2 sets
geom867 Identifying parallelograms, rectangles, and squares
geom310 Properties of quadrilaterals
geom532 Classifying parallelograms
geom919 Area of a square or a rectangle
geom866 Perimeter and area on a grid
geom620 Area of a rectangle involving fractions
geom619 Area of a rectangle involving mixed numbers and fractions
geom350 Distinguishing between the area and perimeter of a rectangle
geom351 Areas of rectangles with the same perimeter
geom217 Finding the side length of a rectangle given its perimeter or area
geom340 Area of a piecewise rectangular figure
geom142 Word problem involving the area between two rectangles
geom801 Area of a triangle
geom344 Area involving rectangles and triangles
geom122 Area of a parallelogram
geom923 Area of a trapezoid
geom347 Introduction to a circle: Diameter, radius, and chord
geom016 Circumference of a circle
geom301 Perimeter involving rectangles and circles
geom082 Circumference and area of a circle
geom302 Area involving rectangles and circles
geom036 Word problem involving the area between two concentric circles
geom214 Area involving inscribed figures
geom814 Angle measure in a circle graph
geom868 Classifying solids
geom348 Vertices, edges, and faces of a solid
geom380 Counting the cubes in a solid made of cubes
geom354 Volume of a rectangular prism made of unit cubes
geom311 Volume of a rectangular prism
geom505 Volume of a piecewise rectangular prism
geom090 Volume of a triangular prism
geom033 Volume of a pyramid
geom035 Volume of a cylinder
geom092 Word problem involving the rate of filling or emptying a cylinder
geom622 Volume of a cone
geom841 Volume of a sphere
geom219 Nets of solids
geom016 Side views of a solid made of cubes
geom301 Surface area of a cube or a rectangular prism
geom345 Surface area of a piecewise rectangular prism made of unit cubes
geom091 Surface area of a triangular prism
geom021 Surface area of a cylinder
geom342 Surface area of a sphere
geom359 Identifying congruent shapes on a grid
geom520 Identifying and naming congruent triangles
geom360 Identifying similar or congruent shapes on a grid
geom037 Similar polygons
geom038 Similar right triangles
geom337 Indirect measurement

Measurement and Data Analysis

mstat059 Choosing U.S. Customary measurement units
unit005 U.S. Customary unit conversion with whole number values
mstat035 Conversions involving measurements in feet and inches
mstat036 Adding measurements in feet and inches
unit006 U.S. Customary unit conversion with whole number values: Two-step conversion
unit007 U.S. Customary unit conversion with mixed number values: One-step conversion
unit008 U.S. Customary unit conversion with mixed number values: Two-step conversion
unit009 U.S. Customary area unit conversion with whole number values
mstat060 Choosing metric measurement units
unit001 Metric distance conversion with whole number values
unit002 Metric mass or capacity conversion with whole number values
unit003 Metric distance conversion with decimal values
unit004 Metric conversion with decimal values: Two-step problem
unit010 Metric area unit conversion with decimal values
unit012 Time unit conversion with whole number values
time006 Adding time
time007 Elapsed time
arith063 Word problem with clocks
mstat065 Converting between temperatures in Fahrenheit and Celsius
arith826 Simplifying a ratio of whole numbers: Problem type 2
unit034 Converting between metric and U.S. Customary unit systems
unit035 Converting between compound units: Basic
unit036 Converting between compound units: Advanced
mstat056 Interpreting a tally table
mstat037 Constructing a line plot
Real Numbers

arith016 Square root of a perfect square
arith763 Using a calculator to approximate a square root
arith602 Estimating a square root
arith601 Square root of a rational perfect square
alge407 Introduction to the Pythagorean Theorem
gem044 Pythagorean Theorem
alge408 Word problem involving the Pythagorean Theorem
alge286 Plotting integers on a number line
arith605 Plotting rational numbers on a number line
mstat039 Reading the temperature from a thermometer
arith699 Writing a signed number for a real-world situation
arith691 Ordering integers
arith712 Ordering real numbers
APPENDIX B. SYLLABI IN ALEKS

arith071 Absolute value of a number
arith200 Integer addition: Problem type 1
arith108 Integer addition: Problem type 2
arith688 Integer subtraction: Problem type 1
arith689 Integer subtraction: Problem type 2
arith690 Integer subtraction: Problem type 3
arith754 Addition and subtraction with 3 integers
arith755 Addition and subtraction with 4 or 5 integers
arith701 Word problem with addition or subtraction of integers
arith231 Integer multiplication and division
arith800 Multiplication of 3 or 4 integers
alge001 Identifying numbers as integers or non-integers
alge002 Identifying numbers as rational or irrational
arith116 Signed fraction addition or subtraction: Basic
arith864 Signed fraction subtraction involving double negation
arith106 Signed fraction addition or subtraction: Advanced
arith811 Addition and subtraction of 3 fractions involving signs
arith822 Signed fraction multiplication: Basic
arith105 Signed fraction multiplication: Advanced
arith814 Signed fraction division
arith117 Signed decimal addition and subtraction
arith234 Signed decimal addition and subtraction with 3 numbers
arith750 Signed decimal multiplication
arith751 Signed decimal division
arith104 Operations with absolute value: Problem type 2
gom525 Computing distances between decimals on the number line
unit052 Finding the absolute error and percent error of a measurement
arith702 Exponents and integers: Problem type 1
arith703 Exponents and integers: Problem type 2
arith704 Exponents and signed fractions
arith118 Order of operations with integers
arith600 Order of operations with integers and exponents
arith696 Complex fraction without variables: Problem type 2
alge005 Evaluating a linear expression: Integer multiplication with addition or subtraction
alge085 Evaluating a linear expression: Integer multiplication with addition or subtraction
alge088 Evaluating a linear expression: Signed fraction multiplication with addition or subtraction
alge030 Evaluating a linear expression: Signed decimal addition and subtraction
alge033 Evaluating a linear expression: Signed decimal multiplication with addition or subtraction
alge004 Evaluating a quadratic expression: Integers
alge700 Combining like terms: Whole number coefficients
alge607 Combining like terms: Integer coefficients
alge187 Properties of addition
alge310 Multiplying a constant and a linear monomial
alge606 Distributive property: Whole number coefficients
alge304 Distributive property: Integer coefficients
alge188 Properties of real numbers
alge608 Using distribution and combining like terms to simplify: Univariate
alge609 Using distribution with double negation and combining like terms to simplify: Multivariate
alge293 Combining like terms in a quadratic expression
alge432 Introduction to adding fractions with variables and common denominators
alge436 Adding rational expressions with different denominators and a single occurrence of a variable

Linear Equations

alge801 Additive property of equality with fractions and mixed numbers
alge800 Additive property of equality with decimals
alge010 Additive property of equality with integers
alge836 Additive property of equality with signed fractions
alge820 Multiplicative property of equality with fractions
alge825 Multiplicative property of equality with decimals
alge797 Multiplicative property of equality with integers
alge012 Multiplicative property of equality with signed fractions
alge834 Identifying solutions to a linear equation in one variable: Two-step equations
alge266 Additive property of equality with a negative coefficient
alge006 Solving a two-step equation with integers
alge200 Solving an equation to find the value of an expression
alge920 Introduction to solving an equation with parentheses
alge837 Solving a multi-step equation given in fractional form
alge986 Identifying properties used to solve a linear equation
alge824 Solving a two-step equation with signed decimals
alge838 Introduction to solving an equation with variables on the same side
alge862 Solving a linear equation with several occurrences of the variable: Variables on the same side
alge863 Solving a linear equation with several occurrences of the variable: Variables on both sides
alge011 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
alge209 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
alge420 Solving a linear equation with several occurrences of the variable: Fractional forms with monomial numerators
alge208 Solving a two-step equation with signed fractions
alge061 Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
alge179 Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators
alge742 Solving equations with zero, one, or infinitely many solutions
alge840 Solving a proportion of the form \((x+a)\div b = c\div d\)
alge271 Solving a proportion of the form \(a\div(x+b) = c\div x\)
alge603 Introduction to solving an absolute value equation
alge864 Solving an absolute value equation: Problem type 1
alge511 Solving for a variable in terms of other variables using addition or subtraction: Basic
alge512 Solving for a variable in terms of other variables using addition or subtraction: Advanced
alge513 Solving for a variable in terms of other variables using multiplication or division: Basic
alge514 Solving for a variable in terms of other variables using multiplication or division: Advanced
alge517 Solving for a variable in terms of other variables using addition or subtraction with division
alge518 Solving for a variable inside parentheses in terms of other variables
alge507 Solving for a variable in terms of other variables in a linear equation with fractions
alge733 Writing a one-step expression for a real-world situation
alge831 Translating a phrase into a one-step expression
alge291 Translating a phrase into a two-step expression
alge016 Translating a sentence into a one-step equation
alge841 Translating a sentence into a multi-step equation
alge802 Solving a fraction word problem using a linear equation of the form \(Ax = B\)
alge614 Solving a word problem with two unknowns using a linear equation
alge173 Solving a decimal word problem using a linear equation of the form \(Ax + B = C\)
alge730 Writing a multi-step equation for a real-world situation
alge219 Solving a decimal word problem using a linear equation with the variable on both sides
alge704 Solving a fraction word problem using a linear equation with the variable on both sides
alge792 Solving a word problem with three unknowns using a linear equation
alge842 Solving a word problem involving consecutive integers
alge794 Solving a value mixture problem using a linear equation
alge218 Solving a word problem involving rates and time conversion
alge796 Solving a distance, rate, time problem using a linear equation
arith854 Computing a percent mixture
alge795 Solving a percent mixture problem using a linear equation
geom817 Finding a side length given the perimeter and side lengths with variables
geom143 Finding the perimeter or area of a rectangle given one of these values
geom218 Finding the radius or the diameter of a circle given its circumference
geom838 Circumference ratios
geom530 Solving equations involving vertical angles
geom531 Solving equations involving angles and a pair of parallel lines
geom623 Finding angle measures of a triangle given angles with variables
geom502 Finding angle measures of a right or isosceles triangle given angles with variables
stat803 Finding the value for a new score that will yield a given mean
alge015 Translating a sentence by using an inequality symbol
alge845 Translating a sentence into a one-step inequality
alge846 Translating a sentence into a multi-step inequality
alge748 Writing an inequality for a real-world situation
alge017 Graphing a linear inequality on the number line
alge822 Writing an inequality given a graph on the number line
alge186 Translating a sentence into a compound inequality
alge166 Graphing a compound inequality on the number line
alge847 Writing a compound inequality given a graph on the number line
set001 Set builder notation
set004 Set builder and interval notation
set002 Union and intersection of finite sets
alge844 Identifying solutions to a two-step linear inequality in one variable
alge848 Additive property of inequality with whole numbers
alge849 Additive property of inequality with integers
alge852 Additive property of inequality with signed fractions
alge853 Additive property of inequality with signed decimals
alge854 Multiplicative property of inequality with integers
alge964 Multiplicative property of inequality with signed fractions
alge855 Solving a two-step linear inequality: Problem type 1
alge856 Solving a two-step linear inequality: Problem type 2
alge857 Solving a two-step linear inequality with a fractional coefficient
alge977 Solving a linear inequality with multiple occurrences of the variable: Problem type 1
alge858 Solving a linear inequality with multiple occurrences of the variable: Problem type 2
alge859 Solving a linear inequality with multiple occurrences of the variable: Problem type 3
alge860 Solving inequalities with no solution or all real numbers as solutions
alge746 Solving a compound linear inequality: Graph solution, basic
alge747 Solving a compound linear inequality: Interval notation
alge868 Solving an absolute value inequality: Problem type 1
alge749 Solving a decimal word problem using a two-step linear inequality
alge750 Solving a decimal word problem using a linear inequality with the variable on both sides

Functions and Lines

alge064 Reading a point in the coordinate plane
alge067 Plotting a point in the coordinate plane
alge850 Table for a linear equation
alge873 Identifying solutions to a linear equation in two variables
alge856 Finding a solution to a linear equation in two variables
alge191 Midpoint of a line segment in the plane
alge877 Graphing a linear equation of the form y = mx
alge878 Graphing a line given its equation in slope-intercept form: Integer slope
alge879 Graphing a line given its equation in slope-intercept form: Fractional slope
alge880 Graphing a line given its equation in standard form
alge198 Graphing a vertical or horizontal line
alge884 Finding x- and y-intercepts given the graph of a line on a grid
alge924 Finding x- and y-intercepts of a line given the equation: Basic
alge210 Finding x- and y-intercepts of a line given the equation: Advanced
alge197 Graphing a line given its x- and y-intercepts
alge881 Graphing a line by first finding its x- and y-intercepts
alge875 Classifying slopes given graphs of lines
alge886 Finding slope given the graph of a line on a grid
alge887 Finding slope given two points on the line
alge885 Finding the slope of horizontal and vertical lines
alge888 Finding the coordinate that yields a given slope
alge259 Graphing a line given its slope and y-intercept
alge196 Graphing a line through a given point with a given slope
alge876 Identifying linear equations: Advanced
alge874 Identifying linear functions given ordered pairs
alge891 Rewriting a linear equation in the form $Ax + By = C$
alge889 Finding the slope and y-intercept of a line given its equation in the form $y = mx + b$
alge890 Finding the slope and y-intercept of a line given its equation in the form $Ax + By = C$
alge882 Graphing a line by first finding its slope and y-intercept
alge258 Writing an equation of a line given its slope and y-intercept
alge892 Writing an equation and graphing a line given its slope and y-intercept
alge883 Graphing a line given its equation in point-slope form
alge894 Writing an equation in point-slope form given the slope and a point
alge070 Writing an equation of a line given the y-intercept and another point
alge072 Writing the equation of the line through two given points
gem806 Finding slopes of lines parallel and perpendicular to a line given in slope-intercept form
gem807 Finding slopes of lines parallel and perpendicular to a line given in the form $Ax + By = C$
alge895 Identifying parallel and perpendicular lines from equations
gem808 Writing equations of lines parallel and perpendicular to a given line through a point
alge897 Writing and evaluating a function that models a real-world situation: Advanced
alge701 Writing an equation and drawing its graph to model a real-world situation: Advanced
fun005 Writing a function rule given a table of ordered pairs: One-step rules
fun006 Writing a function rule given a table of ordered pairs: Two-step rules
alge992 Combining functions to write a new function that models a real-world situation
alge987 Comparing properties of linear functions given in different forms
alge989 Interpreting the parameters of a linear function that models a real-world situation
alge805 Application problem with a linear function: Finding a coordinate given the slope and a point
alge836 Application problem with a linear function: Finding a coordinate given two points
mstat052 Identifying independent and dependent variables from equations or real-world situations
alge991 Solving a linear equation by graphing
mstat030 Sketching the line of best fit
mstat023 Scatter plots and correlation
mstat068 Predictions from the line of best fit
mstat067 Approximating the equation of a line of best fit and making predictions
mstat069 Computing residuals
mstat070 Interpreting residual plots
mstat071 Linear relationship and the correlation coefficient
mstat074 Identifying correlation and causation
alge898 Translating the graph of an absolute value function: One step
alge899 Translating the graph of an absolute value function: Two steps
alge913 Graphing an absolute value equation of the form $y = A - x -$
alge900 Graphing an absolute value equation in the plane: Basic
alge168 Graphing an absolute value equation in the plane: Advanced
alge901 How the leading coefficient affects the graph of an absolute value function
fun032 Identifying functions from relations
fun010 Vertical line test
fun016 Domain and range from ordered pairs
fun001 Table for a linear function
pcalc760 Evaluating functions: Linear and quadratic or cubic
fun033 Variable expressions as inputs of functions: Problem type 1
alge294 Finding outputs of a one-step function that models a real-world situation: Function notation
alge295 Finding outputs of a two-step function with decimals that models a real-world situation: Function notation
alge296 Finding inputs and outputs of a two-step function that models a real-world situation: Function notation
alge990 Domain and range of a linear function that models a real-world situation
fun026 Finding an output of a function from its graph
pcalc761 Finding inputs and outputs of a function from its graph
fun007 Domain and range from the graph of a discrete relation
fun024 Domain and range from the graph of a continuous function
alge896 Graphing an integer function and finding its range for a given domain
alge570 Graphing a function of the form $f(x) = ax + b$: Integer slope
alge571 Graphing a function of the form $f(x) = ax + b$: Fractional slope
alge954 Graphing a parabola of the form $y = ax^2$
alge955 Graphing a parabola of the form $y = ax^2 + c$
APPENDIX B. SYLLABI IN ALEKS

alge572 Graphing a function of the form \( f(x) = ax^2 \)
alge573 Graphing a function of the form \( f(x) = ax^2 + c \)
pcalc750 Finding intercepts of a nonlinear function given its graph
pcalc751 Finding where a function is increasing, decreasing, or constant given the graph: Interval notation
pcalc752 Finding local maxima and minima of a function given the graph
mstat018 Choosing a graph to fit a narrative: Basic
mstat051 Choosing a graph to fit a narrative: Advanced

Systems

alge914 Identifying solutions to a system of linear equations
alge075 Classifying systems of linear equations from graphs
alge725 Graphically solving a system of linear equations
alge751 Solving a system of linear equations using substitution
alge915 Solving a system of linear equations using elimination with addition
alge076 Solving a system of linear equations using elimination with multiplication and addition
alge916 Solving a system of linear equations with fractional coefficients
alge917 Solving a system of linear equations with decimal coefficients
alge752 Solving a 2x2 system of linear equations that is inconsistent or consistent dependent
alge958 Identifying the operations used to create equivalent systems of equations
alge753 Solving a 3x3 system of linear equations: Problem type 1
alge263 Interpreting the graphs of two functions
alge078 Solving a word problem involving a sum and another basic relationship using a system of linear equations
alge919 Solving a word problem using a system of linear equations of the form \( Ax + By = C \)
alge918 Solving a word problem using a system of linear equations of the form \( y = mx + b \)
alge184 Solving a value mixture problem using a system of linear equations
alge192 Solving a percent mixture problem using a system of linear equations
alge224 Solving a distance, rate, time problem using a system of linear equations
alge172 Solving a tax rate or interest rate problem using a system of linear equations
alge703 Solving a word problem using a 3x3 system of linear equations: Problem type 1
alge912 Identifying solutions to a linear inequality in two variables
alge225 Graphing a linear inequality in the plane: Vertical or horizontal line
alge720 Graphing a linear inequality in the plane: Slope-intercept form
alge018 Graphing a linear inequality in the plane: Standard form
alge079 Graphing a system of two linear inequalities: Basic
alge921 Graphing a system of two linear inequalities: Advanced
alge922 Graphing a system of three linear inequalities
alge729 Writing a multi-step inequality for a real-world situation
pcalc093 Solving a word problem using a system of linear inequalities: Problem type 1

Exponents and Polynomials

alge821 Understanding the product rule of exponents
alge024 Introduction to the product rule of exponents
alge311 Product rule with positive exponents: Univariate
alge030 Product rule with positive exponents: Multivariate
arith029 Ordering numbers with positive exponents
alge826 Understanding the power rules of exponents
alge306 Introduction to the power of a power rule of exponents
alge305 Introduction to the power of a product rule of exponents
alge307 Power rules with positive exponents: Multivariate products
alge308 Power rules with positive exponents: Multivariate quotients
alge756 Power and product rules with positive exponents
alge451 Simplifying a ratio of multivariate monomials: Basic
alge827 Introduction to the quotient rule of exponents
alge452 Simplifying a ratio of univariate monomials
alge026 Quotient of expressions involving exponents
alge453 Simplifying a ratio of multivariate monomials: Advanced
alge927 Power and quotient rules with positive exponents
arith042 Evaluating an expression with a negative exponent: Positive fraction base
alge790 Evaluating expressions with exponents of zero
arith684 Power of 10: Negative exponent
arith729 Evaluating an expression with a negative exponent: Whole number base
arith843 Evaluating an expression with a negative exponent: Negative integer base
arith024 Ordering numbers with negative exponents
alge791 Rewriting an algebraic expression without a negative exponent
alge961 Introduction to the product rule with negative exponents
alge028 Product rule with negative exponents
alge755 Quotient rule with negative exponents: Problem type 1
alge926 Quotient rule with negative exponents: Problem type 2
alge025 Power of a power rule with negative exponents
alge799 Power rules with negative exponents
alge928 Power and quotient rules with negative exponents: Problem type 1
alge929 Power and quotient rules with negative exponents: Problem type 2
alge757 Power, product, and quotient rules with negative exponents
arith036 Scientific notation with positive exponent
arith037 Scientific notation with negative exponent
scinot012 Converting between scientific notation and standard form in a real-world situation
scinot008 Multiplying numbers written in scientific notation: Basic
scinot009 Multiplying numbers written in scientific notation: Advanced
scinot10 Dividing numbers written in scientific notation: Basic
scinot11 Dividing numbers written in scientific notation: Advanced
alge971 Table for an exponential function
alge850 Evaluating an exponential function that models a real-world situation
arith536 Scientific notation with negative exponent
alge177 Finding a final amount in a word problem on exponential growth or decay
alge741 Finding the final amount in a word problem on compound interest
alge966 Finding the initial amount and rate of change given an exponential function
alge968 Writing an equation that models exponential growth or decay
alge301 Solving an exponential equation by finding common bases: Linear exponents
alge969 Graphing an exponential function: f(x) = ax
alge970 Graphing an exponential function: f(x) = a(b)x
alge967 Writing an exponential function rule given a table of ordered pairs
alge993 Comparing linear, polynomial, and exponential functions
alge758 Degree and leading coefficient of a univariate polynomial
alge031 Degree of a multivariate polynomial
alge798 Simplifying a sum or difference of two univariate polynomials
alge029 Simplifying a sum or difference of three univariate polynomials
alge932 Simplifying a sum or difference of multivariate polynomials
alge735 Multiplying a univariate polynomial by a monomial with a positive coefficient
alge972 Multiplying a univariate polynomial by a monomial with a negative coefficient
alge935 Multiplying a multivariate polynomial by a monomial
alge033 Multiplying binomials with leading coefficients of 1
alge983 Multiplying binomials with leading coefficients greater than 1
alge765 Multiplying binomials in two variables
alge764 Multiplying conjugate binomials: Univariate
alge081 Multiplying conjugate binomials: Multivariate
alge032 Squaring a binomial: Univariate
alge068 Squaring a binomial: Multivariate
alge973 Multiplying binomials with negative coefficients
alge935 Multiplication involving binomials and trinomials in one variable
alge180 Multiplication involving binomials and trinomials in two variables
alge759 Dividing a polynomial by a monomial: Univariate
alge760 Dividing a polynomial by a monomial: Multivariate
alge761 Polynomial long division: Problem type 1
alge762 Polynomial long division: Problem type 2
alge763 Polynomial long division: Problem type 3
alge985 Closure properties of integers and polynomials
alge605 Factoring a linear binomial
alge736 Introduction to the GCF of two monomials
alge930 Greatest common factor of three univariate monomials
alge037 Greatest common factor of two multivariate monomials
alge785 Factoring out a monomial from a polynomial: Univariate
alge786 Factoring out a monomial from a polynomial: Multivariate
alge949 Factoring out a binomial from a polynomial: GCF factoring, basic
alge923 Factoring a univariate polynomial by grouping: Problem type 1
alge950 Factoring a univariate polynomial by grouping: Problem type 2
alge951 Factoring a multivariate polynomial by grouping: Problem type 1
alge952 Factoring a multivariate polynomial by grouping: Problem type 2
alge029 Factoring a quadratic with leading coefficient 1
alge942 Factoring a quadratic in two variables with leading coefficient 1
alge936 Factoring out a constant before factoring a quadratic
alge940 Factoring a quadratic with leading coefficient greater than 1: Problem type 1
alge941 Factoring a quadratic with leading coefficient greater than 1: Problem type 2
alge978 Factoring a quadratic by the ac-method
alge265 Factoring a quadratic in two variables with leading coefficient greater than 1
alge937 Factoring a quadratic with a negative leading coefficient
alge944 Factoring a perfect square trinomial with leading coefficient 1
alge945 Factoring a perfect square trinomial with leading coefficient greater than 1
alge946 Factoring a perfect square trinomial in two variables
alge290 Factoring a difference of squares in one variable: Basic
alge947 Factoring a difference of squares in one variable: Advanced
alge839 Factoring a difference of squares in two variables
alge948 Factoring a polynomial involving a GCF and a difference of squares: Univariate
alge833 Factoring a polynomial involving a GCF and a difference of squares: Multivariate
alge041 Factoring a product of a quadratic trinomial and a monomial
alge042 Factoring with repeated use of the difference of squares formula
alge044 Factoring a sum or difference of two cubes
alge681 Solving an equation written in factored form
alge956 Finding the roots of a quadratic equation of the form $ax^2 + bx = 0$
alge045 Finding the roots of a quadratic equation with leading coefficient 1
alge048 Finding the roots of a quadratic equation with leading coefficient greater than 1
alge211 Solving a quadratic equation needing simplification
alge703 Solving a word problem using a quadratic equation with rational roots
alge713 Using the Pythagorean Theorem and a quadratic equation to find side lengths of a right triangle

Rational Expressions

alge049 Restriction on a variable in a denominator: Linear
alge467 Restriction on a variable in a denominator: Quadratic
alge468 Evaluating a rational function: Problem type 1
alge469 Evaluating a rational function: Problem type 2
alge715 Domain of a rational function: Excluded values
alge454 Simplifying a ratio of factored polynomials: Linear factors
alge455 Simplifying a ratio of factored polynomials: Factors with exponents
alge456 Simplifying a ratio of polynomials using GCF factoring
alge457 Simplifying a ratio of linear polynomials: 1, -1, and no simplification
alge458 Simplifying a ratio of polynomials by factoring a quadratic with leading coefficient 1
alge710 Simplifying a ratio of polynomials: Problem type 1
alge682 Simplifying a ratio of polynomials: Problem type 2
alge459 Simplifying a ratio of polynomials: Problem type 3
alge034 Simplifying a ratio of multivariate polynomials
alge053 Multiplying rational expressions involving multivariate monomials
alge460 Multiplying rational expressions made up of linear expressions
alge620 Multiplying rational expressions involving quadratics with leading coefficients of 1
alge461 Multiplying rational expressions involving quadratics with leading coefficients greater than 1
alge462 Multiplying rational expressions involving multivariate quadratics
alge054 Dividing rational expressions involving multivariate monomials
alge463 Dividing rational expressions involving linear expressions
alge766 Dividing rational expressions involving quadratics with leading coefficients of 1
alge464 Dividing rational expressions involving quadratics with leading coefficients greater than 1
alge465 Dividing rational expressions involving multivariate quadratics
alge466 Multiplication and division of 3 rational expressions
alge737 Introduction to the LCM of two monomials
alge055 Least common multiple of two monomials
alge427 Finding the LCD of rational expressions with linear denominators: Relatively prime
alge428 Finding the LCD of rational expressions with linear denominators: Common factors
alge429 Finding the LCD of rational expressions with quadratic denominators
alge430 Writing equivalent rational expressions with monomial denominators
alge431 Writing equivalent rational expressions with polynomial denominators
alge304 Writing equivalent rational expressions involving opposite factors
alge433 Adding rational expressions with common denominators and monomial numerators
alge056 Adding rational expressions with common denominators and binomial numerators
alge434 Adding rational expressions with common denominators and GCF factoring
alge435 Adding rational expressions with common denominators and quadratic factoring
alge437 Adding rational expressions with denominators ax and bx: Basic
alge438 Adding rational expressions with denominators ax and bx: Advanced
alge439 Adding rational expressions with denominators axn and bxm
alge440 Adding rational expressions with multivariate monomial denominators: Basic
alge226 Adding rational expressions with multivariate monomial denominators: Advanced
alge441 Adding rational expressions with linear denominators without common factors: Basic
alge442 Adding rational expressions with linear denominators without common factors: Advanced
alge443 Adding rational expressions with linear denominators with common factors: Basic
alge444 Adding rational expressions with linear denominators with common factors: Advanced
alge445 Adding rational expressions with denominators ax-b and b-ax
alge561 Adding rational expressions involving different quadratic denominators
alge446 Adding 3 rational expressions with different quadratic denominators
alge470 Complex fraction involving univariate monomials
alge058 Complex fraction involving multivariate monomials
alge471 Complex fraction: GCF factoring
alge472 Complex fraction: Quadratic factoring
alge473 Complex fraction made of sums involving rational expressions: Problem type 1
alge474 Complex fraction made of sums involving rational expressions: Problem type 2
alge475 Complex fraction made of sums involving rational expressions: Problem type 3
alge476 Complex fraction made of sums involving rational expressions: Problem type 4
alge477 Complex fraction made of sums involving rational expressions: Problem type 5
alge478 Complex fraction made of sums involving rational expressions: Problem type 6
alge479 Complex fraction made of sums involving rational expressions: Multivariate
alge480 Complex fraction with negative exponents: Problem type 1
alge481 Complex fraction with negative exponents: Problem type 2
alge162 Complex fraction that contains a complex fraction
alge869 Solving a rational equation that simplifies to linear: Denominator x
alge202 Solving a rational equation that simplifies to linear: Denominator x+a
alge769 Solving a rational equation that simplifies to linear: Denominators a, x, or ax
alge421 Solving a rational equation that simplifies to linear: Denominators ax and bx
alge422 Solving a rational equation that simplifies to linear: Like binomial denominators
alge206 Solving a rational equation that simplifies to linear: Unlike binomial denominators
alge423 Solving a rational equation that simplifies to linear: Factorable quadratic denominator
alge424 Solving a rational equation that simplifies to quadratic: Proportional form, basic
alge425 Solving a rational equation that simplifies to quadratic: Denominator x
alge212 Solving a rational equation that simplifies to quadratic: Binomial denominators, constant numerators
alge962 Solving a rational equation that simplifies to quadratic: Binomial denominators and numerators
alge426 Solving a rational equation that simplifies to quadratic: Factorable quadratic denominator
alge047 Solving a rational equation that simplifies to quadratic: Proportional form, advanced
alge508 Solving for a variable in terms of other variables in a rational equation: Problem type 1
alge509 Solving for a variable in terms of other variables in a rational equation: Problem type 2
alge510 Solving for a variable in terms of other variables in a rational equation: Problem type 3
arith612 Word problem involving multiple rates
alge770 Solving a work problem using a rational equation
alge450 Solving a distance, rate, time problem using a rational equation
alge059 Ordering fractions with variables
APPENDIX B. SYLLABI IN ALEKS

alge982 Identifying direct variation equations
alge938 Identifying direct variation from ordered pairs and writing equations
alge904 Writing a direct variation equation
alge175 Word problem on direct variation
alge828 Interpreting direct variation from a graph
alge905 Writing an inverse variation equation
alge903 Identifying direct and inverse variation equations
alge902 Identifying direct and inverse variation from ordered pairs and writing equations
alge176 Word problem on inverse variation
alge220 Word problem on inverse proportions
pcalc681 Writing an equation that models variation
alge772 Word problem on combined variation

Radicals and Quadratic Equations

alge413 Finding all square roots of a number
arith760 Square roots of perfect squares with signs
alge415 Introduction to simplifying a radical expression with an even exponent
alge264 Square root of a perfect square monomial
arith694 Cube root of an integer
alge549 Finding the nth root of a perfect nth power monomial
arith768 Finding the nth root of a perfect nth power fraction
arith93 Simplifying the square root of a whole number less than 100
arith762 Simplifying the square root of a whole number greater than 100
alge080 Simplifying a radical expression with an even exponent
alge520 Introduction to simplifying a radical expression with an odd exponent
alge521 Simplifying a radical expression with an odd exponent
alge275 Simplifying a radical expression with two variables
alge273 Simplifying a higher root of a whole number
alge551 Introduction to simplifying a higher radical expression
alge552 Simplifying a higher radical expression: Univariate
alge811 Simplifying a higher radical expression: Multivariate
arith767 Introduction to square root addition or subtraction
arith632 Square root addition or subtraction
alge533 Square root addition or subtraction with three terms
alge541 Introduction to simplifying a sum or difference of radical expressions: Univariate
alge532 Simplifying a sum or difference of radical expressions: Univariate
alge084 Simplifying a sum or difference of radical expressions: Multivariate
alge554 Simplifying a sum or difference of higher roots
alge555 Simplifying a sum or difference of higher radical expressions
arith764 Introduction to square root multiplication
arith765 Square root multiplication: Basic
arith639 Square root multiplication: Advanced
alge522 Introduction to simplifying a product of radical expressions: Univariate
alge523 Simplifying a product of radical expressions: Univariate
alge640 Simplifying a product of radical expressions: Multivariate
alge556 Introduction to simplifying a product of higher roots
alge557 Simplifying a product of higher radical expressions
alge525 Introduction to simplifying a product involving square roots using the distributive property
alge526 Simplifying a product involving square roots using the distributive property: Basic
alge276 Simplifying a product involving square roots using the distributive property: Advanced
alge774 Special products of radical expressions: Conjugates and squaring
alge984 Classifying sums and products as rational or irrational
arith766 Simplifying a quotient of square roots
alge530 Simplifying a quotient involving a sum or difference with a square root
alge527 Rationalizing a denominator: Quotient involving square roots
alge528 Rationalizing a denominator: Square root of a fraction
alge529 Rationalizing a denominator: Quotient involving a monomial
alge534 Rationalizing a denominator using conjugates: Integer numerator
B.40. NCCCS DEVELOPMENTAL MATH MODULE 080

alge535 Rationalizing a denominator using conjugates: Square root in numerator
alge536 Rationalizing a denominator using conjugates: Variable in denominator
alge564 Rationalizing a denominator: Quotient involving a higher radical
alge400 Introduction to solving a radical equation
alge089 Solving a radical equation that simplifies to a linear equation: One radical, basic
alge402 Solving a radical equation that simplifies to a linear equation: One radical, advanced
alge090 Solving a radical equation that simplifies to a linear equation: Two radicals
alge405 Solving a radical equation with two radicals that simplifies to $\sqrt{x} = a$
alge403 Solving a radical equation that simplifies to a quadratic equation: One radical, basic
alge404 Solving a radical equation that simplifies to a quadratic equation: One radical, advanced
alge411 Solving a radical equation with a quadratic expression under the radical
alge182 Solving a radical equation that simplifies to a quadratic equation: Two radicals
alge410 Solving an equation with a root index greater than 2: Problem type 1
alge417 Solving an equation with a root index greater than 2: Problem type 2
alge412 Algebraic symbol manipulation with radicals
alge542 Word problem involving radical equations: Basic
alge409 Word problem involving radical equations: Advanced
alge544 Solving a distance between two points in the plane: Exact answers
alge539 Table for a square root function
alge540 Domain of a square root function: Basic
pcalc763 Domain of a square root function: Advanced
alge543 Graphing a square root function: Problem type 1
alge544 Graphing a square root function: Problem type 2
alge812 Converting between radical form and exponent form
alge560 Rational exponents: Unit fraction exponents and whole number bases
alge541 Rational exponents: Unit fraction exponents and bases involving signs
alge250 Rational exponents: Non-unit fraction exponent with a whole number base
alge251 Rational exponents: Negative exponents and fractional bases
alge558 Rational exponents: Product rule
alge559 Rational exponents: Quotient rule
alge773 Rational exponents: Products and quotients with negative exponents
alge562 Rational exponents: Power of a power rule
alge249 Rational exponents: Powers of powers with negative exponents
alge563 Simplifying products or quotients of higher radicals with different indices: Univariate
alge778 Using $i$ to rewrite square roots of negative numbers
alge779 Simplifying a product and quotient involving square roots of negative numbers
pcalc048 Adding or subtracting complex numbers
pcalc049 Multiplying complex numbers
pcalc050 Dividing complex numbers
pcalc053 Simplifying a power of $i$
alge962 Solving an equation of the form $x^2 = a$ using the square root property
alge092 Solving a quadratic equation using the square root property: Exact answers, basic
alge227 Solving a quadratic equation using the square root property: Exact answers, advanced
alge984 Completing the square
alge780 Solving a quadratic equation by completing the square: Exact answers
alge095 Applying the quadratic formula: Exact answers
alge963 Applying the quadratic formula: Decimal answers
pcalc051 Solving a quadratic equation with complex roots
alge214 Discriminant of a quadratic equation
alge524 Solving a word problem using a quadratic equation with irrational roots
alge974 Finding the vertex, x-intercepts, and axis of symmetry from the graph of a parabola
alge953 Translating the graph of a parabola: One step
alge253 Graphing a parabola of the form $y = (x-h)^2 + k$
alge569 Graphing a parabola of the form $y = x^2 + bx + c$
pcalc746 Graphing a parabola of the form $y = ax^2 + bx + c$: Integer coefficients
pcalc747 Graphing a parabola of the form $y = ax^2 + bx + c$: Rational coefficients
alge277 Finding the x-intercept(s) and the vertex of a parabola
pcalc774 Rewriting a quadratic function to find the vertex of its graph
pcalc775 Finding the maximum or minimum of a quadratic function
alge785 Word problem involving the maximum or minimum of a quadratic function
alge975 Domain and range from the graph of a parabola
pcalc762 Range of a quadratic function
alge957 Solving a quadratic equation by graphing
alge996 Comparing properties of quadratic functions given in different forms
alge702 Classifying the graph of a function
alge723 How the leading coefficient affects the shape of a parabola
alge965 Identifying linear, quadratic, and exponential functions given ordered pairs
alge262 Graphing a cubic function of the form $y = ax^3$
fun019 Sum, difference, and product of two functions
fun022 Composition of two functions: Basic
pcalc776 Expressing a function as a composition of two functions
pcalc924 Determining whether an equation defines a function: Basic
pcalc757 Determining whether an equation defines a function: Advanced

B.41 Math Toolbox

Integers

arith078 Rounding to tens or hundreds
arith061 Rounding to thousands, ten thousands, or hundred thousands
arith101 Estimating a sum of whole numbers
arith102 Estimating a difference of whole numbers
arith064 Estimating a product or quotient of whole numbers
arith645 Introduction to parentheses
arith048 Order of operations with whole numbers
arith051 Order of operations with whole numbers and grouping symbols
alge285 Evaluating an algebraic expression: Whole numbers with two operations
arith657 Understanding the distributive property
alge286 Plotting integers on a number line
arith200 Integer addition: Problem type 1
arith108 Integer addition: Problem type 2
arith107 Integer subtraction
arith231 Integer multiplication and division
arith056 Factors
arith033 Greatest common factor of 2 numbers
arith070 Least common multiple of 2 numbers

Rational Numbers

arith623 Introduction to fractions
arith665 Understanding equivalent fractions
arith212 Equivalent fractions
arith067 Simplifying a fraction
arith618 Addition or subtraction of fractions with the same denominator
arith230 Addition or subtraction of fractions with different denominators
arith106 Signed fraction addition or subtraction: Advanced
arith088 The reciprocal of a number
arith079 Product of a unit fraction and a whole number
arith009 Unit fraction multiplication
arith086 Product of a fraction and a whole number: Problem type 1
arith053 Fraction multiplication
arith095 Multi-step word problem involving fractions and multiplication
arith022 Fraction division
arith065 Signed fraction multiplication: Advanced
arith062 Writing a mixed number and an improper fraction for a shaded region
arith015 Writing an improper fraction as a mixed number
arith019 Writing a mixed number as an improper fraction
B.41. MATH TOOLBOX

arith667 Plotting fractions on a number line
arith605 Plotting rational numbers on a number line
arith220 Decimal place value: Hundreds to ten thousandths
arith221 Rounding decimals
arith671 Converting a fraction with a denominator of 10, 100, or 1000 to a decimal
arith887 Converting a decimal to a proper fraction in simplest form: Advanced
arith222 Converting a fraction to a terminating decimal
arith689 Converting a fraction to a repeating decimal
arith624 Addition of aligned decimals
arith625 Subtraction of aligned decimals
arith626 Word problem with one decimal operation: Problem type 1
arith627 Word problem with one decimal operation: Problem type 2
arith628 Signed decimal addition and subtraction with 3 numbers
arith629 Multiplication of a decimal by a power of ten
arith417 Multiplication of a decimal by a whole number
arith655 Decimal multiplication: Problem type 1
arith654 Word problem with powers of ten
arith424 Word problem with decimal addition and multiplication
arith683 Division of a decimal by a power of ten
arith681 Division of a decimal by a whole number
arith619 Division of a decimal by a 2-digit decimal
arith227 Word problem with decimal subtraction and division

Percentages and Proportions

arith674 Finding the percentage of a grid that is shaded
arith626 Converting between percentages and decimals
arith602 Converting a percentage to a fraction in simplest form
arith630 Finding a percentage of a whole number without a calculator: Basic
arith609 Writing a ratio as a percentage without a calculator
arith674 Finding the sale price without a calculator given the original price and percent discount
arith631 Finding the original price given the sale price and percent discount
arith625 Finding the percentage increase or decrease: Advanced
arith663 Writing ratios for real-world situations
arith628 Word problem on unit rates associated with ratios of whole numbers: Decimal answers
alge218 Solving a word problem involving rates and time conversion
alge272 Solving a proportion of the form \( \frac{x}{a} = \frac{b}{c} \)
alge271 Solving a proportion of the form \( \frac{a}{x+b} = \frac{c}{x} \)
alge604 Solving a word problem on proportions using a unit rate
arith610 Word problem on proportions: Problem type 1
arith611 Word problem on proportions: Problem type 2
unit001 Metric distance conversion with whole number values
unit002 Metric mass or capacity conversion with whole number values
unit003 Metric distance conversion with decimal values
unit004 Metric conversion with decimal values: Two-step problem
unit010 Metric area unit conversion with decimal values

Basic Algebraic Operations

alge005 Evaluating a linear expression: Integer multiplication with addition or subtraction
alge004 Evaluating a quadratic expression: Integers
alge606 Distributive property: Whole number coefficients
alge604 Distributive property: Integer coefficients
alge667 Combining like terms: Integer coefficients
alge663 Combining like terms: Advanced
alge602 Writing a one-step variable expression for a real-world situation
arith233 Introduction to exponents
APPENDIX B. SYLLABI IN ALEKS

arith683 Power of 10: Positive exponent
arith684 Power of 10: Negative exponent
arith047 Evaluating expressions with exponents: Problem type 1
arith049 Evaluating expressions with exponents: Problem type 2
arith600 Order of operations with integers and exponents
alge024 Introduction to the product rule of exponents
alge026 Quotient of expressions involving exponents
arith042 Evaluating an expression with a negative exponent: Positive fraction base
arith043 Evaluating an expression with a negative exponent: Negative integer base
alge027 Power rules with positive exponents
alge025 Power of a power rule with negative exponents
arith029 Ordering numbers with positive exponents
arith036 Scientific notation with positive exponent
arith037 Scientific notation with negative exponent
alge029 Simplifying a sum or difference of three univariate polynomials
alge037 Greatest common factor of two multivariate monomials
alge030 Product rule with positive exponents: Multivariate
alge033 Multiplying binomials with leading coefficients of 1
alge032 Squaring a binomial: Univariate
alge180 Multiplication involving binomials and trinomials in two variables
alge053 Multiplying rational expressions involving multivariate monomials
alge054 Dividing rational expressions involving multivariate monomials
alge058 Complex fraction involving multivariate monomials
arith016 Square root of a perfect square
arith061 Square root of a rational perfect square
arith062 Estimating a square root
arith093 Simplifying the square root of a whole number less than 100
arith094 Cube root of an integer
alge812 Converting between radical form and exponent form
alge250 Rational exponents: Non-unit fraction exponent with a whole number base
alge108 Converting between logarithmic and exponential equations
alge232 Evaluating a logarithmic expression
pcalc708 Basic properties of logarithms

Linear Equations

alge009 Additive property of equality with whole numbers
alge800 Additive property of equality with decimals
alge801 Additive property of equality with fractions and mixed numbers
alge010 Additive property of equality with integers
alge066 Additive property of equality with a negative coefficient
alge008 Multiplicative property of equality with whole numbers
alge012 Multiplicative property of equality with signed fractions
alge006 Solving a two-step equation with integers
alge208 Solving a two-step equation with signed fractions
alge200 Solving an equation to find the value of an expression
alge011 Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
alge061 Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
alge013 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
alge209 Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions
alge016 Translating a sentence into a one-step equation
alge802 Solving a fraction word problem using a linear equation of the form Ax = B
alge014 Solving a word problem with two unknowns using a linear equation
alge219 Solving a decimal word problem using a linear equation with the variable on both sides
alge173 Solving a decimal word problem using a linear equation of the form Ax + B = C
alge704 Solving a fraction word problem using a linear equation with the variable on both sides
B.41. MATH TOOLBOX

alg076 Solving a system of linear equations using elimination with multiplication and addition
alg078 Solving a word problem involving a sum and another basic relationship using a system of linear equations
alg184 Solving a value mixture problem using a system of linear equations
alg224 Solving a distance, rate, time problem using a system of linear equations
alg192 Solving a percent mixture problem using a system of linear equations
alg172 Solving a tax rate or interest rate problem using a system of linear equations

Functions and Graphs

fun001 Table for a linear function
fun002 Graphing integer functions
fun016 Domain and range from ordered pairs
fun010 Vertical line test
alg064 Reading a point in the coordinate plane
alg067 Plotting a point in the coordinate plane
alg197 Graphing a line given its x- and y-intercepts
alg194 Graphing a line given its equation in slope-intercept form
alg195 Graphing a line given its equation in standard form
alg196 Graphing a line through a given point with a given slope
alg198 Graphing a vertical or horizontal line
alg701 Writing an equation and drawing its graph to model a real-world situation: Advanced
alg725 Graphically solving a system of linear equations
alg066 Finding a solution to a linear equation in two variables
alg216 Determining whether given points lie on one, both, or neither of 2 lines given equations
alg069 Finding the y-intercept of a line given its equation
alg210 Finding x- and y-intercepts of a line given the equation: Advanced
alg631 Finding the slope of a line given its equation
alg637 Determining the slope of a line given its graph
alg070 Writing an equation of a line given the y-intercept and another point
alg071 Writing the equation of a line given the slope and a point on the line
alg072 Writing the equation of the line through two given points
alg073 Writing the equations of vertical and horizontal lines through a given point
alg805 Application problem with a linear function: Finding a coordinate given the slope and a point
alg806 Application problem with a linear function: Finding a coordinate given two points
geom807 Finding slopes of lines parallel and perpendicular to a line given in the form Ax + By = C
geom808 Writing equations of lines parallel and perpendicular to a given line through a point
alg263 Interpreting the graphs of two functions
alg277 Finding the x-intercept(s) and the vertex of a parabola
alg252 Graphing a parabola of the form y = ax2
alg253 Graphing a parabola of the form y = (x-h)2 + k
alg254 Graphing a parabola of the form y = ax2 + bx + c
alg262 Graphing a cubic function of the form y = ax3

Financial Mathematics

bmath061 Financial ratio analysis
bmath021 Single trade discounts and net price
bmath025 Markup based on cost or selling price
bmath001 Markup based on cost: Finding the selling price
bmath027 Markup based on cost: Finding the cost
bmath107 Markup based on selling price: Finding the selling price
bmath108 Markup based on selling price: Finding the cost
bmath029 Markdown
bmath033 Gross pay with commission and salary
bmath037 Simple interest and maturity value
bmath039 Solving for principal, rate, or time in simple interest problems
bmath109 Computing compound interest with the simple interest formula
bmath042 Compound interest for daily compounding
bmath041 Compound interest for annual, semiannual, and quarterly compounding
bmath043 Present value tables
bmath044 Ordinary annuity
bmath046 Present value of an ordinary annuity
bmath047 Sinking funds

Basic Statistics

mstat007 Interpreting a line graph
stat904 Interpreting pie charts
stat901 Computations from pie charts
stat844 Double bar charts
stat702 Histograms for grouped data
stat703 Frequency polygons for grouped data
stat717 Interpreting relative frequency histograms
stat718 Cumulative distributions and ogives
stat164 Comparing means without calculation
stat165 Comparing standard deviations without calculation
stat706 Mean, median, and mode: Computations
stat902 Rejecting unreasonable claims based on average statistics
stat007 Weighted mean: Tabular data
stat719 Estimating the mean of grouped data
stat009 Percentiles
stat021 Population standard deviation
stat011 Sample standard deviation
stat729 Estimating the standard deviation of grouped data
stat798 Mean, median, and mode: Comparisons
stat905 Making reasonable inferences based on proportion statistics
stat119 Venn diagrams: Two events
stat101 Venn diagrams: Word problems
stat106 Outcomes and event probability
stat226 Die rolling
stat114 Probability of intersection or union: Word problems
stat115 Independent events: Basic
stat120 Probability of union: Basic
stat104 Mutually exclusive events: Two events
stat850 Probability of independent events
stat020 Calculating relative frequencies in a contingency table
stat116 Conditional probability: Basic
stat851 Probability of dependent events
stat109 Intersection and conditional probability
stat756 Tree diagrams for conditional probabilities

B.42 Math Prep. for Elementary Education

Whole Numbers

arith124 Whole number place value: Problem type 1
arith125 Whole number place value: Problem type 2
arith066 Expanded form
arith643 Expanded form with zeros
arith028 Numerical translation: Problem type 1
arith060 Numerical translation: Problem type 2
arith633 One-digit addition with carry
arith634 Addition of 3 or 4 one-digit numbers
arith635 Adding a 2-digit number and a 1-digit number with carry
arith001 Addition without carry
arith050 Addition with carry
arith630 Addition with carry to the hundreds place
arith012 Addition of large numbers
arith660 Finding the value of a collection of coins
arith661 Finding the value of a collection of bills and coins
arith636 Subtracting a 1-digit number from a 2-digit number
arith007 Subtraction without borrowing
arith006 Subtraction with borrowing
arith128 Adding or subtracting 10, 100, or 1000
arith682 Subtraction with multiple regrouping steps
arith637 Subtraction and regrouping with zeros
arith613 Word problem with addition or subtraction of whole numbers
arith641 Multiples: Problem type 1
arith642 Multiples: Problem type 2
arith008 One-digit multiplication
arith679 Multiplication by 10, 100, and 1000
arith675 Understanding multiplication of a one-digit number with a larger number
arith003 Multiplication without carry
arith004 Multiplication with carry
arith615 Introduction to multiplication of large numbers
arith632 Multiplication with trailing zeros: Problem type 1
arith638 Multiplication with trailing zeros: Problem type 2
arith014 Multiplication of large numbers
arith126 Multiplication as repeated addition
arith639 Using multiplication to find the number of squares
arith640 Using addition and multiplication to count the objects on a grid
arith075 Division facts
arith052 Division without carry
arith005 Division with carry
arith680 Division with trailing zeros: Problem type 1
arith649 Division with trailing zeros: Problem type 2
arith650 Division involving quotients with intermediate zeros
arith616 Quotient and remainder: Problem type 1
arith644 Word problem on quotient and remainder
arith617 Quotient and remainder: Problem type 2
arith631 Quotient and remainder: Problem type 3
arith023 Word problem with division of whole numbers and rounding
arith614 Word problem with multiplication or division of whole numbers
arith130 Word problem with multiplication and addition or subtraction of whole numbers
arith651 Introduction to inequalities
arith652 Comparing a numerical expression with a number
arith077 Ordering large numbers
arith078 Rounding to tens or hundreds
arith123 Rounding to hundreds or thousands
arith061 Rounding to thousands, ten thousands, or hundred thousands
arith101 Estimating a sum of whole numbers
arith102 Estimating a difference of whole numbers
arith677 Estimating a product
arith678 Estimating a quotient
arith103 Average of two numbers
arith645 Introduction to parentheses
arith681 Introduction to order of operations
arith048 Order of operations with whole numbers
arith051 Order of operations with whole numbers and grouping symbols
arith646 Even and odd numbers
arith647 Divisibility rules for 2, 5, and 10
arith648 Divisibility rules for 3 and 9
arith056 Factors
arith034 Prime numbers
arith035 Prime factorization
APPENDIX B. SYLLABI IN ALEKS

Fractions and Proportions

arith623 Introduction to fractions
arith663 Writing ratios for real-world situations
arith665 Understanding equivalent fractions
arith212 Equivalent fractions
arith666 Introduction to simplifying a fraction
arith667 Simplifying a fraction
arith644 Ordering fractions with the same denominator
arith691 Ordering fractions with the same numerator
arith692 Using a common denominator to order fractions
arith687 Fractional position on a number line
arith667 Plotting fractions on a number line
arith618 Addition or subtraction of fractions with the same denominator
arith109 Addition or subtraction of unit fractions
arith664 Introduction to addition or subtraction of fractions with different denominators
arith230 Addition or subtraction of fractions with different denominators
arith100 Fractional part of a circle
arith679 Product of a unit fraction and a whole number
arith886 Product of a fraction and a whole number: Problem type 1
arith119 Introduction to fraction multiplication
arith653 Fraction multiplication
arith95 Multi-step word problem involving fractions and multiplication
arith888 The reciprocal of a number
arith694 Division involving a whole number and a fraction
arith622 Fraction division
arith662 Writing a mixed number and an improper fraction for a shaded region
arith695 Writing an improper fraction as a mixed number
arith619 Writing a mixed number as an improper fraction
arith215 Addition or subtraction of mixed numbers with the same denominator
arith684 Addition of mixed numbers with the same denominator and carry
arith216 Subtraction of mixed numbers with the same denominator and borrowing
arith885 Addition or subtraction of mixed numbers with different denominators
arith620 Mixed number multiplication: Problem type 1
arith676 Mixed number multiplication: Problem type 2
arith68 Mixed number division
arith228 Word problem on unit rates associated with ratios of whole numbers: Decimal answers
alg272 Solving a proportion of the form x/a = b/c
arith664 Solving a word problem on proportions using a unit rate
arith640 Word problem on proportions: Problem type 1
unit034 Converting between metric and U.S. Customary unit systems

Decimals and Percents

arith127 Writing a decimal and a fraction for a shaded region
arith110 Decimal place value: Tenths and hundredths
arith220 Decimal place value: Hundreds to ten thousandths
B.42. MATH PREP. FOR ELEMENTARY EDUCATION

arith221 Rounding decimals
arith129 Introduction to ordering decimals
arith608 Ordering decimals
arith609 Ordering fractions and decimals
arith670 Converting a decimal to a fraction: Basic
arith887 Converting a decimal to a proper fraction in simplest form: Advanced
arith671 Converting a fraction with a denominator of 10, 100, or 1000 to a decimal
arith222 Converting a fraction to a terminating decimal
arith689 Converting a fraction to a repeating decimal
arith672 Converting a decimal to a mixed number
arith223 Converting a mixed number to a decimal
arith624 Addition of aligned decimals
arith668 Addition with money
arith013 Decimal addition with 3 numbers
arith625 Subtraction of aligned decimals
arith669 Subtraction with money
arith626 Word problem with one decimal operation: Problem type 1
arith627 Word problem with one decimal operation: Problem type 2
arith131 Estimating a decimal sum or difference
arith682 Multiplication of a decimal by a power of ten
arith017 Multiplication of a decimal by a whole number
arith655 Decimal multiplication: Problem type 1
arith646 Decimal multiplication: Problem type 2
arith645 Word problem with powers of ten
arith628 Word problem with multiple decimal operations: Problem type 1
arith683 Division of a decimal by a power of ten
arith681 Division of a decimal by a whole number
arith619 Division of a decimal by a 2-digit decimal
arith629 Word problem with multiple decimal operations: Problem type 2
arith674 Finding the percentage of a grid that is shaded
arith226 Converting between percentages and decimals
arith690 Converting a percentage to a fraction in simplest form
arith602 Converting a fraction to a percentage: Denominator of 20, 25, or 50
arith609 Writing a ratio as a percentage without a calculator
arith630 Finding a percentage of a whole number without a calculator
arith674 Finding the sale price without a calculator given the original price and percent discount
arith232 Finding simple interest without a calculator

Geometry and Measurement

geom151 Measuring an angle with the protractor
geom152 Drawing an angle with the protractor
geom303 Acute, obtuse, and right angles
geom159 Constructing congruent angles
geom158 Constructing an angle bisector
geom349 Naming segments, rays, and lines
geom358 Identifying parallel and perpendicular lines
geom154 Constructing the perpendicular bisector of a line segment
geom361 Naming polygons
geom306 Acute, obtuse, and right triangles
geom307 Classifying scalene, isosceles, and equilateral triangles by side lengths or angles
geom801 Area of a triangle
geom001 Finding an angle measure of a triangle given two angles
geom804 Finding an angle measure for a triangle with an extended side
geom580 Sum of the angle measures of a quadrilateral
geom867 Identifying parallelograms, rectangles, and squares
geom310 Properties of quadrilaterals
geom332 Classifying parallelograms
geom339 Perimeter of a square or a rectangle
geom339 Perimeter of a polygon
geom078 Sides of polygons having the same perimeter
geom221 Finding the missing length in a figure
geom353 Perimeter of a piecewise rectangular figure
geom866 Perimeter and area on a grid
geom019 Area of a square or a rectangle
geom217 Finding the side length of a rectangle given its perimeter or area
geom350 Distinguishing between the area and perimeter of a rectangle
geom351 Areas of rectangles with the same perimeter
geom340 Area of a piecewise rectangular figure
geom022 Area of a parallelogram
geom023 Area of a trapezoid
geom347 Introduction to a circle: Diameter, radius, and chord
geom016 Circumference of a circle
geom802 Circumference and area of a circle
geom866 Perimeter and area on a grid
geom019 Area of a square or a rectangle
alge732 Finding patterns in shapes
geom868 Classifying solids
geom354 Volume of a rectangular prism made of unit cubes
geom311 Volume of a rectangular prism
geom090 Volume of a triangular prism
geom031 Surface area of a cube or a rectangular prism
geom345 Surface area of a piecewise rectangular prism made of unit cubes
geom091 Surface area of a triangular prism
geom219 Nets of solids
geom348 Vertices, edges, and faces of a solid
geom816 Side views of a solid made of cubes
geom359 Identifying congruent shapes on a grid
geom360 Identifying similar or congruent shapes on a grid
geom037 Similar polygons
geom355 Introduction to translations
geom356 Introduction to reflections
geom357 Identifying transformations
geom334 Drawing lines of symmetry
mstat058 Choosing a measuring tool
mstat059 Choosing U.S. Customary measurement units
mstat062 Reading a positive temperature from a thermometer
mstat033 Measuring length to the nearest inch
mstat034 Measuring length to the nearest quarter or half inch
mstat035 Conversions involving measurements in feet and inches
mstat036 Adding measurements in feet and inches
unit005 U.S. Customary unit conversion with whole number values
unit006 U.S. Customary unit conversion with whole number values: Two-step conversion
unit007 U.S. Customary unit conversion with mixed number values: One-step conversion
unit008 U.S. Customary unit conversion with mixed number values: Two-step conversion
mstat060 Choosing metric measurement units
mstat063 Measuring length to the nearest centimeter
mstat064 Measuring length to the nearest millimeter
unit001 Metric distance conversion with whole number values
unit002 Metric mass or capacity conversion with whole number values
unit003 Metric distance conversion with decimal values
unit004 Metric conversion with decimal values: Two-step problem
time010 Telling time
time008 Reading a calendar
unit012 Time unit conversion with whole number values
time009 Introduction to adding time
time006 Adding time
time011 Introduction to elapsed time
time007 Elapsed time

Algebra and Graphs
mstat004 Constructing a histogram for numerical data
mstat005 Constructing a bar graph for non-numerical data
mstat037 Constructing a line plot
mstat056 Interpreting a tally table
mstat057 Interpreting a pictograph table
mstat024 Interpreting a bar graph
mstat044 Interpreting a double bar graph
mstat007 Interpreting a line graph
stat804 Interpreting a circle graph or pie chart
mstat031 Interpreting a stem-and-leaf plot
mstat003 Mode of a data set
mstat055 Finding the mode and range of a data set
mstat001 Mean of a data set
stat080 Finding the value for a new score that will yield a given mean
mstat029 How changing a value affects the mean and median
mstat025 Finding if a question can be answered by the data
mstat041 Interpreting a tree diagram
stat106 Outcomes and event probability
mstat054 Classifying likelihood
mstat039 Understanding likelihood
mstat026 Introduction to the probability of an event
mstat010 Probability of an event
mstat042 Interpreting a Venn diagram of 2 sets
mstat043 Interpreting a Venn diagram of 3 sets
arith099 Writing a signed number for a real-world situation
mstat038 Reading the temperature from a thermometer
alge286 Plotting integers on a number line
arith051 Ordering integers
arith005 Plotting rational numbers on a number line
arith071 Absolute value of a number
arith200 Integer addition: Problem type 1
arith208 Integer addition: Problem type 2
arith088 Integer subtraction: Problem type 1
arith089 Integer subtraction: Problem type 2
arith090 Integer subtraction: Problem type 3
arith701 Word problem with addition or subtraction of integers
alge284 Evaluating an algebraic expression: Whole number addition or subtraction
alge285 Evaluating an algebraic expression: Whole numbers with two operations
alge283 Writing a one-step expression for a real-world situation
alge602 Writing a one-step variable expression for a real-world situation
alge016 Translating a sentence into a one-step equation
alge009 Additive property of equality with whole numbers
alge010 Additive property of equality with integers
alge800 Additive property of equality with decimals
alge801 Additive property of equality with fractions and mixed numbers
alge813 Introduction to solving an equation with multiplication or division
alge008 Multiplicative property of equality with whole numbers
alge802 Solving a fraction word problem using a linear equation of the form Ax = B
alge803 Using two steps to solve an equation with whole numbers
alge281 Function tables with one-step rules
alge282 Function tables with two-step rules
mstat061 Describing an increasing or decreasing pattern from a table of values
fun005 Writing a function rule given a table of ordered pairs: One-step rules
alge278 Reading a point in quadrant 1
alge064 Reading a point in the coordinate plane
alge279 Plotting a point in quadrant 1
alge067 Plotting a point in the coordinate plane
alge283 Graphing whole number functions
alge066 Finding a solution to a linear equation in two variables
APPENDIX B. SYLLABI IN ALEKS

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**B.43 **UNLV Liberal Arts Math

### Arithmetic and algebra readiness

- **arith200** Integer addition: Problem type 1
- **arith231** Integer multiplication and division
- **arith048** Order of operations with whole numbers
- **arith221** Rounding decimals
- **arith212** Equivalent fractions
- **arith067** Simplifying a fraction
- **arith010** Addition of fractions with same denominator
- **arith096** Subtraction of fractions with same denominator
- **arith230** Addition or subtraction of fractions with different denominators
- **arith086** Product of a fraction and a whole number: Problem type 1
- **arith053** Fraction multiplication
- **arith022** Fraction division
- **arith047** Evaluating expressions with exponents: Problem type 1
- **arith016** Square root of a perfect square
- **alge009** Additive property of equality with whole numbers
- **alge008** Multiplicative property of equality with whole numbers
- **alge060** Solving a rational equation that simplifies to linear: Denominator x

### Sets, probability, and statistics

- **set001** Set builder notation
- **set002** Union and intersection of finite sets
- **stat119** Venn diagrams: Two events
- **stat101** Venn diagrams: Word problems
- **stat100** Venn diagrams: Three events
- **stat106** Outcomes and event probability
- **mstat010** Probability of an event
- **stat112** Probabilities involving two dice
- **stat114** Probability of intersection or union: Word problems
- **mstat012** Probability of independent events
- **mstat013** Probability of dependent events
- **stat117** Probabilities of draws with replacement
- **stat120** Probability of union: Basic
- **stat109** Intersection and conditional probability
- **mstat015** Counting principle
- **pcalc082** Factorial expressions
- **pcalc088** Permutations and combinations: Problem type 1
- **pcalc089** Permutations and combinations: Problem type 2
- **pcalc090** Permutations and combinations: Problem type 3
- **stat118** Probabilities of draws without replacement
- **mstat007** Interpreting a line graph
- **mstat004** Constructing a histogram for numerical data
- **mstat005** Constructing a bar graph for non-numerical data
B.43. UNLV LIBERAL ARTS MATH

stat702 Histograms for grouped data
stat703 Frequency polygons for grouped data
bmath092 Frequency and weighted mean
stat706 Mean, median, and mode: Computations
stat798 Mean, median, and mode: Comparisons
stat719 Estimating the mean of grouped data
stat011 Sample standard deviation
stat009 Percentiles
mstat006 Constructing a box-and-whisker plot
stat157 Standard normal probabilities
stat159 Normal versus standard normal density curves
stat163 Normal distribution: Word problems

Consumer mathematics

bmath018 Converting decimals to percentages
bmath116 Converting percentages to decimals
bmath117 Converting percentages to fractions
bmath113 Converting fractions to percentages
bmath019 Portion formula: Solving for portion
bmath114 Portion formula: Solving for rate
bmath115 Portion formula: Solving for base
bmath020 Calculating percent decreases and increases
bmath037 Simple interest and maturity value
bmath039 Solving for principal, rate, or time in simple interest problems
bmath109 Computing compound interest with the simple interest formula
bmath044 Ordinary annuity
bmath048 Amount financed, finance charge, and deferred payment
bmath049 Cost of installment buying: Computing the APR
bmath053 Monthly mortgage payment tables
bmath054 Total cost of interest for a mortgage
bmath055 Amortization schedule: Interest, principal, and new mortgage balance
bmath025 Markup based on cost or selling price
bmath001 Markup based on cost: Finding the selling price
bmath027 Markup based on cost: Finding the cost
bmath107 Markup based on selling price: Finding the selling price
bmath108 Markup based on selling price: Finding the cost
bmath029 Markdown

Geometry

gem303 Acute, obtuse, and right angles
gem304 Finding supplementary and complementary angles
gem305 Identifying corresponding and alternate angles
gem306 Acute, obtuse, and right triangles
gem307 Classifying scalene, isosceles, and equilateral triangles by side lengths or angles
gem001 Finding an angle measure of a triangle given two angles
gem081 Area of a triangle
gem0808 Finding an angle measure for a triangle with an extended side
gem090 Finding an angle measure for a triangle sharing a side with another triangle
gem522 Interior angles of convex polygons
gem044 Pythagorean Theorem
gem037 Similar polygons
gem038 Similar right triangles
gem037 Indirect measurement
gem310 Properties of quadrilaterals
gem300 Perimeter of a square or a rectangle
geom339 Perimeter of a polygon  
geom019 Area of a square or a rectangle  
geom340 Area of a piecewise rectangular figure  
geom022 Area of a parallelogram  
geom023 Area of a trapezoid  
geom301 Perimeter involving rectangles and circles  
geom802 Circumference and area of a circle  
geom838 Circumference ratios  
geom311 Volume of a rectangular prism  
geom090 Volume of a triangular prism  
geom033 Volume of a pyramid  
geom035 Volume of a cylinder  
geom086 Volume of a cone: Exact answers in terms of pi  
geom841 Volume of a sphere  
geom842 Surface area of a sphere  
geom831 Surface area of a cube or a rectangular prism  
geom091 Surface area of a triangular prism  
geom034 Surface area of a cylinder: Exact answers in terms of pi  
geom092 Word problem involving the rate of filling or emptying a cylinder

B.44 Math Placement

Basic Mathematic Skills

arith630 Addition with carry to the hundreds place  
arith004 Multiplication with carry  
arith615 Introduction to multiplication of large numbers  
arith005 Division with carry  
arith102 Estimating a difference of whole numbers  
arith116 Square root of a perfect square  
arith666 Introduction to simplifying a fraction  
arith818 Addition or subtraction of fractions with the same denominator  
arith664 Introduction to addition or subtraction of fractions with different denominators  
arith886 Product of a fraction and a whole number: Problem type 1  
arith022 Fraction division  
arith015 Writing an improper fraction as a mixed number  
arith619 Writing a mixed number as an improper fraction  
arith221 Rounding decimals  
arith608 Ordering decimals  
arith700 Converting a fraction to a terminating decimal  
arith627 Word problem with one decimal operation: Problem type 2  
arith017 Multiplication of a decimal by a whole number  
arith081 Division of a decimal by a whole number  
arith002 Converting a fraction to a percentage: Denominator of 20, 25, or 50  
arith030 Finding a percentage of a whole number without a calculator: Basic  
arith074 Finding the sale price without a calculator given the original price and percent discount  
arith064 Solving a word problem on proportions using a unit rate  
arith108 Integer addition: Problem type 2  
arith231 Integer multiplication and division  
geom810 Perimeter of a polygon  
geom019 Area of a square or a rectangle  
geom311 Volume of a rectangular prism

Beginning Algebra

arith105 Signed fraction multiplication: Advanced  
alge005 Evaluating a linear expression: Integer multiplication with addition or subtraction
Intermediate Algebra

alge721 Solving a linear equation with several occurrences of the variable: Problem type 5
alge196 Graphing a line through a given point with a given slope
alge631 Finding the slope of a line given its equation
alge071 Writing the equation of a line given the slope and a point on the line
alge621 Solving a linear inequality: Problem type 3
alge166 Graphing a compound inequality on the number line
alge720 Graphing a linear inequality in the plane: Slope-intercept form
alge076 Solving a system of linear equations using elimination with multiplication and addition
geom143 Finding the perimeter or area of a rectangle given one of these values
arith042 Evaluating an expression with a negative exponent: Positive fraction base
alge717 Power rule: Positive exponents
alge625 Power of a power rule with negative exponents
alge060 Solving a rational equation that simplifies to linear: Denominator x
alge205 Solving a rational equation that simplifies to linear: Denominator x+a
alge056 Adding rational expressions with common denominators and binomial numerators
alge053 Multiplying rational expressions involving multivariate monomials
alge054 Dividing rational expressions involving multivariate monomials
alge058 Complex fraction involving multivariate monomials
alge710 Simplifying a ratio of polynomials: Problem type 1
alge160 Algebraic symbol manipulation
geom044 Pythagorean Theorem
arith093 Simplifying the square root of a whole number less than 100
arith032 Square root addition or subtraction
alge080 Simplifying a radical expression with an even exponent
APPENDIX B. SYLLABI IN ALEKS

alge089 Solving a radical equation that simplifies to a linear equation: One radical, basic
arith094 Cube root of an integer
alge250 Rational exponents: Non-unit fraction exponent with a whole number base
alge040 Factoring a quadratic with leading coefficient greater than 1
alge045 Finding the roots of a quadratic equation with leading coefficient greater than 1
alge048 Finding the roots of a quadratic equation with leading coefficient greater than 1
alge094 Completing the square

College Algebra with Trigonometry

fun010 Vertical line test
alge715 Domain of a rational function: Excluded values
geom807 Finding slopes of lines parallel and perpendicular to a line given in the form Ax + By = C
alge702 Classifying the graph of a function
alge185 Writing an equation for a function after a vertical translation
alge716 Introduction to the composition of two functions
alge036 Polynomial long division: Problem type 1
alge620 Multiplying rational expressions involving quadratics with leading coefficients of 1
alge622 Adding rational expressions with different denominators: x+a, x+b
alge062 Solving a rational equation that simplifies to quadratic: Binomial denominators and numerators
alge640 Simplifying a product of radical expressions: Multivariate
alge096 Rationalizing the denominator of a radical expression
alge249 Rational exponents: Powers of powers with negative exponents
alge095 Applying the quadratic formula: Exact answers
alge718 Finding the x-intercept(s) of a parabola
alge253 Graphing a parabola of the form y = (x-h)2 + k
alge232 Evaluating a logarithmic expression
alge108 Converting between logarithmic and exponential equations
pcalc708 Basic properties of logarithms
alge177 Finding a final amount in a word problem on exponential growth or decay
alge132 Distance between two points in the plane: Exact answers
pcalc605 Graphing a circle given its equation in standard form
pcalc002 Converting between degree and radian measure: Problem type 1
pcalc006 Sketching an angle in standard position
pcalc603 Common angles and trigonometric functions
pcalc607 Using a trigonometric ratio to find a side length in a right triangle
pcalc606 Using the Pythagorean Theorem to find a trigonometric ratio
pcalc608 Using a trigonometric ratio to find an angle measure in a right triangle
pcalc604 Inverse sine and inverse cosine

B.45 Tallahassee Community College Math Placement

Whole Numbers

arith001 Addition without carry
arith050 Addition with carry
arith630 Addition with carry to the hundreds place
arith012 Addition of large numbers
arith007 Subtraction without borrowing
arith006 Subtraction with borrowing
arith682 Subtraction with multiple regrouping steps
arith637 Subtraction and regrouping with zeros
arith008 One-digit multiplication
arith679 Multiplication by 10, 100, and 1000
arith003 Multiplication without carry
arith004 Multiplication with carry
arith615 Introduction to multiplication of large numbers
arith632 Multiplication with trailing zeros: Problem type 1
arith638 Multiplication with trailing zeros: Problem type 2
arith014 Multiplication of large numbers
arith075 Division facts
arith052 Division without carry
arith005 Division with carry
arith680 Division with trailing zeros: Problem type 1
arith649 Division with trailing zeros: Problem type 2
arith616 Quotient and remainder: Problem type 1
arith617 Quotient and remainder: Problem type 2
arith631 Quotient and remainder: Problem type 3
arith650 Division involving quotients with intermediate zeros
arith645 Introduction to parentheses
arith681 Introduction to order of operations
arith648 Order of operations with whole numbers
arith651 Order of operations with whole numbers and grouping symbols
arith651 Introduction to inequalities
arith077 Ordering large numbers
arith078 Rounding to tens or hundreds
arith061 Rounding to thousands, ten thousands, or hundred thousands
arith656 Factors
arith634 Prime numbers
arith635 Prime factorization
arith633 Greatest common factor of 2 numbers
arith670 Least common multiple of 2 numbers

Integers

alg286 Plotting integers on a number line
mstat038 Reading the temperature from a thermometer
arith200 Integer addition: Problem type 1
arith108 Integer addition: Problem type 2
arith688 Integer subtraction: Problem type 1
arith689 Integer subtraction: Problem type 2
arith690 Integer subtraction: Problem type 3
arith231 Integer multiplication and division
arith233 Introduction to exponents
arith016 Square root of a perfect square
arith118 Order of operations with integers
arith671 Absolute value of a number
arith104 Operations with absolute value: Problem type 2

Decimals

arith110 Decimal place value: Tenths and hundredths
arith220 Decimal place value: Hundreds to ten thousandths
arith221 Rounding decimals
arith129 Introduction to ordering decimals
arith608 Ordering decimals
arith624 Addition of aligned decimals
arith625 Subtraction of aligned decimals
arith082 Multiplication of a decimal by a power of ten
arith017 Multiplication of a decimal by a whole number
arith655 Decimal multiplication: Problem type 1
arith083 Division of a decimal by a power of ten
arith081 Division of a decimal by a whole number
APPENDIX B. SYLLABI IN ALEKS

arith019 Division of a decimal by a 2-digit decimal
arith117 Signed decimal addition and subtraction
arith234 Signed decimal addition and subtraction with 3 numbers
arith370 Converting a decimal to a fraction: Basic
arith087 Converting a decimal to a proper fraction in simplest form: Advanced
arith71 Converting a fraction with a denominator of 10, 100, or 1000 to a decimal
arith222 Converting a fraction to a terminating decimal
arith089 Converting a fraction to a repeating decimal
arith223 Converting a mixed number to a decimal

Fractions

arith212 Equivalent fractions
arith067 Simplifying a fraction
arith687 Fractional position on a number line
arith605 Plotting rational numbers on a number line
arith444 Ordering fractions with the same denominator
arith92 Using a common denominator to order fractions
arith18 Addition or subtraction of fractions with the same denominator
arith664 Introduction to addition or subtraction of fractions with different denominators
arith230 Addition or subtraction of fractions with different denominators
arith100 Fractional part of a circle
arith79 Product of a unit fraction and a whole number
arith86 Product of a fraction and a whole number: Problem type 1
arith119 Introduction to fraction multiplication
arith53 Fraction multiplication
arith88 The reciprocal of a number
arith222 Fraction division
arith116 Signed fraction addition or subtraction: Basic
arith106 Signed fraction addition or subtraction: Advanced
arith105 Signed fraction multiplication: Advanced
arith662 Writing a mixed number and an improper fraction for a shaded region
arith015 Writing an improper fraction as a mixed number
arith619 Writing a mixed number as an improper fraction
arith215 Addition or subtraction of mixed numbers with the same denominator
arith084 Addition of mixed numbers with the same denominator and carry
arith216 Subtraction of mixed numbers with the same denominator and borrowing
arith085 Addition or subtraction of mixed numbers with different denominators
arith020 Mixed number multiplication: Problem type 1
arith068 Mixed number division

Equations I

alge001 Identifying numbers as integers or non-integers
alge002 Identifying numbers as rational or irrational
alge187 Properties of addition
alge188 Properties of real numbers
alge74 Evaluating an algebraic expression: Whole numbers with two operations
alge005 Evaluating a linear expression: Integer multiplication with addition or subtraction
alge066 Distributive property: Whole number coefficients
alge046 Distributive property: Integer coefficients
alge007 Combining like terms: Integer coefficients
alge009 Additive property of equality with whole numbers
alge010 Additive property of equality with integers
alge00 Additive property of equality with a negative coefficient
alge000 Additive property of equality with decimals
alge081 Additive property of equality with fractions and mixed numbers
alge008 Multiplicative property of equality with whole numbers
<table>
<thead>
<tr>
<th>Subject</th>
<th>Topics</th>
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<tbody>
<tr>
<td><strong>Equations II</strong></td>
<td>alge208 Solving a two-step equation with signed fractions</td>
</tr>
<tr>
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<td>alge200 Solving an equation to find the value of an expression</td>
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<td>alge011 Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution</td>
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<td>alge061 Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients</td>
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<td>alge013 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution</td>
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<td>alge209 Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions</td>
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<td>alge179 Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators</td>
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<td>alge272 Solving a proportion of the form $x/a = b/c$</td>
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<td>alge271 Solving a proportion of the form $a/(x+b) = c/x$</td>
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<td>alge810 Introduction to algebraic symbol manipulation</td>
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<td>alge160 Algebraic symbol manipulation</td>
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<td>alge016 Translating a sentence into a one-step equation</td>
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<td>alge602 Writing a one-step variable expression for a real-world situation</td>
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<td>alge802 Solving a fraction word problem using a linear equation of the form $Ax = B$</td>
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<td>alge014 Solving a word problem with two unknowns using a linear equation</td>
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<td>alge219 Solving a decimal word problem using a linear equation with the variable on both sides</td>
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<td>alge173 Solving a decimal word problem using a linear equation of the form $Ax + B = C$</td>
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<td>alge704 Solving a fraction word problem using a linear equation with the variable on both sides</td>
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<td>arith064 Solving a word problem on proportions using a unit rate</td>
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<td>alge218 Solving a word problem involving rates and time conversion</td>
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<td>arith610 Word problem on proportions: Problem type 1</td>
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<td>arith611 Word problem on proportions: Problem type 2</td>
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<tr>
<td><strong>Graphing and Inequalities</strong></td>
<td>alge064 Reading a point in the coordinate plane</td>
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<td>alge067 Plotting a point in the coordinate plane</td>
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<td>alge197 Graphing a line given its x- and y-intercepts</td>
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<td>alge194 Graphing a line given its equation in slope-intercept form</td>
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<td>alge195 Graphing a line given its equation in standard form</td>
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<td>alge198 Graphing a vertical or horizontal line</td>
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<td>alge196 Graphing a line through a given point with a given slope</td>
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<td>alge282 Function tables with two-step rules</td>
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<td>alge066 Finding a solution to a linear equation in two variables</td>
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<td>alge216 Determining whether given points lie on one, both, or neither of 2 lines given equations</td>
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<td></td>
<td>alge069 Finding the y-intercept of a line given its equation</td>
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<tr>
<td></td>
<td>alge210 Finding x- and y-intercepts of a line given the equation: Advanced</td>
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<td>alge684 Finding slope given the graph of a line on a grid</td>
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<td>alge685 Finding slope given two points on the line</td>
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<td>alge631 Finding the slope of a line given its equation</td>
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<td>alge015 Translating a sentence by using an inequality symbol</td>
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<td>alge017 Graphing a linear inequality on the number line</td>
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<td>alge019 Solving a linear inequality: Problem type 1</td>
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<td>alge020 Solving a linear inequality: Problem type 2</td>
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<td></td>
<td>alge021 Solving a linear inequality: Problem type 3</td>
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<tr>
<td><strong>Exponents and Polynomials</strong></td>
<td>alge216 Determining whether given points lie on one, both, or neither of 2 lines given equations</td>
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<tr>
<td></td>
<td>alge069 Finding the y-intercept of a line given its equation</td>
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<td>alge210 Finding x- and y-intercepts of a line given the equation: Advanced</td>
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<td>alge020 Solving a linear inequality: Problem type 2</td>
</tr>
<tr>
<td></td>
<td>alge021 Solving a linear inequality: Problem type 3</td>
</tr>
</tbody>
</table>
arithmetic Evaluating expressions with exponents: Problem type 1
arithmetic Evaluating expressions with exponents: Problem type 2
arithmetic Order of operations with integers and exponents
arithmetic Ordering numbers with positive exponents
arithmetic Power of 10: Positive exponent
arithmetic Scientific notation with positive exponent
arithmetic Power of 10: Negative exponent
arithmetic Scientific notation with negative exponent
arithmetic Evaluating an expression with a negative exponent: Positive fraction base
arithmetic Evaluating an expression with a negative exponent: Negative integer base
arithmetic Ordering numbers with negative exponents
algebra Introduction to the product rule of exponents
algebra Product rule with positive exponents: Multivariate
algebra Quotient of expressions involving exponents
algebra Power rules with positive exponents
algebra Product rule with negative exponents
algebra Power of a power rule with negative exponents
algebra Evaluating a quadratic expression: Integers
algebra Combining like terms: Advanced
algebra Simplifying a sum or difference of three univariate polynomials
algebra Multiplying binomials with leading coefficients of 1
algebra Squaring a binomial: Univariate
algebra Multiplication involving binomials and trinomials in two variables
algebra Degree of a multivariate polynomial
algebra Estimating a square root
algebra Square root of a rational perfect square
algebra Simplifying the square root of a whole number less than 100
algebra Square root of a perfect square monomial
algebra Simplifying a radical expression with an even exponent
algebra Simplifying a radical expression with two variables
algebra Square root addition or subtraction
algebra Simplifying a sum or difference of radical expressions: Multivariate
algebra Square root multiplication: Advanced
algebra Simplifying a product of radical expressions: Multivariate
algebra Simplifying a product involving square roots using the distributive property: Advanced

Factoring

algebra Factoring a quadratic with leading coefficient 1
algebra Factoring a quadratic with leading coefficient greater than 1
algebra Factoring a perfect square trinomial
algebra Factoring a quadratic in two variables with leading coefficient greater than 1
algebra Factoring a product of a quadratic trinomial and a monomial
algebra Factoring a difference of squares
algebra Factoring with repeated use of the difference of squares formula
algebra Greatest common factor of two multivariate monomials
algebra Factoring a polynomial by grouping: Problem type 1
algebra Factoring a polynomial by grouping: Problem type 2
algebra Simplifying a ratio of polynomials: Problem type 1
algebra Simplifying a ratio of multivariate polynomials
algebra Solving an equation written in factored form
algebra Finding the roots of a quadratic equation with leading coefficient 1
algebra Finding the roots of a quadratic equation with leading coefficient greater than 1

B.46 Tarrant Placement Test

Module 1
B.46. TARRANT PLACEMENT TEST

arith048 Order of operations with whole numbers
arith051 Order of operations with whole numbers and grouping symbols
arith220 Decimal place value: Hundreds to ten thousandths
arith221 Rounding decimals
arith082 Multiplication of a decimal by a power of ten
arith017 Multiplication of a decimal by a whole number
arith055 Decimal multiplication: Problem type 1
arith083 Division of a decimal by a power of ten
arith081 Division of a decimal by a whole number
arith019 Division of a decimal by a 2-digit decimal
arith626 Word problem with one decimal operation: Problem type 1
arith627 Word problem with one decimal operation: Problem type 2
arith224 Word problem with decimal addition and multiplication
arith227 Word problem with decimal subtraction and division
arith200 Integer addition: Problem type 1
arith108 Integer addition: Problem type 2
arith107 Integer subtraction
arith231 Integer multiplication and division
arith234 Signed decimal addition and subtraction with 3 numbers
arith071 Absolute value of a number
alge005 Evaluating a linear expression: Integer multiplication with addition or subtraction
alge009 Additive property of equality with whole numbers
alge010 Additive property of equality with integers
alge266 Additive property of equality with a negative coefficient
alge800 Additive property of equality with decimals
alge008 Multiplicative property of equality with whole numbers
alge006 Solving a two-step equation with integers

Module 2

arith056 Factors
arith033 Greatest common factor of 2 numbers
arith070 Least common multiple of 2 numbers
arith212 Equivalent fractions
arith067 Simplifying a fraction
arith618 Addition or subtraction of fractions with the same denominator
arith230 Addition or subtraction of fractions with different denominators
arith088 The reciprocal of a number
arith079 Product of a unit fraction and a whole number
arith009 Unit fraction multiplication
arith086 Product of a fraction and a whole number: Problem type 1
arith053 Fraction multiplication
arith022 Fraction division
arith015 Writing an improper fraction as a mixed number
arith019 Writing a mixed number as an improper fraction
arith106 Signed fraction addition or subtraction: Advanced
arith105 Signed fraction multiplication: Advanced
alge012 Multiplicative property of equality with signed fractions
alge802 Solving a fraction word problem using a linear equation of the form Ax = B

Module 3

arith064 Solving a word problem on proportions using a unit rate
arith222 Converting a fraction to a terminating decimal
arith226 Converting between percentages and decimals
arith090 Converting a percentage to a fraction in simplest form
arith002 Converting a fraction to a percentage: Denominator of 20, 25, or 50
arith030 Finding a percentage of a whole number without a calculator: Basic
arithmetic Writing a ratio as a percentage without a calculator
arithmetic Finding the sale price without a calculator given the original price and percent discount
arithmetic Finding the original price given the sale price and percent discount
arithmetic Finding the percentage increase or decrease: Advanced
geometry Perimeter of a square or a rectangle
geometry Perimeter of a polygon
geometry Area of a square or a rectangle
geometry Area of a piecewise rectangular figure
statistics Mean and median of a data set
statistics Interpreting a bar graph
algebra Finding an angle measure of a triangle given two angles
algebra Reading a point in the coordinate plane
algebra Plotting a point in the coordinate plane
algebra Graphing a line given its x- and y-intercepts
algebra Graphing a line given its equation in slope-intercept form
algebra Graphing a vertical or horizontal line
algebra Finding a solution to a linear equation in two variables
statistics Interpreting a line graph
algebra Solving a proportion of the form \( x/a = b/c \)
algebra Solving a word problem involving rates and time conversion
arithmetic Word problem on proportions: Problem type 1
geometry Pythagorean Theorem

Module 4

arithmetic Introduction to exponents
arithmetic Evaluating expressions with exponents: Problem type 1
arithmetic Order of operations with integers and exponents
algebra Evaluating a quadratic expression: Integers
algebra Distributive property: Whole number coefficients
algebra Distributive property: Integer coefficients
algebra Combining like terms: Integer coefficients
algebra Writing a one-step variable expression for a real-world situation
algebra Translating a sentence into a one-step equation
algebra Introduction to the product rule of exponents
algebra Quotient of expressions involving exponents
arithmetic Evaluating an expression with a negative exponent: Positive fraction base
arithmetic Evaluating an expression with a negative exponent: Negative integer base
algebra Power rules with positive exponents
algebra Power of a power rule with negative exponents
algebra Product rule with positive exponents: Multivariate
algebra Product rule with negative exponents
algebra Combining like terms: Advanced
algebra Simplifying a sum or difference of three univariate polynomials
algebra Multiplying binomials with leading coefficients of 1
algebra Squaring a binomial: Univariate

Module 5

algebra Factoring a quadratic with leading coefficient 1
algebra Factoring a quadratic with leading coefficient greater than 1
algebra Factoring a perfect square trinomial
algebra Factoring a product of a quadratic trinomial and a monomial
algebra Factoring a difference of squares
algebra Greatest common factor of two multivariate monomials
algebra Solving an equation written in factored form
algebra Finding the roots of a quadratic equation with leading coefficient 1
algebra Finding the roots of a quadratic equation with leading coefficient greater than 1
B.46. TARRANT PLACEMENT TEST

alge211 Solving a quadratic equation needing simplification
alge094 Completing the square
alge095 Applying the quadratic formula: Exact answers
alge214 Discriminant of a quadratic equation
alge252 Graphing a parabola of the form \( y = ax^2 \)
alge253 Graphing a parabola of the form \( y = (x-h)^2 + k \)

Module 6

alge179 Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators
alge053 Multiplying rational expressions involving multivariate monomials
alge620 Multiplying rational expressions involving quadratics with leading coefficients of 1
alge054 Dividing rational expressions involving multivariate monomials
alge058 Complex fraction involving multivariate monomials
alge056 Adding rational expressions with common denominators and binomial numerators
alge057 Adding rational expressions with different denominators: \( ax, bx \)
alge055 Least common multiple of two monomials
alge226 Adding rational expressions with multivariate monomial denominators: Advanced
alge710 Simplifying a ratio of polynomials: Problem type 1
alge034 Simplifying a ratio of multivariate polynomials
alge271 Solving a proportion of the form \( a/(x+b) = c/x \)
alge060 Solving a rational equation that simplifies to linear: Denominator \( x \)
alge205 Solving a rational equation that simplifies to linear: Denominator \( x+a \)
alge206 Solving a rational equation that simplifies to linear: Unlike binomial denominators
alge212 Solving a rational equation that simplifies to quadratic: Binomial denominators, constant numerators
alge062 Solving a rational equation that simplifies to quadratic: Binomial denominators and numerators

Module 7

alge208 Solving a two-step equation with signed fractions
alge011 Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
alge061 Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
alge013 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
alge020 Solving a linear inequality: Problem type 2
alge021 Solving a linear inequality: Problem type 3
alge207 Solving a linear inequality: Problem type 4
alge017 Graphing a linear inequality on the number line
alge166 Graphing a compound inequality on the number line
alge160 Algebraic symbol manipulation
alge014 Solving a word problem with two unknowns using a linear equation
alge270 Solving an absolute value equation of the form \( a-x = b \) or \(-x-a = b \)
fun001 Table for a linear function
alge195 Graphing a line given its equation in standard form
alge196 Graphing a line through a given point with a given slope
alge018 Graphing a linear inequality in the plane: Standard form
alge225 Graphing a linear inequality in the plane: Vertical or horizontal line
alge701 Writing an equation and drawing its graph to model a real-world situation: Advanced
alge216 Determining whether given points lie on one, both, or neither of 2 lines given equations
alge069 Finding the y-intercept of a line given its equation
alge210 Finding x- and y-intercepts of a line given the equation: Advanced
alge631 Finding the slope of a line given its equation
alge637 Determining the slope of a line given its graph
alge071 Writing the equation of a line given the slope and a point on the line
algebra072 Writing the equation of the line through two given points
geometry087 Finding slopes of lines parallel and perpendicular to a line given in the form Ax + By = C
geometry088 Writing equations of lines parallel and perpendicular to a given line through a point
algebra076 Solving a system of linear equations using elimination with multiplication and addition
algebra078 Solving a word problem involving a sum and another basic relationship using a system of linear equations

Module 8

arithmetic602 Estimating a square root
arithmetic601 Square root of a rational perfect square
algebra264 Square root of a perfect square monomial
arithmetic093 Simplifying the square root of a whole number less than 100
algebra080 Simplifying a radical expression with an even exponent
algebra275 Simplifying a radical expression with two variables
arithmetic092 Square root addition or subtraction
algebra084 Simplifying a sum or difference of radical expressions: Multivariate
arithmetic039 Square root multiplication: Advanced
algebra640 Simplifying a product of radical expressions: Multivariate
algebra276 Simplifying a product involving square roots using the distributive property: Advanced
algebra086 Rationalizing the denominator of a radical expression
algebra088 Rationalizing the denominator of a radical expression using conjugates
algebra089 Solving a radical equation that simplifies to a linear equation: One radical, basic
algebra090 Solving a radical equation that simplifies to a quadratic equation: One radical
algebra091 Solving a radical equation that simplifies to a quadratic equation: Two radicals
algebra812 Converting between radical form and exponent form

B.47 Math Prep. for College Physics

Arithmetic

arithmetic048 Order of operations with whole numbers
arithmetic051 Order of operations with whole numbers and grouping symbols
arithmetic108 Integer addition: Problem type 2
arithmetic107 Integer subtraction
arithmetic231 Integer multiplication and division
arithmetic071 Absolute value of a number
arithmetic104 Operations with absolute value: Problem type 2
arithmetic212 Equivalent fractions
arithmetic067 Simplifying a fraction
arithmetic618 Addition or subtraction of fractions with the same denominator
arithmetic230 Addition or subtraction of fractions with different denominators
arithmetic116 Signed fraction addition or subtraction: Basic
arithmetic106 Signed fraction addition or subtraction: Advanced
arithmetic086 Product of a fraction and a whole number: Problem type 1
arithmetic119 Introduction to fraction multiplication
arithmetic053 Fraction multiplication
arithmetic105 Signed fraction multiplication: Advanced
arithmetic022 Fraction division
arithmetic015 Writing an improper fraction as a mixed number
arithmetic619 Writing a mixed number as an improper fraction
arithmetic220 Decimal place value: Hundreds to ten thousandths
arithmetic678 Rounding to tens or hundreds
arithmetic061 Rounding to thousands, ten thousands, or hundred thousands
arithmetic221 Rounding decimals
arithmetic082 Multiplication of a decimal by a power of ten
Linear Equations and Applications

alge005 Evaluating a linear expression: Integer multiplication with addition or subtraction
alge606 Distributive property: Whole number coefficients
alge604 Distributive property: Integer coefficients
alge607 Combining like terms: Integer coefficients
alge016 Translating a sentence into a one-step equation
alge602 Writing a one-step variable expression for a real-world situation
alge009 Additive property of equality with whole numbers
alge010 Additive property of equality with integers
alge266 Additive property of equality with a negative coefficient
alge008 Multiplicative property of equality with whole numbers
alge012 Multiplicative property of equality with signed fractions
alge006 Solving a two-step equation with integers
alge208 Solving a two-step equation with signed fractions
alge200 Solving an equation to find the value of an expression
alge011 Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
alge061 Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
alge013 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
alge209 Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions
alge179 Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators
alge103 Solving an absolute value equation of the form \(-ax+b- = c\)
alge167 Solving an absolute value equation of the form \(-ax+b- = -cx+d-\)
arith228 Word problem on unit rates associated with ratios of whole numbers: Decimal answers
alge218 Solving a word problem involving rates and time conversion
alge272 Solving a proportion of the form \(x/a = b/c\)
arith10 Word problem on proportions: Problem type 1
alge014 Solving a word problem with two unknowns using a linear equation
alge219 Solving a decimal word problem using a linear equation with the variable on both sides
alge175 Word problem on direct variation
alge176 Word problem on inverse variation
APPENDIX B. SYLLABI IN ALEKS

Lines and Systems of Linear Equations

- alge064 Reading a point in the coordinate plane
- alge067 Plotting a point in the coordinate plane
- alge197 Graphing a line given its x- and y-intercepts
- alge198 Graphing a vertical or horizontal line
- alge194 Graphing a line given its equation in slope-intercept form
- alge195 Graphing a line given its equation in standard form
- alge196 Graphing a line through a given point with a given slope
- alge018 Graphing a linear inequality in the plane: Standard form
- alge225 Graphing a linear inequality in the plane: Vertical or horizontal line
- mstat007 Interpreting a line graph
- alge734 Understanding distance and speed graphs
- alge066 Finding a solution to a linear equation in two variables
- alge069 Finding the y-intercept of a line given its equation
- alge210 Finding x- and y-intercepts of a line given the equation: Advanced
- alge637 Determining the slope of a line given its graph
- alge631 Finding the slope of a line given its equation
- alge073 Writing the equations of vertical and horizontal lines through a given point
- alge070 Writing an equation of a line given the y-intercept and another point
- alge071 Writing the equation of a line given the slope and a point on the line
- alge072 Writing the equation of the line through two given points
- alge805 Application problem with a linear function: Finding a coordinate given the slope and a point
- alge806 Application problem with a linear function: Finding a coordinate given two points
- alge216 Determining whether given points lie on one, both, or neither of 2 lines given equations
- alge725 Graphically solving a system of linear equations
- alge076 Solving a system of linear equations using elimination with multiplication and addition
- alge224 Solving a distance, rate, time problem using a system of linear equations
- alge192 Solving a percent mixture problem using a system of linear equations
- alge079 Graphing a system of two linear inequalities: Basic

Exponents and Radicals

- arith047 Evaluating expressions with exponents: Problem type 1
- arith049 Evaluating expressions with exponents: Problem type 2
- arith042 Evaluating an expression with a negative exponent: Positive fraction base
- arith029 Ordering numbers with positive exponents
- arith024 Ordering numbers with negative exponents
- alge624 Introduction to the product rule of exponents
- alge030 Product rule with positive exponents: Multivariate
- alge026 Quotient of expressions involving exponents
- alge028 Product rule with negative exponents
- alge027 Power rules with positive exponents
- alge025 Power of a power rule with negative exponents
- alge037 Greatest common factor of two multivariate monomials
- alge004 Evaluating a quadratic expression: Integers
- arith083 Power of 10: Positive exponent
- arith036 Scientific notation with positive exponent
- arith084 Power of 10: Negative exponent
- arith037 Scientific notation with negative exponent
- scinot002 Multiplying and dividing numbers written in scientific notation
- scinot003 Finding powers of numbers written in scientific notation
- scinot004 Order of magnitude estimation
- alge663 Combining like terms: Advanced
- alge029 Simplifying a sum or difference of three univariate polynomials
- alge033 Multiplying binomials with leading coefficients of 1
- alge032 Squaring a binomial: Univariate
- alge180 Multiplication involving binomials and trinomials in two variables
- alge705 Factoring a quadratic with leading coefficient 1
alge624 Factoring a difference of squares
alge038 Factoring a polynomial by grouping: Problem type 1
arith016 Square root of a perfect square
arith093 Simplifying the square root of a whole number less than 100
alge080 Simplifying a radical expression with an even exponent
alge084 Simplifying a sum or difference of radical expressions: Multivariate
arith039 Square root multiplication: Advanced
alge640 Simplifying a product of radical expressions: Multivariate
alge082 Simplifying a product of radical expressions: Multivariate, fractional expressions
alge276 Simplifying a product involving square roots using the distributive property: Advanced
alge086 Rationalizing the denominator of a radical expression
alge089 Solving a radical equation that simplifies to a linear equation: One radical, basic
alge090 Solving a radical equation that simplifies to a linear equation: Two radicals
alge250 Rational exponents: Non-unit fraction exponent with a whole number base
alge251 Rational exponents: Negative exponents and fractional bases

Quadratic, Rational and Exponential Expressions

alge045 Finding the roots of a quadratic equation with leading coefficient 1
alge095 Applying the quadratic formula: Exact answers
alge214 Discriminant of a quadratic equation
alge524 Solving a word problem using a quadratic equation with irrational roots
alge092 Solving a quadratic equation using the square root property: Exact answers, basic
alge093 Solving an equation using the odd-root property: Problem type 1
alge049 Restriction on a variable in a denominator: Linear
alge710 Simplifying a ratio of polynomials: Problem type 1
alge058 Complex fraction involving multivariate monomials
alge260 Complex fraction that contains a complex fraction
alge053 Multiplying rational expressions involving multivariate monomials
alge054 Dividing rational expressions involving multivariate monomials
alge055 Least common multiple of two monomials
alge056 Adding rational expressions with common denominators and binomial numerators
alge057 Adding rational expressions with different denominators: ax, bx
alge226 Adding rational expressions with multivariate monomial denominators: Advanced
alge622 Adding rational expressions with different denominators: x+a, x+b
alge060 Solving a rational equation that simplifies to linear: Denominator x
alge205 Solving a rational equation that simplifies to linear: Denominator x+a
alge206 Solving a rational equation that simplifies to linear: Unlike binomial denominators
alge062 Solving a rational equation that simplifies to quadratic: Binomial denominators and numerators
alge160 Algebraic symbol manipulation
alge252 Graphing a parabola of the form y = ax2
alge253 Graphing a parabola of the form y = (x-h)2 + k
pcalc070 Graphing an ellipse centered at the origin: Ax2 + By2 = C
pcalc075 Graphing a hyperbola centered at the origin: Ax2 - By2 - C = 0
alge177 Finding a final amount in a word problem on exponential growth or decay
alge178 Finding the time to reach a limit in a word problem on exponential growth or decay
pcalc103 Graphing an exponential function and its asymptote: f(x) = a(e)x-b + c
alge108 Converting between logarithmic and exponential equations
alge232 Evaluating a logarithmic expression
pcalc708 Basic properties of logarithms
pcalc104 Graphing a logarithmic function: Advanced

Geometry

geom039 Perimeter of a polygon
geom030 Perimeter of a square or a rectangle
geom019 Area of a square or a rectangle
geom030 Area of a piecewise rectangular figure
APPENDIX B. SYLLABI IN ALEKS

geom217 Finding the side length of a rectangle given its perimeter or area
geom143 Finding the perimeter or area of a rectangle given one of these values
geom801 Area of a triangle
geom022 Area of a parallelogram
geom016 Circumference of a circle
geom301 Perimeter involving rectangles and circles
geom802 Circumference and area of a circle
geom302 Area involving rectangles and circles
geom805 Arc length and area of a sector of a circle
geom831 Surface area of a cube or a rectangular prism
geom834 Surface area of a cylinder: Exact answers in terms of pi
geom842 Surface area of a sphere
geom311 Volume of a rectangular prism
geom035 Volume of a cylinder
geom841 Volume of a sphere
geom092 Word problem involving the rate of filling or emptying a cylinder
geom133 Ratio of volumes
geom846 Computing ratios of side lengths, surface areas, and volumes for similar solids
geom303 Acute, obtuse, and right angles
geom151 Measuring an angle with the protractor
geom152 Drawing an angle with the protractor
geom039 Finding supplementary and complementary angles
geom500 Solving equations involving vertical angles and linear pairs
geom306 Acute, obtuse, and right triangles
geom808 Finding an angle measure of a triangle given two angles
geom904 Pythagorean Theorem
geom808 Similar right triangles
geom337 Indirect measurement
alge132 Distance between two points in the plane: Exact answers
alge191 Midpoint of a line segment in the plane

Trigonometry and Vectors

pcalc600 Sine, cosine, and tangent ratios: Variables for side lengths
pcalc607 Using a trigonometric ratio to find a side length in a right triangle
pcalc10 Using trigonometry to find a length in a word problem with one right triangle
pcalc608 Using a trigonometric ratio to find an angle measure in a right triangle
pcalc611 Using trigonometry to find angles of elevation or depression in a word problem
pcalc606 Using the Pythagorean Theorem to find a trigonometric ratio
pcalc602 Converting between degree and radian measure: Problem type 1
pcalc006 Sketching an angle in standard position
pcalc603 Common angles and trigonometric functions
pcalc107 Sketching the graph of $y=a\sin(x+c)$ or $y=a\cos(x+c)$
pcalc106 Sketching the graph of $y=a\sin(bx)$ or $y=a\cos(bx)$
pcalc104 Sketching the graph of $y=a\sin(bx+c)$ or $y=a\cos(bx+c)$
pcalc739 Multiplication of a vector by a scalar: Geometric approach
geom857 Vector addition: Geometric approach
vector007 Vector subtraction: Geometric approach
pcalc601 Scalar multiplication of a vector: Algebraic approach
pcalc062 Addition and subtraction of vectors: Algebraic approach
vector008 Linear combination of vectors: Component form
pcalc063 Translation of a vector
pcalc060 Magnitude of a vector given in component form
vector002 Finding the magnitude and direction of a vector given its graph
vector009 Dot product of vectors given in component form
pcalc730 Finding the angle between two vectors given in component form
vector010 Using the dot product to find perpendicular vectors
vector005 Finding the components of a vector given its graph
B.48 Essential Math Skills for Business

Integers

- arith078 Rounding to tens or hundreds
- arith061 Rounding to thousands, ten thousands, or hundred thousands
- arith101 Estimating a sum of whole numbers
- arith102 Estimating a difference of whole numbers
- arith604 Estimating a product or quotient of whole numbers
- arith645 Introduction to parentheses
- arith048 Order of operations with whole numbers
- arith051 Order of operations with whole numbers and grouping symbols
- alge285 Evaluating an algebraic expression: Whole numbers with two operations
- arith657 Understanding the distributive property
- alge286 Plotting integers on a number line
- arith200 Integer addition: Problem type 1
- arith108 Integer addition: Problem type 2
- arith107 Integer subtraction
- arith231 Integer multiplication and division
- arith056 Factors
- arith033 Greatest common factor of 2 numbers
- arith070 Least common multiple of 2 numbers

Rational Numbers

- arith623 Introduction to fractions
- arith665 Understanding equivalent fractions
- arith212 Equivalent fractions
- arith067 Simplifying a fraction
- arith018 Addition or subtraction of fractions with the same denominator
- arith230 Addition or subtraction of fractions with different denominators
- arith106 Signed fraction addition or subtraction: Advanced
- arith088 The reciprocal of a number
- arith079 Product of a unit fraction and a whole number
- arith099 Unit fraction multiplication
- arith086 Product of a fraction and a whole number: Problem type 1
- arith853 Fraction multiplication
- arith095 Multi-step word problem involving fractions and multiplication
- arith022 Fraction division
- arith105 Signed fraction multiplication: Advanced
- arith662 Writing a mixed number and an improper fraction for a shaded region
- arith015 Writing an improper fraction as a mixed number
- arith619 Writing a mixed number as an improper fraction
- arith667 Plotting fractions on a number line
- arith605 Plotting rational numbers on a number line
- arith220 Decimal place value: Hundreds to ten thousandths
- arith221 Rounding decimals
- arith671 Converting a fraction with a denominator of 10, 100, or 1000 to a decimal
- arith087 Converting a decimal to a proper fraction in simplest form: Advanced
- arith222 Converting a fraction to a terminating decimal
- arith089 Converting a fraction to a repeating decimal
### APPENDIX B. SYLLABI IN ALEKS

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>arith624</td>
<td>Addition of aligned decimals</td>
</tr>
<tr>
<td>arith625</td>
<td>Subtraction of aligned decimals</td>
</tr>
<tr>
<td>arith626</td>
<td>Word problem with one decimal operation: Problem type 1</td>
</tr>
<tr>
<td>arith627</td>
<td>Word problem with one decimal operation: Problem type 2</td>
</tr>
<tr>
<td>arith234</td>
<td>Signed decimal addition and subtraction with 3 numbers</td>
</tr>
<tr>
<td>arith682</td>
<td>Multiplication of a decimal by a power of ten</td>
</tr>
<tr>
<td>arith017</td>
<td>Multiplication of a decimal by a whole number</td>
</tr>
<tr>
<td>arith655</td>
<td>Decimal multiplication: Problem type 1</td>
</tr>
<tr>
<td>arith045</td>
<td>Word problem with powers of ten</td>
</tr>
<tr>
<td>arith224</td>
<td>Word problem with decimal addition and multiplication</td>
</tr>
<tr>
<td>arith083</td>
<td>Division of a decimal by a power of ten</td>
</tr>
<tr>
<td>arith081</td>
<td>Division of a decimal by a whole number</td>
</tr>
<tr>
<td>arith019</td>
<td>Division of a decimal by a 2-digit decimal</td>
</tr>
<tr>
<td>arith227</td>
<td>Word problem with decimal subtraction and division</td>
</tr>
</tbody>
</table>

### Percentages and Proportions

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>arith674</td>
<td>Finding the percentage of a grid that is shaded</td>
</tr>
<tr>
<td>arith226</td>
<td>Converting between percentages and decimals</td>
</tr>
<tr>
<td>arith002</td>
<td>Converting a percentage to a fraction in simplest form</td>
</tr>
<tr>
<td>arith602</td>
<td>Converting a fraction to a percentage: Denominator of 20, 25, or 50</td>
</tr>
<tr>
<td>arith630</td>
<td>Finding a percentage of a whole number without a calculator: Basic</td>
</tr>
<tr>
<td>arith069</td>
<td>Writing a ratio as a percentage without a calculator</td>
</tr>
<tr>
<td>arith674</td>
<td>Finding the sale price without a calculator given the original price and percent discount</td>
</tr>
<tr>
<td>arith631</td>
<td>Finding the original price given the sale price and percent discount</td>
</tr>
<tr>
<td>arith225</td>
<td>Finding the percentage increase or decrease: Advanced</td>
</tr>
<tr>
<td>arith663</td>
<td>Writing ratios for real-world situations</td>
</tr>
<tr>
<td>alge218</td>
<td>Solving a word problem involving rates and time conversion</td>
</tr>
<tr>
<td>alge272</td>
<td>Solving a proportion of the form $x/a = b/c$</td>
</tr>
<tr>
<td>alge271</td>
<td>Solving a proportion of the form $a/(x+b) = c/x$</td>
</tr>
<tr>
<td>arith610</td>
<td>Word problem on proportions: Problem type 1</td>
</tr>
<tr>
<td>arith611</td>
<td>Word problem on proportions: Problem type 2</td>
</tr>
<tr>
<td>unit001</td>
<td>Metric distance conversion with whole number values</td>
</tr>
<tr>
<td>unit002</td>
<td>Metric mass or capacity conversion with whole number values</td>
</tr>
<tr>
<td>unit003</td>
<td>Metric distance conversion with decimal values</td>
</tr>
<tr>
<td>unit004</td>
<td>Metric conversion with decimal values: Two-step problem</td>
</tr>
<tr>
<td>unit010</td>
<td>Metric area unit conversion with decimal values</td>
</tr>
</tbody>
</table>

### Basic Algebraic Operations

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>alge005</td>
<td>Evaluating a linear expression: Integer multiplication with addition or subtraction</td>
</tr>
<tr>
<td>alge004</td>
<td>Evaluating a quadratic expression: Integers</td>
</tr>
<tr>
<td>alge606</td>
<td>Distributive property: Whole number coefficients</td>
</tr>
<tr>
<td>alge604</td>
<td>Distributive property: Integer coefficients</td>
</tr>
<tr>
<td>alge607</td>
<td>Combining like terms: Integer coefficients</td>
</tr>
<tr>
<td>alge663</td>
<td>Combining like terms: Advanced</td>
</tr>
<tr>
<td>alge602</td>
<td>Writing a one-step variable expression for a real-world situation</td>
</tr>
<tr>
<td>arith233</td>
<td>Introduction to exponents</td>
</tr>
<tr>
<td>arith683</td>
<td>Power of 10: Positive exponent</td>
</tr>
<tr>
<td>arith684</td>
<td>Power of 10: Negative exponent</td>
</tr>
<tr>
<td>arith047</td>
<td>Evaluating expressions with exponents: Problem type 1</td>
</tr>
<tr>
<td>arith049</td>
<td>Evaluating expressions with exponents: Problem type 2</td>
</tr>
<tr>
<td>arith600</td>
<td>Order of operations with integers and exponents</td>
</tr>
<tr>
<td>alge024</td>
<td>Introduction to the product rule of exponents</td>
</tr>
<tr>
<td>alge026</td>
<td>Quotient of expressions involving exponents</td>
</tr>
<tr>
<td>arith042</td>
<td>Evaluating an expression with a negative exponent: Positive fraction base</td>
</tr>
</tbody>
</table>
### Linear Equations

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>alge009</td>
<td>Additive property of equality with whole numbers</td>
</tr>
<tr>
<td>alge800</td>
<td>Additive property of equality with decimals</td>
</tr>
<tr>
<td>alge801</td>
<td>Additive property of equality with fractions and mixed numbers</td>
</tr>
<tr>
<td>alge010</td>
<td>Additive property of equality with integers</td>
</tr>
<tr>
<td>alge266</td>
<td>Additive property of equality with a negative coefficient</td>
</tr>
<tr>
<td>alge008</td>
<td>Multiplicative property of equality with whole numbers</td>
</tr>
<tr>
<td>alge012</td>
<td>Multiplicative property of equality with signed fractions</td>
</tr>
<tr>
<td>alge006</td>
<td>Solving a two-step equation with integers</td>
</tr>
<tr>
<td>alge208</td>
<td>Solving a two-step equation with signed fractions</td>
</tr>
<tr>
<td>alge200</td>
<td>Solving an equation to find the value of an expression</td>
</tr>
<tr>
<td>alge011</td>
<td>Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution</td>
</tr>
<tr>
<td>alge061</td>
<td>Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients</td>
</tr>
<tr>
<td>alge013</td>
<td>Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution</td>
</tr>
<tr>
<td>alge209</td>
<td>Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions</td>
</tr>
<tr>
<td>alge016</td>
<td>Translating a sentence into a one-step equation</td>
</tr>
<tr>
<td>alge092</td>
<td>Solving a fraction word problem using a linear equation of the form Ax = B</td>
</tr>
<tr>
<td>alge014</td>
<td>Solving a word problem with two unknowns using a linear equation</td>
</tr>
<tr>
<td>alge219</td>
<td>Solving a decimal word problem using a linear equation with the variable on both sides</td>
</tr>
<tr>
<td>alge173</td>
<td>Solving a decimal word problem using a linear equation of the form Ax + B = C</td>
</tr>
<tr>
<td>alge704</td>
<td>Solving a fraction word problem using a linear equation with the variable on both sides</td>
</tr>
<tr>
<td>alge076</td>
<td>Solving a system of linear equations using elimination with multiplication and addition</td>
</tr>
<tr>
<td>alge078</td>
<td>Solving a word problem involving a sum and another basic relationship using a system of linear equations</td>
</tr>
<tr>
<td>alge184</td>
<td>Solving a value mixture problem using a system of linear equations</td>
</tr>
<tr>
<td>alge224</td>
<td>Solving a distance, rate, time problem using a system of linear equations</td>
</tr>
<tr>
<td>alge192</td>
<td>Solving a percent mixture problem using a system of linear equations</td>
</tr>
<tr>
<td>alge172</td>
<td>Solving a tax rate or interest rate problem using a system of linear equations</td>
</tr>
</tbody>
</table>

### Functions and Graphs
fun001 Table for a linear function
fun002 Graphing integer functions
fun016 Domain and range from ordered pairs
fun010 Vertical line test
alg064 Reading a point in the coordinate plane
alg067 Plotting a point in the coordinate plane
alg197 Graphing a line given its x- and y-intercepts
alg194 Graphing a line given its equation in slope-intercept form
alg195 Graphing a line given its equation in standard form
alg196 Graphing a line through a given point with a given slope
alg198 Graphing a vertical or horizontal line
alg701 Writing an equation and drawing its graph to model a real-world situation: Advanced
alg725 Graphically solving a system of linear equations
alg066 Finding a solution to a linear equation in two variables
alg216 Determining whether given points lie on one, both, or neither of 2 lines given equations
alg069 Finding the y-intercept of a line given its equation
alg210 Finding x- and y-intercepts of a line given the equation: Advanced
alg631 Finding the slope of a line given its equation
alg637 Determining the slope of a line given its graph
alg070 Writing an equation of a line given the y-intercept and another point
alg071 Writing the equation of a line given the slope and a point on the line
alg072 Writing the equation of the line through two given points
alg073 Writing the equations of vertical and horizontal lines through a given point
alg805 Application problem with a linear function: Finding a coordinate given the slope and a point
alg806 Application problem with a linear function: Finding a coordinate given two points
geom807 Finding slopes of lines parallel and perpendicular to a line given in the form Ax + By = C
geom808 Writing equations of lines parallel and perpendicular to a given line through a point
alg263 Interpreting the graphs of two functions
alg277 Finding the x-intercept(s) and the vertex of a parabola
alg252 Graphing a parabola of the form y = ax^2
alg253 Graphing a parabola of the form y = (x-h)^2 + k
alg254 Graphing a parabola of the form y = ax^2 + bx + c
alg262 Graphing a cubic function of the form y = ax^3

Financial Mathematics

bm061 Financial ratio analysis
bm021 Single trade discounts and net price
bm025 Markup based on cost or selling price
bm001 Markup based on cost: Finding the selling price
bm027 Markup based on cost: Finding the cost
bm017 Markup based on selling price: Finding the selling price
bm108 Markup based on selling price: Finding the cost
bm029 Markdown
bm033 Gross pay with commission and salary
bm037 Simple interest and maturity value
bm039 Solving for principal, rate, or time in simple interest problems
bm109 Computing compound interest with the simple interest formula
bm042 Compound interest for daily compounding
bm041 Compound interest for annual, semiannual, and quarterly compounding
bm043 Present value tables
bm044 Ordinary annuity
bm046 Present value of an ordinary annuity
bm047 Sinking funds

Basic Statistics

mst007 Interpreting a line graph
stat904 Interpreting pie charts
B.49. BUSINESS MATH

stat901 Computations from pie charts
stat844 Double bar charts
stat702 Histograms for grouped data
stat703 Frequency polygons for grouped data
stat717 Interpreting relative frequency histograms
stat718 Cumulative distributions and ogives
stat164 Comparing means without calculation
stat165 Comparing standard deviations without calculation
stat902 Rejecting unreasonable claims based on average statistics
stat007 Weighted mean: Tabular data
stat719 Estimating the mean of grouped data
stat009 Percentiles
stat021 Population standard deviation
stat011 Sample standard deviation
stat729 Estimating the standard deviation of grouped data
stat798 Mean, median, and mode: Comparisons
stat905 Making reasonable inferences based on proportion statistics
stat119 Venn diagrams: Two events
stat101 Venn diagrams: Word problems
stat106 Outcomes and event probability
stat226 Die rolling
stat114 Probability of intersection or union: Word problems
stat115 Independent events: Basic
stat120 Probability of union: Basic
stat104 Mutually exclusive events: Two events
stat850 Probability of independent events
stat116 Conditional probability: Basic
stat851 Probability of dependent events
stat109 Intersection and conditional probability
stat756 Tree diagrams for conditional probabilities

B.49  Business Math

Mathematic Foundations

bmath094 Whole number place value
bmath122 Rounding whole numbers
bmath105 Adding whole numbers
bmath121 Subtracting whole numbers
bmath106 Multiplying whole numbers
bmath002 Dividing whole numbers
bmath003 Types of fractions and conversion procedures
bmath004 Reducing fractions to lowest terms
bmath005 Raising fractions to higher terms
bmath130 Adding and subtracting fractions with the same denominator
bmath006 Adding fractions with different denominators
bmath007 Subtracting fractions with different denominators
bmath008 Multiplying fractions
bmath009 Dividing fractions
bmath131 Adding mixed numbers
bmath132 Subtracting mixed numbers
bmath133 Multiplying mixed numbers
bmath134 Dividing mixed numbers
bmath123 Decimal place value
bmath010 Rounding decimals
bmath012 Adding decimals
APPENDIX B. SYLLABI IN ALEKS

- Subtracting decimals
- Multiplying decimals
- Dividing decimals
- Conversion from fraction to decimal
- Conversion from decimal to fraction
- Solving equations, basic
- Solving equations, advanced
- Mean and median
- Frequency and weighted mean
- Bar graphs
- Interpreting line graphs
- Interpreting circle graphs

**Percents and Their Applications**

- Converting decimals to percentages
- Converting percentages to decimals
- Converting percentages to fractions
- Converting fractions to percentages
- Portion formula: Solving for portion
- Portion formula: Solving for rate
- Portion formula: Solving for base
- Calculating percent decreases and increases
- Single trade discounts and net price
- Chain discounts: Net price equivalent rate
- Chain discounts: Single equivalent discount rate
- Cash discount: Basic calculation
- Cash discount: Ordinary and receipt of goods dating methods
- Cash discount: EOM dating method
- Invoices, trade discounts, and cash discounts
- Markup based on cost or selling price
- Markup based on cost: Finding the selling price
- Markup based on cost: Finding the cost
- Markup based on selling price: Finding the selling price
- Markup based on selling price: Finding the cost
- Markdown
- Hourly gross pay with overtime
- Gross pay with straight commission and draw
- Gross pay with variable commission scale
- Gross pay with commission and salary
- FICA with no ceiling
- FICA with ceiling
- Calculating federal income tax withholding
- Employer tax responsibilities
- FICA, federal tax withholding, and net pay
- Sales taxes
- Actual sales before taxes
- Excise taxes
- Property tax

**Interest**

- Simple interest and maturity value
- Exact and ordinary methods for simple interest and maturity value
- Solving for principal, rate, or time in simple interest problems
- Structure of promissory notes: Effective interest rate and simple discount note
- Discounting an interest-bearing note before maturity
bmath109 Computing compound interest with the simple interest formula
bmath042 Compound interest for daily compounding
bmath041 Compound interest for annual, semiannual, and quarterly compounding
bmath102 Nominal interest rate versus annual percentage yield
bmath043 Present value tables
bmath044 Ordinary annuity
bmath045 Annuity due
bmath046 Present value of an ordinary annuity
bmath047 Sinking funds
bmath048 Amount financed, finance charge, and deferred payment
bmath049 Cost of installment buying: Computing the APR
bmath050 Cost of installment buying: Computing the monthly payment
bmath051 Paying off installment loans before due date
bmath052 Revolving charge credit cards

Personal Finance

bmath095 Checking accounts
bmath128 Bank statement and reconciliation process: Basic
bmath015 Bank statement and reconciliation process: Advanced
bmath053 Monthly mortgage payment tables
bmath054 Total cost of interest for a mortgage
bmath055 Amortization schedule: Interest, principal, and new mortgage balance
bmath078 Life insurance premiums
bmath079 Insurance nonforfeiture values
bmath080 Fire insurance premiums
bmath140 Canceling fire insurance
bmath081 Compulsory auto insurance
bmath082 Optional auto insurance
bmath083 Reading stock quotations
bmath085 Calculating return on stock investment
bmath139 Stock yield, earnings per share, and price-earnings ratio
bmath084 Stock dividends
bmath086 Reading bond quotations
bmath087 Calculating bond yields
bmath088 Net asset value of a mutual fund
bmath090 Investment in a mutual fund

Business Finance

bmath056 Balance sheet: Merchandising
bmath135 Balance sheet: Service
bmath057 Vertical analysis of a balance sheet
bmath058 Income statement: Merchandising
bmath136 Income statement: Service
bmath059 Vertical analysis of an income statement
bmath138 Horizontal analysis of financial statements
bmath060 Financial projections
bmath061 Financial ratio analysis
bmath062 Straight-line depreciation: Full year
bmath127 Straight-line depreciation: Partial year
bmath063 Units-of-production depreciation
bmath064 Sum-of-the-years'-digits depreciation
bmath065 Declining-balance depreciation
bmath066 Modified accelerated cost recovery system
bmath067 Inventory: Specific identification
bmath068 Inventory: Weighted-average cost method
bmath069 Inventory: FIFO
bmath070 Inventory: LIFO
bmath071 Retail method of inventory
bmath072 Gross profit method of inventory
bmath073 Inventory turnover
bmath074 Distribution of overhead

B.50 Business Statistics

Mathematical Readiness

arith048 Order of operations with whole numbers
arith051 Order of operations with whole numbers and grouping symbols
arith220 Decimal place value: Hundreds to ten thousandths
arith221 Rounding decimals
arith226 Converting between percentages and decimals
arith069 Writing a ratio as a percentage without a calculator
arith090 Converting a percentage to a fraction in simplest form
stat022 Summation of indexed data
alge006 Solving a two-step equation with integers
alge011 Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
alge013 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
alge256 Y-intercept of a line
alge257 X- and y-intercepts of a line given the equation in standard form
alge070 Writing an equation of a line given the y-intercept and another point
alge197 Graphing a line given its x- and y-intercepts
alge194 Graphing a line given its equation in slope-intercept form
alge196 Graphing a line through a given point with a given slope

Descriptive Statistics

stat904 Interpreting pie charts
stat901 Computations from pie charts
stat844 Double bar charts
stat702 Histograms for grouped data
stat703 Frequency polygons for grouped data
stat717 Interpreting relative frequency histograms
stat718 Cumulative distributions and ogives
stat164 Comparing means without calculation
stat165 Comparing standard deviations without calculation
stat023 Box-and-whisker plots
stat831 Interpreting a stem-and-leaf display
stat827 Using back-to-back stem-and-leaf displays to compare data sets
stat706 Mean, median, and mode: Computations
stat902 Rejecting unreasonable claims based on average statistics
stat007 Weighted mean: Tabular data
stat719 Estimating the mean of grouped data
stat009 Percentiles
stat021 Population standard deviation
stat011 Sample standard deviation
stat729 Estimating the standard deviation of grouped data
stat730 Chebyshev’s theorem and the empirical rule
Probability

stat782 Factorial expressions
stat788 Combinations
stat789 Permutations
stat790 Permutations, combinations, and the multiplication principle for counting
stat117 Probabilities of draws with replacement
stat118 Probabilities of draws without replacement
stat119 Venn diagrams: Two events
stat100 Venn diagrams: Three events
stat101 Venn diagrams: Word problems
stat106 Outcomes and event probability
stat226 Die rolling
stat114 Probability of intersection or union: Word problems
stat115 Independent events: Basic
stat120 Probability of union: Basic
stat104 Mutually exclusive events: Two events
stat102 Mutually exclusive events: Three events
stat850 Probability of independent events
stat105 Independent events: Two events
stat103 Independent events: Three events
stat113 The curious die
stat020 Calculating relative frequencies in a contingency table
stat116 Conditional probability: Basic
stat851 Probability of dependent events
stat109 Intersection and conditional probability
stat107 Conditional probability: Mutually exclusive events
stat108 Conditional probability: Independent events
stat756 Tree diagrams for conditional probabilities
stat110 Law of total probabilities
stat111 Bayes’ theorem

Random Variables and Distributions

stat777 Classification of variables and levels of measurement
stat142 Discrete versus continuous variables
stat151 Discrete probability distribution: Basic
stat143 Discrete probability distribution: Word problems
stat149 Cumulative distribution function
stat150 Expectation and variance of a random variable
stat153 Rules for expectation and variance of random variables
stat145 Marginal distributions of two discrete random variables
stat146 Joint distributions of dependent or independent random variables
stat147 Probabilities of two random variables given their joint distribution
stat148 Conditional probabilities of two random variables given their joint distribution
stat156 Binomial problems: Mean and standard deviation
stat174 Binomial problems: Basic
stat155 Binomial problems: Advanced
stat157 Standard normal probabilities
stat760 Standard normal values: Basic
stat160 Standard normal values: Advanced
stat159 Normal versus standard normal density curves
stat161 Normal distribution raw scores
stat162 Mean and deviation of a normal distribution
APPENDIX B. SYLLABI IN ALEKS

stat163 Normal distribution: Word problems
stat173 t distribution
stat170 Chi-square distribution
stat171 F distribution
stat187 Normal approximation to binomial
stat185 Central limit theorem: Sample mean
stat186 Central limit theorem: Sample sum
stat188 Central limit theorem: Sample proportion

Confidence Intervals and Hypothesis Testing

stat200 Selecting a distribution for inferences on the population mean
stat201 Confidence interval for the population mean: Use of the standard normal
stat202 Confidence interval for the population mean: Use of the t distribution
stat203 Confidence interval for a population proportion
stat204 Confidence interval for the population standard deviation
stat205 Confidence interval for the difference of population means: Use of the standard normal
stat206 Confidence interval for the difference of population means: Use of the t distribution
stat207 Confidence interval for the difference of population proportions
stat208 Confidence interval for the ratio of population variances
stat755 Choosing an appropriate sample size
stat190 Type I and Type II errors
stat192 Type I and Type II errors and power
stat194 Effect size, sample size, and power
stat300 Determining null and alternative hypotheses
stat301 Hypothesis test for the population mean: Z test
stat302 Hypothesis test for the population mean: t test
stat303 Hypothesis test for a population proportion
stat304 Hypothesis test for the population variance or standard deviation
stat305 Hypothesis test for the difference of population means: Z test
stat309 Hypothesis test for the difference of population means: Paired comparisons
stat306 Hypothesis test for the difference of population means: t test
stat307 Hypothesis test for the difference of population proportions
stat308 Hypothesis test for the ratio of population variances

Regression and Correlation

stat339 Sketching the least-squares regression line
stat333 Linear relationship and the sample correlation coefficient
stat340 Predictions from the least-squares regression line
stat930 Computing the sample correlation coefficient and the coefficients for the least-squares regression line
stat325 Confidence intervals and prediction intervals from simple linear regression
stat947 Hypothesis tests for the correlation coefficient and the slope of the least-squares regression line
stat400 Interpreting the regression coefficients
stat401 Identifying degrees of freedom
stat402 ANOVA table: Problem type 1
stat403 ANOVA table: Problem type 2
stat404 F test of a multiple regression model
stat405 t test of a multiple regression model

ANOVA, Chi-square and Nonparametric Tests

stat422 ANOVA: Mean squares and the common population variance
stat423 ANOVA: Degrees of freedom and the F statistic
B.51. MATH PREP. FOR ACCOUNTING

stat424 ANOVA: Hypothesis tests and the ANOVA table
stat430 One-way, repeated-measures ANOVA
stat442 Interpreting group means from a factorial design
stat443 Two-way, independent-samples ANOVA
stat440 Selecting among t tests and ANOVA tests
stat319 Contingency tables: Expected frequencies
stat320 Chi-square goodness-of-fit test
stat321 Chi-square test of independence
stat326 Sign test
stat327 Wilcoxon signed-ranks test

Time Series and Quality Control

stat500 Trend lines for yearly data
stat501 Seasonal indexes: Multiplicative model
stat502 Moving averages
stat503 Ratio-to-moving-average method
stat504 Exponential smoothing
stat505 Regression with seasonal indicators
stat600 Interpreting a control chart
stat601 R charts
stat602 x-bar charts
stat603 p charts
stat604 c charts
stat605 Acceptance sampling
stat606 Estimating sigma from an R chart

B.51    Math Prep. for Accounting

Whole Numbers

arith066 Expanded form
arith028 Numeral translation: Problem type 1
arith060 Numeral translation: Problem type 2
arith001 Addition without carry
arith050 Addition with carry
arith012 Addition of large numbers
arith011 Addition in sentence format
arith210 Word problem using addition
geom015 Perimeter of a square or a rectangle
geom009 Perimeter of a polygon
arith007 Subtraction without borrowing
arith006 Subtraction with borrowing
arith025 Subtraction in sentence format
arith021 Word problem using subtraction
arith008 One-digit multiplication
arith003 Multiplication without carry
arith004 Multiplication with carry
arith014 Multiplication of large numbers
arith211 Word problem using multiplication
geom018 Area of a square or a rectangle
geom089 Area of a piecewise rectangular figure
geom030 Volume of a cube or a rectangular prism
arith075 Division facts
arith052 Division without carry
APPENDIX B. SYLLABI IN ALEKS

arith005 Division with carry
arith018 Long division
arith023 Word problem with division of whole numbers and rounding
arith062 Quotient and remainder
arith048 Order of operations with whole numbers
arith051 Order of operations with whole numbers and grouping symbols
arith078 Rounding to tens or hundreds
arith061 Rounding to thousands, ten thousands, or hundred thousands
arith077 Ordering large numbers
arith101 Estimating a sum of whole numbers
arith102 Estimating a difference of whole numbers
arith103 Average of two numbers
arith056 Factors
arith033 Greatest common factor of 2 numbers
arith070 Least common multiple of 2 numbers
arith034 Prime numbers
arith035 Prime factorization

Fractions and Mixed Numbers

arith212 Equivalent fractions
arith067 Simplifying a fraction
arith044 Ordering fractions with the same denominator
arith091 Ordering fractions with the same numerator
arith092 Using a common denominator to order fractions
arith010 Addition of fractions with same denominator
arith054 Addition of fractions with different denominators
arith076 Subtraction of fractions with same denominator
arith080 Subtraction of fractions with different denominators
arith100 Fractional part of a circle
arith079 Product of a unit fraction and a whole number
arith009 Unit fraction multiplication
arith086 Product of a fraction and a whole number: Problem type 1
arith053 Fraction multiplication
arith095 Multi-step word problem involving fractions and multiplication
arith022 Fraction division
arith088 The reciprocal of a number
arith015 Writing an improper fraction as a mixed number
arith215 Addition or subtraction of mixed numbers with the same denominator
arith084 Addition of mixed numbers with the same denominator and carry
arith216 Subtraction of mixed numbers with the same denominator and borrowing
arith085 Addition or subtraction of mixed numbers with different denominators
arith020 Mixed number multiplication: Problem type 1
arith076 Mixed number multiplication: Problem type 2
arith068 Mixed number division

Decimals

arith220 Decimal place value: Hundreds to ten thousandths
arith221 Rounding decimals
arith087 Converting a decimal to a proper fraction in simplest form: Advanced
arith222 Converting a fraction to a terminating decimal
arith089 Converting a fraction to a repeating decimal
arith223 Converting a mixed number to a decimal
arith013 Decimal addition with 3 numbers
arith057 Signed decimal addition
arith041 Decimal subtraction
arith027 Decimal subtraction in sentence format
Proportions and Percents

- arith226 Converting between percentages and decimals
- arith002 Converting a fraction to a percentage: Denominator of 20, 25, or 50
- arith090 Converting a percentage to a fraction in simplest form
- arith030 Finding a percentage of a whole number without a calculator: Basic
- arith074 Finding the sale price without a calculator given the original price and percent discount
- arith031 Finding the original price given the sale price and percent discount
- arith069 Writing a ratio as a percentage without a calculator
- arith073 Word problem with inverse proportion
- arith063 Word problem with clocks

Signed Numbers and Variables

- arith200 Integer addition: Problem type 1
- arith108 Integer addition: Problem type 2
- arith107 Integer subtraction
- arith201 Integer multiplication
- arith202 Integer division
- arith106 Signed fraction addition or subtraction: Advanced
- arith105 Signed fraction multiplication: Advanced
- alge016 Translating a sentence into a one-step equation
- alge005 Evaluating a linear expression: Integer multiplication with addition or subtraction
- alge009 Additive property of equality with whole numbers
- alge010 Additive property of equality with integers
- alge007 Additive property of equality: Problem type 3

Linear Equations

- alge008 Multiplicative property of equality with whole numbers
- alge012 Multiplicative property of equality with signed fractions
- alge006 Solving a two-step equation with integers
- alge008 Solving a two-step equation with signed fractions
- alge005 Solving an equation to find the value of an expression
- alge011 Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
- alge061 Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
- alge179 Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators
- alge209 Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions
alge013 Solving a linear equation with several occurrences of the variable: Variables on both sides and distri-
bution
alge260 Simple word problem on linear equations
alge261 Word problem with percent and money: Problem type 3
alge173 Solving a decimal word problem using a linear equation of the form \( Ax + B = C \)

B.52 Statistics for the Behavioral Sciences

Mathematical Readiness

arith048 Order of operations with whole numbers
arith065 Order of operations with whole numbers and grouping symbols
arith220 Decimal place value: Hundreds to ten thousandths
arith221 Rounding decimals
arith226 Converting between percentages and decimals
arith030 Finding a percentage of a whole number without a calculator: Basic
arith069 Writing a ratio as a percentage without a calculator
arith090 Converting a percentage to a fraction in simplest form
arith002 Converting a fraction to a percentage: Denominator of 20, 25, or 50
stat022 Summation of indexed data
alge006 Solving a two-step equation with integers
alge011 Solving a linear equation with several occurrences of the variable: Variables on the same side and distri-
bution
alge013 Solving a linear equation with several occurrences of the variable: Variables on both sides and distri-
bution
alge256 Y-intercept of a line
alge257 X- and y-intercepts of a line given the equation in standard form
alge070 Writing an equation of a line given the y-intercept and another point
alge197 Graphing a line given its y-intercept and another point
alge194 Graphing a line given its equation in slope-intercept form
alge196 Graphing a line through a given point with a given slope

Descriptive Statistics

stat904 Interpreting pie charts
stat901 Computations from pie charts
stat844 Double bar charts
stat702 Histograms for grouped data
stat703 Frequency polygons for grouped data
stat717 Interpreting relative frequency histograms
stat718 Cumulative distributions and ogives
stat164 Comparing means without calculation
stat165 Comparing standard deviations without calculation
stat023 Box-and-whisker plots
stat831 Interpreting a stem-and-leaf display
stat827 Using back-to-back stem-and-leaf displays to compare data sets
stat706 Mean, median, and mode: Computations
stat007 Rejecting unreasonable claims based on average statistics
stat008 Weighted mean: Tabular data
stat719 Estimating the mean of grouped data
stat009 Percentiles
stat021 Population standard deviation
stat011 Sample standard deviation
stat729 Estimating the standard deviation of grouped data
stat730 Chebyshev’s theorem and the empirical rule
B.52. STATISTICS FOR THE BEHAVIORAL SCIENCES

stat798 Mean, median, and mode: Comparisons
stat025 Transforming the mean and standard deviation of a data set
stat905 Making reasonable inferences based on proportion statistics

Probability

stat782 Factorial expressions
stat788 Combinations
stat789 Permutations
stat790 Permutations, combinations, and the multiplication principle for counting
stat117 Probabilities of draws with replacement
stat118 Probabilities of draws without replacement
stat119 Venn diagrams: Two events
stat100 Venn diagrams: Three events
stat101 Venn diagrams: Word problems
stat106 Outcomes and event probability
stat226 Die rolling
stat114 Probability of intersection or union: Word problems
stat115 Independent events: Basic
stat120 Probability of union: Basic
stat104 Mutually exclusive events: Two events
stat102 Mutually exclusive events: Three events
stat850 Probability of independent events
stat105 Independent events: Two events
stat103 Independent events: Three events
stat113 The curious die
stat020 Calculating relative frequencies in a contingency table
stat116 Conditional probability: Basic
stat851 Probability of dependent events
stat109 Intersection and conditional probability
stat107 Conditional probability: Mutually exclusive events
stat108 Conditional probability: Independent events
stat756 Tree diagrams for conditional probabilities
stat110 Law of total probabilities
stat111 Bayes’ theorem

Random Variables and Distributions

stat777 Classification of variables and levels of measurement
stat142 Discrete versus continuous variables
stat151 Discrete probability distribution: Basic
stat143 Discrete probability distribution: Word problems
stat149 Cumulative distribution function
stat150 Expectation and variance of a random variable
stat153 Rules for expectation and variance of random variables
stat145 Marginal distributions of two discrete random variables
stat146 Joint distributions of dependent or independent random variables
stat147 Probabilities of two random variables given their joint distribution
stat148 Conditional probabilities of two random variables given their joint distribution
stat156 Binomial problems: Mean and standard deviation
stat174 Binomial problems: Basic
stat155 Binomial problems: Advanced
stat157 Standard normal probabilities
stat700 Standard normal values: Basic
stat160 Standard normal values: Advanced
stat159 Normal versus standard normal density curves
stat161 Normal distribution raw scores
stat162 Mean and deviation of a normal distribution
APPENDIX B. SYLLABI IN ALEKS

stat163 Normal distribution: Word problems
stat173 t distribution
stat170 Chi-square distribution
stat171 F distribution
stat187 Normal approximation to binomial
stat185 Central limit theorem: Sample mean
stat186 Central limit theorem: Sample sum
stat188 Central limit theorem: Sample proportion

Confidence Intervals and Hypothesis Testing

stat200 Selecting a distribution for inferences on the population mean
stat201 Confidence interval for the population mean: Use of the standard normal
stat202 Confidence interval for the population mean: Use of the t distribution
stat203 Confidence interval for a population proportion
stat204 Confidence interval for the population standard deviation
stat205 Confidence interval for the difference of population means: Use of the standard normal
stat206 Confidence interval for the difference of population means: Use of the t distribution
stat207 Confidence interval for the difference of population proportions
stat208 Confidence interval for the ratio of population variances
stat755 Choosing an appropriate sample size
stat190 Type I and Type II errors
stat192 Type I and Type II errors and power
stat194 Effect size, sample size, and power
stat300 Determining null and alternative hypotheses
stat301 Hypothesis test for the population mean: Z test
stat302 Hypothesis test for the population mean: t test
stat303 Hypothesis test for a population proportion
stat304 Hypothesis test for the population variance or standard deviation
stat305 Hypothesis test for the difference of population means: Z test
stat309 Hypothesis test for the difference of population means: Paired comparisons
stat306 Hypothesis test for the difference of population means: t test
stat307 Hypothesis test for the difference of population proportions
stat308 Hypothesis test for the ratio of population variances

Regression and Correlation

stat339 Sketching the least-squares regression line
stat333 Linear relationship and the sample correlation coefficient
stat340 Predictions from the least-squares regression line
stat930 Computing the sample correlation coefficient and the coefficients for the least-squares regression line
stat931 Explained and unexplained variation and the least-squares regression line
stat325 Confidence intervals and prediction intervals from simple linear regression
stat947 Hypothesis tests for the correlation coefficient and the slope of the least-squares regression line
stat400 Interpreting the regression coefficients
stat401 Identifying degrees of freedom
stat402 ANOVA table: Problem type 1
stat403 ANOVA table: Problem type 2
stat404 F test of a multiple regression model
stat405 t test of a multiple regression model

ANOVA, Chi-square and Nonparametric Tests

stat422 ANOVA: Mean squares and the common population variance
stat423 ANOVA: Degrees of freedom and the F statistic
stat424 ANOVA: Hypothesis tests and the ANOVA table
stat430 One-way, repeated-measures ANOVA
stat442 Interpreting group means from a factorial design
stat443 Two-way, independent-samples ANOVA
stat440 Selecting among t tests and ANOVA tests
stat319 Contingency tables: Expected frequencies
stat320 Chi-square goodness-of-fit test
stat321 Chi-square test of independence
stat326 Sign test
stat327 Wilcoxon signed-ranks test

Quality Control

stat500 Trend lines for yearly data
stat501 Seasonal indexes: Multiplicative model
stat502 Moving averages
stat503 Ratio-to-moving-average method
stat504 Exponential smoothing
stat505 Regression with seasonal indicators
stat600 Interpreting a control chart
stat601 R charts
stat602 x-bar charts
stat603 p charts
stat604 c charts
stat605 Acceptance sampling
stat606 Estimating sigma from an R chart
Index

(UG) = User’s Guide (Appendix A)

360, ALEKS 83
absolute values, entering 19
access code 7
access code (UG) 177
access options 87, 88
account 46
account management (UG) 196
account, new instructor 126
account summary 139
adding new homework 100
adjusting student scores in gradebook 117
administration, student 118
administrative reports 127
administrative reports, district level 141
administrator features 123
administrator, new 140
administrator roster 140
ALEKS 360 83
ALEKS, average, class report 53
ALEKS curriculum 76
ALEKS educational paradigm 143
ALEKS Pie and Details (UG) 184
ALEKS pie report, display options for 54
ALEKS Timeline (UG) 183
ALEKS, what is 1
all custom objectives 81
alternate ways to enter expressions 16
answer editor for histograms 21
answer editor, graphing 20
answer editor keypad 16
answer editor, manipulators for mathematical expressions 14
answer editor, mathematical expressions in 15
answer editor, purpose of (UG) 180
answer editor, what is 13
archive 97
archived status 88
archive master template 137
archiving instructor 126
arithmetic facts 29
assessment, cancel 122
assessment, first 8
assessment, in Knowledge Space Theory 159
assessment mode 9
assessment options 87, 89
assessment, request 121
assessments and grading 106
assessments, automatic 11
assessments 106
assessments, cancel QuickTables scheduled 34
assessments, comprehensive 106
assessment, settings for retention 33
assessments, goal completion 11
assessments, initial 10, 11
assessments, initial, continued 8
assessments, login time 11
assessments, objective completion 11
assessments, periodic 11
assessments, progress 106, 11
assessments, purpose of 9
assessments, QuickTables scheduled 34
assessments, requested 12
assessments, rules for 10
assessments, scheduling of 10
assessments, when to order 151
assigned linked classes 135
assignment, duplicate 99
assignment reports 67
assignments 98
assignments, delete 99
assignments, existing assignments 99
assignments, extra credit 112
assignments, QuickTables 34
assignments, student 120
Assignments (UG) 194
assignment time limit 101
asterisk for multiplication 17
asymptotes, graphing with 21
available report types 51
bar graph, colors 52
bar graph, multiple 52
bar graphs, interpreting 52
bar graph, values 52
basic editing tools 15
basic input 14
best performance 61
buttons, learning mode 24
calendar 96, 98
cancel assessment 122
cancel, QuickTables scheduled assessment 34
Carousel, Topic (UG) 189
cartoon, show 123
certificate of completion, QuickTables 40
changing your password (UG) 196
chapters, readiness/review 85
class access, sharing 93
class activity 140
class administration 73
class archive 97
class calendar 96
class code 7
class code, how to obtain 3
class codes 94
class code (UG) 177
class content 87
class content customization 76, 77
class creation and configuration 73
class creation 73
class creation wizard 74
class duplicate settings 90
classes, create linked 134
classes to be assigned 135
Classes with Objectives (UG) 191
class forum 96
class management 44
class management (UG) 197
class options 87
class progress, progress in learning mode 59
class QuickTables 118
class report, average 53
class report, scheduled knowledge check 67
class resources 91
classroom integration of ALEKS 148
classroom teaching with ALEKS 144
class roster 95
class settings, QuickTables 31
class setup, edit content 81
class setup, select textbook 76
class summary 85
class time and topic report 64
class tools 98
cleanup tool, student 119
clear button, answer editor 15
code, financial aid access 96
Common Core standards report 68
community 49
complex expressions 16
comprehensive assessments 106
conic sections, graphing 21
content editor 84
coordinates, non-integer, graphing with 21
core readiness system 85
core readiness topics 85
courses, planning and structuring 145
create assignments in master template 133
create a Table 30
create extension 106
create linked class 73
create linked classes 134
create master template based on existing class 136
create New instructor account 126
create new master template 130
create, QuickTables 30
creation and configuration, class 73
creat new assignment 96
curriculum, ALEKS 76
custom reports 70
INDEX

DELETE, ASSIGNMENTS 99
DELETE HOMWORK 106
DELETE MASTER TEMPLATE 137
DELETE QUICKTABLES QUIZ 35
DELETE TABLE 31
DETAILED PROGRESS HISTORY 61
DETAILS, ALEKS PIE AND (UG) 184
DISABLE GRADEBOOK 112
DISPLAY OPTIONS FOR ALEKS PIE REPORT 54
DISTANCE LEARNING WITH ALEKS 149, 151
DISTRICT ACCOUNT 139
DISTRICT LEVEL LMS 139
DISTRICT LEVEL REPORTS 141
DISTRICT LEVEL SUBSCRIPTION MANAGEMENT SYSTEM 141
DISTRICT STUDENT ROSTER 140
DOMAIN, IN KNOWLEDGE SPACE THEORY 155
DOMAIN UPGRADE, SCHEDULE 124
DOWNLOAD EXCEL SPREADSHEET 51
DOWNLOAD SUMMARY 66
DRAW A GRAPH 21
DROPING LOW SCORES 112
DUPLICATE A CLASS 73
DUPLICATE A MASTER TEMPLATE 136
DUPLICATE ASSIGNMENT CONTENT 102
DUPLICATE ASSIGNMENT FROM ANOTHER CLASS 96
DUPLICATE ASSIGNMENTS 99
DUPLICATE BY CLASS CODE 73
DUPLICATE MASTER TEMPLATE 130
DUPLICATE SETTINGS, CLASS 90
DUPLICATION, ASSIGNMENTS 100
EBOOK 83
EDIT CONTENT 81
EDIT EXTENSIONS 120
EDITING CONTENT 84
EDITING HOMEWORK 106
EDITING TOOLS, BASIC 15
EDIT OBJECTIVE 79
EDIT TABLES 31
EDUCATIONAL PARADIGM IN ALEKS 143
EFFECTS OF EDITING MASTER TEMPLATE 143
ENABLE GRADEBOOK 112
END DATE FOR OBJECTIVE 78
ENDING SESSION 49

ENROLLMENT STATUS 88
ENTERING EXPRESSIONS FROM THE KEYBOARD 16
ENTIRE CLASS, ASSESSMENTS FOR 12
ERASER TOOL 21
EXCEL SPREADSHEET, DOWNLOAD 51
EXISTING CLASS, CREATE MASTER TEMPLATE 136
EXPLANATION PAGE IN LEARNING MODE 25
EXPLANATION PAGE (UG) 187
EXPONENTS, ENTERING 19
EXPRESSIONS, ALTERNATE WAYS TO ENTER 16
EXPRESSIONS, COMPLEX 16
EXTENSIONS, EDIT 120
EXTERNAL ASSIGNMENTS IN GRADEBOOK 116
EXTRA CREDIT ASSIGNMENTS 112
FACTS, ARITHMETIC 29
FACTS, MATH 29
FAQ 167
FEATURES, ADMINISTRATOR 123
FEATURES, DISTRICT 139
FEEDBACK 49
FEEDBACK IN LEARNING MODE 26
FILTERS, TOPIC (UG) 189
FINANCIAL AID ACCESS CODE 96
FORUM 96, 98
FRACTIONS, ENTERING 18
FREQUENTLY ASKED QUESTIONS 167
FULL RETAKE 103
GAME SETTINGS 32
GAMES, QUICKTABLES IN 39
GOAL TOPICS 81
GRADEBOOK, ADJUSTING STUDENT SCORES IN 117
GRADEBOOK AND OBJECTIVE COMPLETION 115
GRADEBOOK 110, 111
GRADEBOOK, EXTERNAL ASSIGNMENTS IN 116
GRADEBOOK LOG 117
GRADEBOOK SETUP 112
GRADEBOOK, STUDENT 120
GRADEBOOK (UG) 195
GRADING, ASSESSMENTS AND 106
GRADING SCALE FOR TOTAL GRADE 115
GRAPHING, ANSWER EDITOR FOR 20
GRAPHING 21
GRAPHING CONIC SECTIONS 21
GRAPHING POINTS WITH NON-INTEGER COORDINATES 21
INDEX

graphing with asymptotes 21
graph P tool 21
graph x tool 21
graph y tool 21
groups 93
guide 48
histogram, adding and subtracting bars in 21
histograms, answer editor for 21
histogram, setting bars to any value in 22
history, student 52
Home (UG) 182
homework, adding new 100
homework advanced options 104
homework basic information 101
homework content 102
homework, delete 106
homework, editing 106
homework gradebook settings 103
homework grading scale 105
homework options 100
homework, quizzes, and tests 98
implementation information 90
inbox (UG) 192
incoming and exciting student options 92
incoming and exiting 123
independent study with ALEKS 151
Indicator, Progress (UG) 188
individual time and topic report 65
inner fringes, in Knowledge Space Theory 158
input, basic 14
input, selecting 15
instances, in Knowledge Space Theory 155
institution account summary 123
institution student roster 128, 140
instruction, planning and focusing 146
instructor login 46
instructor module 43, 6
instructor module, suggestions for use 143
instructor roster 126
integration, LMS 124
interface, gradebook 111
internet access 6
interoperability, learning tools 124
introduction 1
IP address 123
items in Basic Math 203
items in Beginning Algebra 268
items in Beginning and Intermediate Algebra Combined 301
items in Business Math 747
items in Business Statistics 750
items in College Algebra 337
items in College Algebra with Trigonometry 399
items in Developmental Math 317
items in Essential Math Skills for Business 743
items in Florida Math 0018 534
items in Florida Math 0022 545
items in Florida Math 0028 563
items in Georgia MATH 0999-MATH 1111 354
items in Intermediate Algebra 287
items in Intro. to Geometry 283
items in Intro. to Statistics 476
items, in Knowledge Space Theory 155
items in Liberal Arts Math 257
items in Math Literacy 243
items in Math Placement 728
items in Math Prep. for Accounting 753
items in Math Prep. for College Physics 738
items in Math Prep. for Elementary Education 720
items in Math Toolbox 716
items in NCCCS Developmental Math Module 010 577
items in NCCCS Developmental Math Module 020 594
items in NCCCS Developmental Math Module 030 612
items in NCCCS Developmental Math Module 040 629
items in NCCCS Developmental Math Module 050 646
items in NCCCS Developmental Math Module 060 664
items in NCCCS Developmental Math Module 070 681
items in NCCCS Developmental Math Module 080 698
items in New York MAT 117 368

items in New York MA T 117 368
INDEX

items in Pre-Algebra and Introductory Algebra 225
items in Pre-Algebra 214
items in PreCalculus 419
items in Preparation for Calculus 503
items in Prep. for Beginning Algebra 479
items in Prep. for Calculus with Limits 511
items in Prep. for College Algebra 486
items in Prep. for College Algebra with Trigonometry 492
items in Prep. for Intermediate Algebra 482
items in Prep. for Math and Dosage 521
items in Prep. for PreCalculus 498
items in Prep. for Statistics 519
items in Prep. for the CSU - ELM 523
items in Statistics for the Behavioral Sciences 756
items in STEM PreCalculus 440
items in Tallahassee Community College Math Placement 730
items in Tarrant Placement Test 734
items in Texas DMAT 0093-MATH 1314 385
items in Trigonometry 460
items in UNLV Liberal Arts Math 726
keyboard, entering expressions from the 16
keyboard exercise, QuickTables 38
keyboard shortcuts, answer editor 14
keypad, answer editor 16
Knowledge Check Results (UG) 182
Knowledge Checks and Learning (UG) 182
Knowledge Checks (UG) 180, 181
knowledge per slice report 66
Knowledge Spaces, bibliography 160
Knowledge Spaces, history 155
knowledge spaces, in Knowledge Space Theory 158
Knowledge Spaces, Theory 155
Knowledge Spaces, what are 155
knowledge states, in Knowledge Space Theory 156
knowledge structures, in Knowledge Space Theory 158
Learning and Knowledge Checks (UG) 182
learning log 65
Learning log, viewing, instructor module 57
learning management system 124
learning mode, beginning 8
learning mode, explanation page 25
learning mode, feedback in 26
learning mode, practice page 24
learning mode, QuickTables 38
learning mode, review in 26
Learning Mode (UG) 187
learning mode, what is 23
learning mode workflow 24
learning mode, wrong answer page 26
learning options 89
Learning Page (UG) 187
learning sequence log 65
learning tools interoperability 124
leave of absence (UG) 199
level 85
list of, master templates 130
lists, entering 18
lms, district level 139
LMS gradebook integration 124
LMS integration 124
locate a class 44, 45, 46
locate a student 44, 45, 46
Locked Topics (UG) 191
lockout options 132
logging out 49
log, gradebook 117
login name (UG) 180
lost in knowledge check 53
LTI integration 124
Macintosh requirements 6
main navigation 44
Main Navigation Menu (UG) 186
management system, learning 124
managing an account (UG) 196
manual, structure and use of 2
master template, archive 137
master template basic settings 131
master template, create assignments in 133
master template, delete 137
master template, duplicate a 136
master template, effects of editing 138
master template reports 138
master templates list 130
master template summary 132
mathematical expressions, advanced 19
mathematical expressions, answer editor for 15
mathematical expressions, types of 17
mathematical signs, in answer editor 17
mathematics lab, in structured course 149
mathematics lab, supervised 148
math facts 29
matrices, entering 20
McGraw-Hill Campus 124
Menu, Main Navigation (UG) 186
Menu, Primary Guidance (UG) 186
message board 49
message center (UG) 192
MH Campus 124
mixed numbers 17
mixed numbers, entering 18
modules 77
monitoring class progress 150
monitoring individual progress 150
monitoring student use of ALEKS 150
move a student 119
move a student from this class to another 119
moving a student to a new class 151
multiplication, asterisk for 17
navigation 44
new administrator 140
new assignment by duplication 100
new class 73
new master template 130, 131
numbers, mixed 17
objective completion 78
Objective Details Report (UG) 194
objective, edit 79
objective end dates 78
objective mastery levels 78
objective report 57
objectives 77
Objectives, Classes with (UG) 191
objectives editor 78
Objectives, teaching with 152
objectives without end dates 78
options, lockout 132
orientation for students 6
outer fringes, in Knowledge Space Theory 158
parentheses, in answer editor 16
parent notification 87
password, changing (UG) 196
password, obtaining (UG) 180
passwords for assignments 104
PC requirements 6
pencil tool 20
percentages, entering 17
pie mastery 108
Pie report for single student 57
post objective assessment 83
practice page in learning mode 24
preparation for instructors 5
prerequisite topics 81
prevent automatic assessment 104
Primary Guidance Menu (UG) 186
Problem Page (UG) 187
progress assessments 106
progress history 57
Progress History (UG) 193
progress in 59
Progress Indicator (UG) 188
progress in knowledge check 61
progress in learning mode, class progress 59, 61
progress reporting in QuickTables 36
progress reports 58
progress reports, QuickTables 36
quick retake 103
quick start 3
QuickTables assignments 34
QuickTables 118, 29, 90
QuickTables class settings 31
QuickTables completion certificate 40
QuickTables, create 30
QuickTables games 39
QuickTables keyboard exercise 38
QuickTables learning mode 38
QuickTables progress reports 36
QuickTables quiz 35
QuickTables quiz reports 37
QuickTables, reporting in 36
quicktables reports 70
QuickTables Report (UG) 194
QuickTables scheduled assessment reports 37
QuickTables scheduled assessments 34
QuickTables settings 90
QuickTables, setting up 29
quicktables, student 122
QuickTables student settings 34
QuickTables, student use 38
QuickTables sub-navigation 29
QuickTables testing mode 38
QuickTables (UG) 199
QuickTables worksheet at student level 123
QuickTables worksheets 35
quiz, delete QuickTables 35
quiz, QuickTables 35
quiz reports, QuickTables 37
quiz, results 68
quizzes and tests 100
readiness/review chapters 85
ready to learn 53
reference 48
region tool 21
registration in ALEKS 7
registration in ALEKS (UG) 177
repeating decimals, entering 18
report 50
report, Common Core standards 68
reporting, in instructor module 50
reporting in QuickTables 36
report, knowledge per slice 66
Report, Objective Details (UG) 194
Report, Progress History (UG) 193
Report, QuickTables (UG) 194
reports, administrative 127
reports 50
reports, custom 70
reports, master template 138
reports, quicktables 70
Reports (UG) 192
report, time and topic 64
Report, Time and Topic (UG) 193
report tutorial 8
request assessment 121
Requirements, System (UG) 177
resources 49, 91, 98
restrict assignment location 101
results for homework 68
results for quiz 68
Results, Knowledge Check (UG) 182
reuse content from another assignment 102
retention assessment settings 33
review 26
review, extensive 26
Review (UG) 189
roster, administrator 140
roster, instructor 126
roster, student 140
SAH (Student Account Home) (UG) 195
save assignment for later 101
save for later 101, 76
save settings 105
scheduled assessment 107
scheduled assessment reports, QuickTables 37
scheduled assessments, QuickTables 34
scheduled assignment 107
scheduled knowledge check, Class Report 67
schedule domain upgrade 124
school level student roster 128
search 44, 45, 46
search box 44, 45, 46
search feature 44, 45, 46
section 85
selecting input 15
select textbook 76
self-paced learning with ALEKS 149
send message, students 52
set notation, entering 20
settings 47
settings, games 32
Settings (UG) 187
setting up QuickTables 29
setup, gradebook 112
setup guide for instructors 5
sharing class access 93
show cartoon 123
single student ALEKS pie report 57
small-group instruction with ALEKS 149
INDEX

special keys, answer editor 15
square roots, entering 19
square roots with multiplier, entering 19
standards report 68
state standards report 68
structure 152
Student Account Home (UG) 195
student account management 44
student account summary 118
student activity notifications 87, 88
student administration 118
student assignments 120
student cleanup tool 119
student gradebook 120
student groups 93
student history 52
student level quicktables 122
student level QuickTables worksheet 123
student progress, viewing, instructor module 63
student reports 120
student report, viewing, instructor module 57
student roster at instructor level 49
student roster 128, 49
student settings, QuickTables 34
students, how to register 3
students, preparing for ALEKS 146
student, unenroll 119
student view 97, 98
student worksheets 121
sub-navigation 44
sub-navigation, QuickTables 29
subscription management; system 127
subscription management system, district level 141
subscription, management 127
summary, account 139
summary, download 66
summary of master template 132
summary, student account 118
supplementary 85
support and consultation 175
support 48
suspend account (UG) 198
syllabi in ALEKS 203
system requirements 6
System Requirements (UG) 177
table, delete 31
tables, edit 31
teaching with ALEKS, suggestions for 143
technical requirements 6
technical support 175
tech support 48
testing mode, QuickTables 38
textbook 85
textbook integration 76
time and topic learning log 65
time and topic report 64
Time and Topic Report (UG) 193
time 108
Timeline, ALEKS (UG) 183
time zone 123
Tools Tutorial, purpose of (UG) 180
topic 108
Topic Carousel (UG) 189
Topic Filters (UG) 189
Topics, Locked (UG) 191
total grade 112
training 49
tutorial, purpose of 7
undo button, answer editor 15
unenroll student 119
units, answers with 19
upgrade, schedule domain 124
view classes 94
worksheet 27
worksheet options 87, 89
worksheets, answers to 27
worksheets, QuickTables 35
worksheets, records of 27
worksheets, student 121
wrong answer page in learning mode 26