Instructor’s Manual

for K-12 Education

Advanced Customer Solutions

ALEKS Corporation
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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 and administrators 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 programs 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 or from the classroom! ALEKS can also be integrated with a variety of textbooks.

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.

Using the Student Access Code along with the Course Code provided by the instructor, the student registers on the ALEKS website.

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 (http://www.aleks.com, Fig. 3.2). 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, school, and system levels.

The core of the system is an efficient, adaptive assessment engine that determines quickly and precisely what an individual student knows. 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 Guide.** Feel free to use the system now. If questions arise, or if you want to learn more about ALEKS, this Instructor’s Guide 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, and entry into the Learning Mode). Much of the information here is the same as that in Appendix A.

- 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.

- Appendix A contains the complete text of the ALEKS Student User Guide. 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. You give this code to the students in your class; they will use this Class Code to register. The Class Code is all your students need to register with ALEKS. When they register, they will receive a Login Name and Password; after this they will no longer need the Class Code. Students should not use the Class Code to register a second time, as doing so will create a new account in their name, unconnected with the first.

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.) To obtain the Class Code for any class, log on to your instructor account, on the Instructor Administration menu, select Class List (Sec. 7.4.34). 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 school 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.

   http://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. Enter other information as prompted and choose a password.

6. Record the Login Name provided by the system.

7. Wait for the instructor to authorize the registration. They can log off at this point and log back in later, using the Login Name and Password provided. As soon as the instructor authorizes their registration, they will be able to use their new ALEKS account.

   **NOTE.** For a complete description of how instructors authorize the registration of their students, see Sec. 3.8.

8. Begin using ALEKS by taking the student tutorial and an Initial Assessment.

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

Setup Guide for Instructors

3.1 Instructor Preparation

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 Guide, 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 (with some courses)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating System</td>
<td>Windows</td>
<td>MacOS 10.4+</td>
<td>ChromeOS</td>
</tr>
<tr>
<td>Processor</td>
<td>Any</td>
<td>Any</td>
<td>any</td>
</tr>
<tr>
<td>RAM Memory</td>
<td>64+ MB</td>
<td>64+ MB</td>
<td>any</td>
</tr>
<tr>
<td>Browser</td>
<td>Explorer 8.0+, Firefox 3+,</td>
<td>Safari 4+, Firefox 3+ (Chrome 4+</td>
<td>any</td>
</tr>
<tr>
<td></td>
<td>Chrome 4+</td>
<td>with some courses)</td>
<td>Chrome</td>
</tr>
<tr>
<td>Screen Resolution</td>
<td>800x600 (1024x768 for Chemistry)</td>
<td>800x600 (1024x768 for Chemistry)</td>
<td>any</td>
</tr>
</tbody>
</table>

Figure 3.1: System Requirements

**Java-Free Courses:** For the following course products, it is not necessary to install Java or the ALEKS plug-in, and Chromebook can be used: All Elementary School...


**Notes:**

- Where ALEKS is used on a tablet or without Java and the ALEKS plug-in, Firefox 10 and higher are supported.

Note that any kind of Internet connection (cable, ISDN, DSL, or wireless) usually available in a computer lab is adequate for use with ALEKS. If your computer lab has security safeguards in place, you will need the cooperation of your LAN administrator, system administrator, or lab technician to install the ALEKS plug-in.

### 3.3 Installation

Installation of the ALEKS plug-in takes place from the ALEKS website (Fig. 3.2):
3.3. INSTALLATION

NOTE. You must use this URL to access ALEKS. You may wish to mark this website in your browser with a Bookmark or Favorite or by creating a shortcut of some kind.

Close all applications other than your web browser before beginning installation.

Installation of the ALEKS plug-in is automatic. If you attempt to use the system directly by clicking on Free Trial or on SIGN UP NOW!, the system will automatically check to see whether your computer has a recent plug-in installed. If no plug-in is detected, the system will ask for your permission to install one.

When you grant permission, the plug-in will be installed. Following installation you must close and reopen your browser application. Installation is also automatic for registered users.

If you need to download and install the plug-in and this does not occur automatically, click on DOWNLOADS (upper right), then on the green >>Download button.

NOTE. This is not a high-risk operation for your computer. The ALEKS plug-in is a small library of Java classes which are used by your browser when you are logged on to ALEKS. They are inactive at other times and do not do anything except provide functionality for ALEKS. They can easily be removed from the computer with no other effect except that ALEKS ceases to be usable on that computer. ALEKS Corporation Customer Support will be happy to answer any questions about the plug-in.

There is also a streaming plug-in which can be used in situations where it is not possible to download or install a plug-in on the local computer. To utilize the streaming plug-in, go to the following website:
http://www.aleks.com/plugin

The ALEKS home page will appear. Log on to ALEKS as you normally would. On the screen you will see text that reads **Downloading ALEKS Streaming Plug-in.** After a few moments, depending on your internet connection, the plug-in will finish loading into memory and you will be able to use ALEKS.

**NOTE.** If the browser window being used to navigate ALEKS is closed, the streaming plug-in will need to be downloaded again by returning to www.aleks.com/plugin before signing into ALEKS again.

**Important:** The streaming plug-in should **NOT** be used in a school or college computer lab, or any other location where more than one person is using ALEKS at the same time. In any educational lab setting, the regular ALEKS plug-in **MUST** be installed. If the streaming plug-in is used in a lab setting, it may disrupt the functioning of the network.

### 3.4 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.

### 3.5 Lab Check

To ensure the best possible experience of ALEKS for your students, we recommend that you check the computer lab in which ALEKS will be used before the first session. This means installing and testing the plug-in on some or (preferably) all of the computers in the lab. If security measures are in effect, you will need the cooperation of the lab administrator to install the plug-in. For instructions on how to install and test ALEKS, see Sec. 3.3.

If the ALEKS plug-in is not pre-installed and tested in this way, it will be installed when your students first access the system. This will take away a certain amount of time from their use of the system. Also, if there is some problem in the lab that makes installation difficult, it is better to resolve it before the students arrive.
3.6 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. It is also advisable for students to have pencil and paper for assessments in ALEKS. A calculator is included in ALEKS when needed. Remind your students that help is not permitted during the assessment, because this will impair the accuracy of the results, and consequently hinder that student’s progress in the Learning Mode.

If possible, the students’ first session with ALEKS should allow them to complete their assessments and begin work in the Learning Mode. If the students are unable to finish their assessments during this time, ALEKS will automatically keep their place. The next time the students log on to ALEKS they may continue without any loss of work.

3.7 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 (Sec. 3.3).

NOTE. In order to register, all students must have 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 Student User 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.

At the end of Registration, students are asked to wait for their instructor’s authorization. For a complete description of how instructors authorize the registration of their students, see Sec. 3.8. The students can log off at this point and log back in later, using the Login Name and Password provided. As soon as the instructor authorizes their registration they can start using ALEKS.
3.8 Instructor Authorization of Student Registration

The following is a more detailed description of the student registration process, highlighting the actions by which you authorize students’ registration.

A student wishing to register with ALEKS begins on the ALEKS home page by clicking on the link marked **SIGN UP NOW**, located to the left of the home page, under the space for Registered Users (Fig. 3.2).

![Figure 3.3: Registration](image)

Next the student is asked to enter the Class Code which has been provided by the instructor (Fig. 3.3). Since each Class Code is assigned to a class defined by grade level, the Class Code entered by the student tells ALEKS the grade level at which the student is seeking to register. The spaces for this code are in the left-hand part of the window. Do not use the button on the right-hand side of the window.

Following entry of the Class Code, the student is given information on the class selected and on the process of beginning to use ALEKS.

Subsequently, ALEKS asks for full first and last names, and then provides a Login Name consisting of the student’s first initial, last name, and usually a number (Fig. 3.4). The student is also provided with a password.

Students have the opportunity to enter an email address and a Student ID number. Students are not required to provide this information.
At this point the student is told that authorization is needed from the instructor before registration can be completed (Fig. 3.5). Until the instructor logs onto ALEKS and provides authorization, the student will not be able to get further than this page. Once authorization is provided, the student will be able to click Next and begin using ALEKS. If the instructor cannot authorize immediately, the student is able to log off at this point and log back on at a later time using the Login Name and Password provided; if the instructor has authorized registration, the student will then begin using ALEKS.

In order to authorize registration, log on to your instructor account using the Login Name and Password received at registration or from ALEKS Corporation. If there are students in the class awaiting registration, on your Dashboard, you will see Authorize Students (Fig. 3.6). To authorize students, select Authorize Students from the Instructor Administration menu (Fig. 3.7).
CHAPTER 3. SETUP GUIDE FOR INSTRUCTORS

Figure 3.5: Registration (continued)

Figure 3.6: Registration (continued)
3.9 Pre-Registration

The ALEKS Pre-Registration function allows teachers to register a group of students at the same time, without the students’ needing to register themselves individually. To use this feature, from Home, select Instructor Administration, followed by Enroll/Pre-Register. This link is also available on the Class Administration menu.

You have the option of copying and pasting data from an existing Excel document or other electronic spreadsheet or of entering the students’ information manually. In either case, the minimum information required is the first and last names of the students; other information is optional. If you choose to copy-and-paste, there is a text box that allows you to paste the data directly. The information will then be organized into rows and columns, and you can select the headings for each column. Once the data is saved, the Login Names and Passwords for the new accounts will be displayed, and will also be sent to you as a message.

If the By Typing option is selected, you will see a spreadsheet where you can enter the First Names, Last Names, and other data for your students. The procedure is otherwise as described above.

NOTE. When registering students in this manner, the school must have the appropriate number and type of subscriptions available to register all of the students in the class.

3.10 Batch Registration

ALEKS school and district administrators can quickly register multiple students using the School and District Batch Registration feature. The Batch Registration feature is intended to be used when registering 100 or more students. If registering less than 100 students, the ALEKS Pre-Registration feature is preferable to Batch Registration.

ALEKS Batch Registration allows ALEKS administrators to: 
• Generate new ALEKS classes.
• Register new students in the appropriate classes.
• Generate new ALEKS instructors accounts.

3.10.1 Batch Registration Process

The Batch Registration feature can be accessed through your ALEKS administrator account as follows:

School Administrators

• To batch register students, select Home, Institution Administration, followed by Batch Registration.

District Administrators

• To batch register students at more than one school in the district, select Home, Institution Administration, followed by Batch Registration.
• To batch register students at a school, select a school from the Institution tab, select Subscriptions, followed by Batch Registration.

Before you begin:

1. Download and complete the Batch Template (See Sec. 3.10.2).
2. Check the number of subscriptions you have available (Fig. 3.8).

**STEP 1. Begin Batch Registration**

- Select a starting term from the drop-down menu.
- Select a subscription type. **Use one subscription type per Batch Registration process.**
- When more subscriptions are needed you can use the link available to order more.

**STEP 2. Upload the Batch Template**

- Use the **Browse** button to upload the Batch Template file (only the extensions .xls and .xlsx are accepted).
- Click on the **Next** button to begin the upload.

**STEP 3. Summary of information**

- Review the information displayed on the screen after the upload.
- If satisfied with the data entered, click to authorize the use of the required subscriptions or cancel the Batch Registration process.

After the administrator authorizes the batch to be processed, they will receive an email indicating that a Batch Registration is in process. The email is a summary of the subscription type being used and approximately how long the process will take.

**NOTE.** Students already registered, but included in the Batch Template, will not be registered twice. These students will appear in red.

![Batch Template](image)

**Figure 3.9: Batch Template**

### 3.10.2 Batch Template

The Batch Template is a preformatted spreadsheet that contains column headers based on the required information needed to process a Batch Registration. Administrators should not edit, add, delete, or rearrange any of the columns in the spreadsheet. Administrators must click on the **Download the Batch Template (excel spreadsheet)** link and save it to their computer (Fig. 3.8). If you need guidance on how to fill out the
Batch Template, click on the View Batch Template instructions and required information link. Clicking on this link will open a pop-up. Administrators can refer to this pop-up while entering data into the Batch Template.

ALEKS administrators must enter required information in all column headers highlighted in yellow (Fig. 3.9). Once the Batch Template is filled out, it is important for you to check the spreadsheet for any incomplete data before processing the Batch Registration. A correctly completed spreadsheet will help prevent having to correct errors that may be found during the registration process. Batch Registration allows instructors to register up to 10,000 students per batch process.

3.10.3 Batch Confirmation

ALEKS automatically sends a confirmation message to the administrator when the Batch Registration is completed. Instructors of each newly created class will receive a message containing the login names and passwords for the registered students. The administrator will also receive a copy of each message.

3.11 Tutorial

Following Registration, the students enter a brief tutorial on the use of ALEKS input tools, also called the Answer Editor Tutorial (Sec. 4.5). 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.

NOTE. The tutorial is not intended to teach mathematical knowledge, but rather to train students in using the system tools. If students need a “refresher” on the use of the system tools, it is always possible to click on the “Help” button, which gives access to the sections of the tutorial (Sec. 5.2.15).

3.12 First Assessment

Immediately after the tutorial, students proceed to their Initial Assessment (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.
3.13 Report Tutorial

At the conclusion of the Initial Assessment, the student is given a brief tutorial on how to interpret the Assessment Report. This will be in the form of a color-coded pie chart, with accompanying textual information (Sec. 4.12).

Explain to students that subsequent assessments will produce only the pie chart. The pie chart also appears in the Learning Mode each time a new concept is mastered and added to the pie. If the student wishes to choose a new topic, the pie can always be accessed by clicking the MyPie button.

3.14 Beginning the Learning Mode

Students enter the Learning Mode by clicking on one of the topics contained in their pie chart (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.

4.1 Assessments in ALEKS

The ALEKS assessment 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, interim, 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. 3.12). The student is clearly informed that the assessment 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 haven’t learned this yet). 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.

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. 3.12).

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 haven’t learned this yet 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 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. 3.12). 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. 7.4.24).
4.3.2 Automatic Assessments

Additional assessments 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.

Note that a Progress, Login Time, or Periodic Assessment “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 Assignments, and then select New Scheduled Assessment. For example, the instructor, department, or school may wish to have “interim” 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 Buttons

The Assessment Mode (Fig. 4.1) has a reduced set of active menu buttons. The student being assessed is able to leave the system, by clicking on their name (top right) followed by Log out, or get help on use of the Answer Editor by using the Help button. Other buttons appear, but they are disabled. All of the ALEKS menu buttons are enabled in the Learning Mode (Sec. 5.2).

The two aspects of the ALEKS interface relevant to work in the Assessment Mode are the Answer Editor and the Assessment Report (Sec. 4.12).

4.5 Answer Editor

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: an Answer Editor for mathematical expressions, an Answer Editor for the number line, 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. 3.11).

In much of what follows in the tutorial, 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.
CHAPTER 4. ASSESSMENT MODE

4.6 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). These buttons have labels in the Tutorial, but not afterwards. 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></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></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

4.6.1 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
4.7. **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 (ahead)</td>
</tr>
<tr>
<td>Tab - Enter -</td>
<td></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).

### 4.6.2 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).

### 4.6.3 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).

### 4.6.4 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).

### 4.7 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.

4.7.1 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).

4.7.2 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.

4.7.3 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.

4.7.4 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.
4.7.5 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.

4.7.6 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.)

4.7.7 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.

4.8 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

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.
CHAPTER 4. ASSESSMENT MODE

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 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 decimals can be entered in more than one way, but each way requires use of the repeating bar button:

- 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.

Fractions 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.
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. 4.7.3).

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.

4.9 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.

### 4.10 The Answer Editor for Graphing

![Image of Answer Editor for Graphing](Figure 4.4: 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 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 number line, select the eraser tool and click on any part of a line, arc, or other component to remove it.

4.11 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).

Figure 4.5: The Answer Editor for Histograms
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.

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.

4.12 Assessment Report

At the conclusion of an assessment, the system presents the Assessment Report. The interpretation of this report is the same as for pie chart displays found in other places within ALEKS (such as in MyPie). The standard report format is used for all assessment reports (Fig. 4.6).

![Image of Assessment Report]

Figure 4.6: Assessment Report

4.12.1 Interpreting the Pie Chart

A pie chart expresses the results of a given assessment. It contains the following types of information:
4.13. READY TO LEARN

- The mathematics topics included in the program.
- The relative size of the parts of the mathematics program.
- To what extent the student has mastered each part of the mathematics program, according to the assessment results.

Each color-coded slice of the pie chart refers to a particular part of the program, such as **Whole Numbers** or **Proportions and Percents**. The portion of the chart taken up by any one area (slice) reflects the size of that area relative to others in the given program.

The degree to which each slice is filled by darker color shows the extent to which the student has mastered that area.

By placing the pointer over one of the slices of the pie chart, the slice expands out of the pie, displaying a list of concepts the student is currently ready to learn. Not every slice necessarily contains such a list, even if the slice has not yet been fully mastered. This is because a student may not be ready to learn a concept in a given slice before concepts in another slice have been mastered. Clicking on any one of these concepts takes the user into the Learning Mode to begin working on that concept.

### 4.12.2 State Standards Report

In some states and for some classes, there will also be an entry in this display giving access to the state standards report for this student. For a complete description of this feature, see Sec. 7.3.27.

### 4.13 Ready to Learn

The concepts given as most ready to learn do not represent a casual selection of concepts that the student has not yet mastered. By resuming study with one of these concepts, the student is following the most efficient path to mastery of the complete class (Chap. 9).

### 4.14 Progress Bars

Another graphic expression of the student’s progress is given by the bar graphs at the bottom of the report (**History**). These represent the general extent of the student’s mastery:

- The blue portion of each bar represents material that was learned as of the given assessment.
• The green portion represents material mastered in the Learning Mode since that assessment.

• The yellow portion represents material belonging to the curriculum for the given level that has yet to be learned.

When the bar is entirely blue, or a combination of blue and green, the student has completed the curriculum for that class.
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 student has a variety of interface features when using their account. These features 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.

5.2.1 Ending an ALEKS Session

Students can end a session with ALEKS in two ways: click on their name (top right), followed by Log out, or simply close the browser window. Also, if no input is supplied to the system for 30 minutes, the session is terminated automatically. Whichever way you exit, the system will return you to the same place when you next log in to ALEKS.

5.2.2 English

The Language menu can be used to switch back and forth between English and Spanish versions of ALEKS. The Spanish translation of ALEKS is complete for all levels.

5.2.3 Resources

Students can access these resources through the Resources page and/or Explain pages of ALEKS based on the accessibility options selected by the instructor. For more details on Resources, see Sec. 7.4.30.

5.2.4 Options

The Options link in ALEKS contains user and class information specific to the student. The student can view their ALEKS Reference account and Email address.

The Report link connects the student to a menu of all assessment reports (Sec. 5.2.5). The History link displays a list of concepts the student has worked on recently, indicating the level of mastery achieved and providing the opportunity to return to that concept for further practice (see also Review, Sec. 5.2.8).
5.2. INTERFACE FEATURES

The **Options** page includes the time the student has currently spent in the ALEKS class. Subscription information is displayed, including the beginning and expiration dates of the account (Fig. 5.1). To return to Learning Mode, click on the **Done** button.

### 5.2.5 Report

Clicking on the **Report** link displays a drop-down menu of all past assessments and time(s) in Learning Mode. Any assessment or learning mode session can be selected (by date) from the menu. Click **OK** to see the results. The results will include the following:

- Pie Chart that graphically displays the student’s progress.
- Topics Recently Learned.
- Topics Ready to Learn.
- Topics the Student Should Try Again (these topics are also the Topics Lost in Recent Assessment).
- Progress Bar Graphs (Sec. 4.14).

Some ALEKS course products include a Common Core Standards report in the student’s account. This report displays the student’s mastery of the Common Core Standards in the ALEKS class. The student also has the Time and Topic Report available under their **Report** link. This report displays the amount of time spent each day in ALEKS as well as the topics the student has attempted and mastered each day. (The number of topics attempted does not include topics the student worked on in Review mode.) To return to Learning Mode, click on the **Done** button.
5.2.6 Dictionary

The online dictionary provides scientific and mathematical terms and definitions used in the class. Clicking on the Dictionary button produces a new browser window tab, with a list of section(s) correlated to the pie chart. Students can also access the Dictionary by clicking on underlined words (hypertext links) anywhere in the Learning Mode. Click on any section(s) to access the definition of terms used in that section. Dictionary definitions are designed to present concepts in their simplest form first, moving into greater depth as the definition proceeds (Fig. 5.2).

The Dictionary screen also includes a text entry field to quickly search for key terms and a link to access the Complete Mathematics Dictionary. Selecting the Complete Mathematics Dictionary link gives access to an index of all the Dictionary’s headings and subheadings. Beneath the index is the Dictionary entry, with links to other entries and graphic illustrations as appropriate. Close the Dictionary window to return to the Learning Mode.

5.2.7 Calculator

The Calculator button is available for topics where ALEKS permits use of a calculator. Click on this button to use the online calculator.
5.2 INTERFACE FEATURES

5.2.8 Review

The Review button gives a list of concepts the student has recently mastered in the Learning Mode or Assessment. The Click here for more review link gives a comprehensive list of all topics mastered by the student. For more information see Sec. 5.5.

5.2.9 Class Forum

The student can access the Class Forum (when it has been enabled by the instructor) by clicking on the Class Forum button. For more information see Sec. 7.4.40.

5.2.10 Gradebook

The student can access the Gradebook for the class by clicking on the Gradebook button. For more information see Sec. 7.4.29.

5.2.11 Calendar

The student can access the Calendar for the class by clicking on the Calendar button. For more information see Sec. 7.4.41.

5.2.12 Worksheet

The student may obtain an individualized, printable homework sheet by clicking Worksheet. The questions on the worksheet are based on the student’s most recent work in ALEKS. For more information see Sec. 5.6.

5.2.13 Assignments

The student can complete an assignment (Homework, Quiz, Test, or Scheduled Assessment) assigned by the instructor or check the results of assignments by clicking on the Assignments button. If assignments are currently available, the student will see an orange burst on the Assignments button. If the assignment has been scheduled by the instructor, so that the student must begin the assignment as soon as it becomes available, the student will be “forced” into the assignment on login to ALEKS (Sec. 7.5).
5.2.14  Inbox

The Inbox allows the student to send messages to the instructor requesting assistance with a topic in ALEKS, help with a specific problem, or for other purposes. The student can compose a message by clicking on Compose. It is possible to include mathematical notation and illustrations in the message as follows:

1. Click the “math” symbol at the right end of the tool bar. This will switch the user into the “Enhanced message editor,” with its robust set of math tools.
2. Click 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, the student can send a specific problem type they are working on to their instructor. This message will contain a link to a screenshot of the practice problem. With the practice problem on the screen, the specific problem may be attached to the email as follows:

1. Click on the Inbox link. This will take you into the ALEKS Message Center.
2. Click on the Compose button.
3. Below the body message section, check the box next to “Attach Page.”
4. Click on the Send button to send the message.

It is possible to include attachments up to 2MB in size (Sec. 7.2.2). It is also possible to send messages directly to ALEKS Corporation. Click on Done to return to the Learning Mode.

5.2.15  Help

The Help button in the Assessment and Learning Modes provides detailed assistance with use of the Answer Editor (Fig. 5.3). The Help Menu contains a list of questions on how to use the various icons of the Answer Editor; clicking on one of the items will take you through a brief tutorial on the use of the icon.

5.2.16  MyPie

Clicking on MyPie produces a pie chart display reflecting the current state of the student’s mastery in the Learning Mode (Sec. 4.12). The student can use this button to select a new concept to work on from among those currently most “ready to learn.”
5.3. THE LEARNING MODE INTERFACE

5.3. The Learning Mode Interface

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. Different examples of how to solve the problems will be displayed on the “Explain” pages. The “Explain” pages link to definitions of terms, a comprehensive dictionary, and a “Help” option. Students receive immediate feedback on their answers.

5.3.1 Practice Page

Clicking on the name of a topic from the student’s pie chart 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. 5.4). 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.

Below the Answer Editor are buttons labeled Next and Explain. Clicking on Next 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. Next, a new problem is presented. In the case where the topic is considered mastered, the student will receive two options; the student can choose to click Done to move on to a different topic, or they can click More Practice to practice the topic further.

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 on the Explain button.

5.3.2 Explanation Page

The Explanation Page (Fig. 5.5) 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, a reference will appear at the bottom of the Explanation Page showing the chapter and section of the textbook where additional information about the concept may be found (Sec. 7.4.4). Additional tutorial material and interactive applications may also be found through links at the bottom of the Explanation Page.

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 Practice 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. You can also return to the pie chart to choose a different topic by clicking on the MyPie icon.

5.3.3 Wrong Answer Page

The Wrong Answer Page will appear only after an incorrect answer has been submitted on the practice page (Fig. 5.6). The system may explain why the answer is incorrect.
5.3. **THE LEARNING MODE INTERFACE**

Figure 5.5: Explanation Page

**Finding an angle measure for a triangle with an extended side**

Find the value of $x$.

\[ \begin{array}{c}
134^\circ \\
91^\circ \\
\end{array} \]

The $134^\circ$ angle and an angle of the triangle are supplementary. So this angle measures $180 - 134 = 46^\circ$.

\[ \begin{array}{c}
134^\circ \\
46^\circ \\
91^\circ \\
\end{array} \]

The sum of the angle measures of a triangle is $180^\circ$. So we get the following equation.

\[ x + 46 + 37 = 180 \]

We solve for $x$:

\[ x = 180 - 46 - 37 = 37 \]

The answer is $x = 37$.

Figure 5.6: Wrong Answer Page

**ALEKS**

One of the digits in your answer is wrong. Check your work carefully.

Find the value of $x$.

\[ \begin{array}{c}
42^\circ \\
\end{array} \]

\[ x = 13^\circ \]

Try to answer again.
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 Explain 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. 5.6). 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

![Review](image)

Figure 5.7: Review
A student using ALEKS can review topics recently mastered in the Learning Mode or Assessment by using the Review button (Fig. 5.7). Clicking on any of these topics provides the chance for additional practice; this is particularly useful when the student knows that a new assessment is imminent. Click here for more review gives a comprehensive list of topics mastered by the student. ALEKS will periodically offer a student the option of reviewing past material at the time of login. The student can select a topic to review from these recently mastered topics. Clicking on the Done button will return the student to the Learning Mode.

In Review, a student can sort class topics either by “Objectives View” or by “ALEKS View.” “Objectives View” organizes topics based on the textbook integration or intermediate objectives set up by the instructor. “ALEKS View” organizes topics based on the pie slices.

NOTE. Work done in Review mode does not affect the student’s pie chart or progress records.

5.6 Worksheet

Clicking the Worksheet button generates an individualized, printable homework sheet (in PDF format) containing a number of questions based on the student’s most recent work in ALEKS (Fig. 5.8). 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.
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 and as an independent ALEKS course product. 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 (Fig. 6.1).

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).
6.1. SETTING UP QUICKTABLES FOR YOUR 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).

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.

Figure 6.2: Create a Table
Use of QuickTables should be limited to ensure that students also spend time working in the regular ALEKS class (if applicable). The benefits of using the type of drills that QuickTables provides are greatest when concentrated in relatively short and well-spaced sessions. These short “bursts” of activity help keep the students’ concentration sharp.

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 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.
6.1. Setting Up QuickTables for Your Class

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:**
6.3. REPORTING YOUR STUDENTS’ PROGRESS IN QUICKTABLES

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.

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:
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
6.4. **HOW YOUR STUDENTS USE QUICKTABLES**

![Figure 6.5: QuickTables Learning Display](image)

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).
Chapter 7

Instructor Module

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.

Figure 7.1: Account Home Screen
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

![Search Box](image)

Figure 7.2: Search Box

The search box can be found at the top of any page in the Instructor Module. It can be used to search all pages in the Instructor Module, with the exceptions of the ALEKS Community and the Class Forum. To search for a class, student, or assignment, type a search query in the box and hit **Enter**, or click the search icon next to the box.

7.1.2 Main Navigation

![Main Navigation](image)

Figure 7.3: Main Navigation

Instructors have access to a two-level hierarchy, class and student. 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. NAVIGATION

7.1.3 Sub-Navigation

The sub-Navigation (Fig. 7.4) displays menus related to the selected item in the main navigation (class or student). 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 (Fig. 7.5) displays snapshots that provide quick overviews of important data applicable to the level currently selected. 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:

- Press and hold your finger on the tablet screen over the title of the dashboard tile.
- Drag the tile to the desired location.
• 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:

• Move the mouse over the title of the dashboard tile.
• Click and hold. You will see the tile become slightly larger.
• Move the tile to the desired location.
• 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 simply 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 account home screen.

7.2 Instructor Account

Figure 7.6: Account Drop-Down Menu
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. Details for each option are given below.

### 7.2.1 Account Settings

![Account Summary](image)

The **Account Summary** page contains your account settings, contact information, and email preferences. 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

The **ALEKS Message Center** is where messages can be sent from instructor to student and to ALEKS Customer Support. 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.
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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 Guide

The **Reference Guide** is a “Quick Start” summary version of this manual. You can view the guide while navigating through your account, or it can be printed out and used as a reference. The guide is also available on the ALEKS website Training Center.

7.2.4 Customer Support

Clicking on **Customer Support** opens an ALEKS customer support form.

7.2.5 Training & Resources

**Training & Resources** opens a window to the Training and Resources section on the ALEKS website. You can schedule a training session with an ALEKS specialist, register...
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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. 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.

Instructors can use the following filters to display the various groups of students in the roster:

Active
All students currently in the class are tagged as active and displayed by default.

Former
Students are tagged with this status when they were in this class and have moved/exited 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 setting shows information for all Active students.

Instructors can also use the Class Roster (Sec. 7.4.36) to view students information in the selected class. Administrators, however, have access to the institution Student Roster to view all students registered at the school (Sec. 7.9.11).

7.3 Reports

Figure 7.10: Student Roster (Instructor Level)

Figure 7.11: Reporting
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.

7.3.1 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. 7.3.12)
- Time and Topic (Sec. 7.3.19)
- Knowledge Per Slice (Sec. 7.3.22)
- Assignments (Sec. 7.3.23)
- Standards (Sec. 7.3.26)
- QuickTables (Sec. 7.3.28)
- Custom Reports (Sec. 7.3.29)

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 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 most class reports and from the Gradebook as follows:

- To select specific students, click on the numbered icon next to students’ names. The icons will change from grey to yellow. Re-clicking on the icon will deselect the student.
By clicking on **All**, instructors can select all students in the report.

Clicking on the **Send Message to Selected Students** link opens a message in the ALEKS Inbox. The students’ names will be automatically pre-filled in the “Bcc” field of the email message.

### 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 (Progress Monitoring) (Sec. 7.3.10)
- Progress Report for the Class (Detailed Progress History) (Sec. 7.3.17)
- Progress Report for a Single Student (Sec. 7.3.18)

**NOTE.** Depending on the options selected by the administrator at the school, instructors are able to see report history for only the classes they have taught or maybe report history 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 assessment.
- **Green**
  - Means that tentative mastery was achieved in Learning Mode.
- **Yellow**
  - Indicates the part of the course material not mastered.
- **Blank (white)**
  - Indicates an assessment is in progress.
- **Grey**
  - Means the student was moved from a different course product; any assessments from the earlier course product will appear greyed out in the new class.
Aquamarine

Shows progress made between the first and latest assessment.

An asterisk

Appearing by a greyed-out bar graph or any other color indicates, in some reports, that a new assessment 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 Class Mastery 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 assessments 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. 7.3.18).
- Clicking on the date for an assessment takes you to a detailed (pie chart) report for that assessment (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.

This report only includes results for students who have completed at least an Initial Assessment (Fig. 7.12). The ALEKS Pie Mastery for all students in the class and the number of topics completed are initially displayed in the top right.
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Figure 7.12: ALEKS Pie

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 assessment, 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

Figure 7.13: Student Mastery
Instructors can use the Show drop-down menu to filter the report by Current Learning, Most Recent Assessment, or Initial Assessment.

- In the **Current Learning** view, the top Ready to Learn Topics for the entire pie are listed to the right of the pie. This shows data is based on the students’ most recent progress in the Learning Mode.

- In the **Most Recent Assessment** view, the top Topics Lost in Recent Assessment for the entire pie are listed. This shows data based on the most recent assessment results.

- In the **Initial Assessment** view, the top Topics Mastered in Initial Assessment for the entire pie are listed. This shows data based on the Initial Assessment.

These views of student results maybe 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 ripest 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 meaning depending on the current view:

**Current Learning:**

- Mastered - these are topics added to the pie after assessment in learning mode.
- Not Mastered - 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 not mastered category, and are the topics the students have attempted but not mastered.

**Most Recent Assessment:**

- Mastered - these are the topics known based on the most recent assessment.
- Not Mastered - these are the topics the students do not know, based on the most recent assessment.
• 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 assessment.

• Lost in Recent Assessment - these are topics the students knew at one point, but have lost because the most recent assessment determined that the students did not know the topic anymore.

Initial Assessment:

• Mastered - these are the topics known based on the Initial Assessment.

• Not Mastered - these are the topics the students do not know, based on the Initial Assessment.

• Ready to Learn - what the students are ready to learn now, based on the Initial Assessment.

Other features:

• The Objectives tab (when present), will contain prerequisite topics if the TREC tool added items to the class (Sec. 7.4.9).

• 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.

Excel downloads. Students who have not taken an Initial Assessment 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 objective is 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 be the most recent Assessment or Learning report. Reports for other dates may be chosen by selecting dates from the drop-down menu at the top of the page (Fig. 7.14). A Learning report shows the student’s most recent progress in the Learning Mode (since the preceding assessment and prior to the following assessment); an Assessment report shows the student’s knowledge as of the given assessment.

The shading on the pie chart indicates the level of the student’s mastery in each area: the darker portion represents what the student has mastered, and the lighter portion represents what the student has yet to learn. Scrolling over each pie slice will display the topics the student is ready to learn now. Click on a topic to generate a unique instance of the problem and an explanation. These sample problems can be printed for use in the student’s portfolio.
7.3. REPORTS

Objective Pie View. When instructors are viewing a student’s latest learning result, they can toggle their view from the full ALEKS Pie view to the Objective Pie view by clicking on the “Switch to Objective Pie” link. For more details about this feature, see Sec. 7.3.11.

Show me what the student sees. This link will be available for a student who has completed the current Objective in a class where Objectives with end dates are in use. By default, the report uses the current textbook chapter or Objective for the class as a frame of reference, that is, the last chapter or Objective whose due date has not passed. To switch to the frame of reference for a student working ahead of the current Objective, click on Show me what the student sees. In classes where Objective completion by Mastery Level (without end dates) is in use, the instructor and the student will always have the same frame of reference. For more details about Objectives with End dates and Mastery Levels, see Sec. 7.4.6.

In addition to representing the student’s individual learning path through the class, the information in this report can be used to create and maintain comprehensive Individualized Education Plans (IEPs) and guide effective one-on-one instruction. See the next section for details of how to use the condensed format of this report to view key student data and how to print copies of the report for inclusion in student portfolios.
7.3.9 Supporting Individualized Education Plans (IEPs)

The ALEKS Pie Report for a single student provides progress data for an individual student and serves as support for an Individual Education Plan (IEP). The tools included in this report to support IEPs are the following (Fig. 7.15):

**Standards**

Instructors can quickly determine how a student is progressing relative to the State or Common Core State Standards. Click on the Standards Report link; a new window will open with a detailed breakdown of the student’s progress against the standards. Expand the Details section for any Standard to see which topics the student has mastered and not mastered; of the topics not mastered, topics that the student is ready to learn are highlighted in yellow with the notation (RL).

**Ready to Learn next**

Expand this section to see topics the student is ready to learn next. Instructors can use the student’s list of topics ready to learn, as well as what the student has attempted but not mastered, to optimize one-on-one instruction.

**What the student can do (Present Levels of Performance)**

Expand this section to see topics the student has mastered up to a certain date; the time frame can be changed by selecting a different end-point from the drop-down menu at the top of the report.

![Figure 7.15: Supporting Individualized Education Plans](image)
7.3. REPORTS

7.3.10 Progress Monitoring

This section includes three components that provide a detailed overview of the student’s progress in ALEKS.

**Time and Topic**

This section dynamically tracks the student’s daily learning progress and time spent in the program. Click on the link to open a new window with a detailed Time and Topic Report for this student. Instructors can use this report to determine whether the student is making adequate progress for the time they are spending in ALEKS and exactly which topics they have attempted, but not yet mastered. To see the student’s Learning Sequence Log for a certain date, click on the date link. Here, the time and result of the student’s work on each topic can be seen. By clicking on the Result link (Wrong, Correct, or Added to Pie), it is possible to see the specific problem the student worked on, along with their answer and the solution. Instructors can also use this report to ensure that students are meeting their weekly time requirement for ALEKS (Sec. 7.3.21).

**Detailed Progress History**

This section contains the student’s progress for the current class. The assessment currently being viewed is indicated with an orange dot (Fig. 7.16). To view the student’s progress in other classes, the instructor can click on the View link under Previous Results (if applicable). Student progress history can also be viewed on a student’s pie report by clicking on any assessment date link from a current or previous class (Sec. 7.3.4).

**Learning Log/Recent Student Learning (Learning Reports only)**

This section highlights what the student has recently worked on in Learning Mode.
Instructors can use this information to review topics the student has recently learned.

7.3.11 Objective Pie View

The pie chart appears differently, depending on whether Objectives are used with or without due dates.

**Objectives with End Dates**

The Objective Pie encompasses all the topics in the current Objective and may contain Goal topics and Prerequisite topics (Fig. 7.17). Goal topics are all the topics the student must master for the current Objective. Prerequisite topics are those that will help the student learn some or all of the goal topics.
Objectives with Mastery Levels (without End Dates)

The Objective Pie encompasses all the topics in the current Objective and may contain Goal topics, Prerequisite topics, and Other topics (Fig. 7.18). Goal topics are all the topics the student must master for the current Objective. Prerequisite topics are those that will help the student learn some or all of the goal topics. The Other topics slice shows topics from earlier Objectives that have not yet been mastered.

7.3.12 Progress Reports

Using the Progress Reports, instructors can view student progress on assessments and in Learning Mode at various time intervals. 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 (Fig. 7.19). A description of the report selected will be displayed below the drop-down menu.

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.

7.3.13 Learning Progress Since Latest Assessment

This report shows each student’s progress in Learning Mode since the most recent assessment. It includes total hours spent in ALEKS, the last login date, the last assessment start and end date, total time in assessment, course performance displayed in a bar graph, and learning rates (Fig. 7.20). There are several ways this report can be used:

- Identify which students are ahead, on pace, or behind in the class.
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- 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.

7.3.14 Most Recent Assessment

This report can be used to view each student’s mastery based on the most recent assessment taken (Fig. 7.21).
7.3. REPORTS

7.3.15 Best Performance in Learning Mode Over Time

![Figure 7.22: Best Performance in Learning Mode Over Time](image)

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. 7.22). Set the date range using the Change link, then click Apply.

7.3.16 Progress in Assessment Over Time

![Figure 7.23: Progress in Assessment Over Time](image)

This report can be used to view each student’s progress between the first and last assessments within any date range up to one year in the past (Fig. 7.23). Set the date range using the Change link, then click Apply.
7.3.17 Detailed Progress History

This report is an expanded version of Learning Progress Since Latest Assessment. It shows a segment of the student’s learning history, including assessments 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). The current class can be distinguished by the (Current Class) label (Fig. 7.25). Clicking on a student’s name will take the instructor to the individual progress report for the student (Sec. 7.3.18). Clicking on an assessment 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).

- Each bar graph represents an assessment 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 assessment are to the left of each bar graph.

7.3.18 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. There is one row for each assessment that the student has taken, with dates (linked to the Report page for that assessment) (Fig. 7.26). Clicking on the All Results tab will display the student’s
Figure 7.25: Progress History

Figure 7.26: Progress Report for a Single Student
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current and previous class progress results (if applicable). Clicking on an assessment
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
  assessment.
- The green portion of the bar measures progress made in the Learning Mode sub-
  sequent to that assessment (but before the next assessment, if there is one).
- The percentage values beneath the bars for the blue and green portions represent
  the assessment mastery, and subsequent progress in Learning Mode respectively. For
  example, 57+9% means that the last assessment showed 57% mastery, and
  that subsequent work in the Learning Mode added another 9% mastery.
- Information on each assessment and total hours spent subsequently in the Learning
  Mode (up to the time of the next assessment) with average numbers of items gained
  per hour is also provided.

7.3.19 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.)

7.3.20 Class Time and Topic Report

The following points describe the features of the class Time and Topic Report:

- 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 (Fig. 7.27).
- If a student has spent some time on an ALEKS assessment during that day, the
  session will be marked with a blue triangle in the upper right-hand corner.
7.3. REPORTS

Figure 7.27: Class Time and Topic Report

- 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 assessments 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. 7.3.21).

7.3.21 Individual Time and Topic Report

The Individual Time and Topic report gives detailed information on the topics each student has attempted and mastered. Each topic attempted or added to the Pie can be viewed, with an example of that problem type. To see the student’s Learning Sequence Log on a certain date, click on the date link. The Learning Sequence Log will display the time and result of the attempted topic. By clicking on the Result link (Wrong, Correct, or Added to Pie), it is possible to see specific problem the student worked on, along with their answer and the solution (Fig. 7.28).

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 (Sec. 5.2.5).

### 7.3.22 Knowledge Per Slice

![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. It includes overall class mastery followed by a breakdown of progress in each pie slice (Fig. 7.29).

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 Assessment) and current knowledge state for each pie slice. The report shows this data for both the class and individual student.

### 7.3.23 Assignment Reports

[Table: Assignment Reports]

Figure 7.30: All 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. The Show drop-down menu can be used to filter the assignments by Homework, Quiz, Test, or Assessment (Fig. 7.30). Clicking on an assignment name will show the detailed class results for that assignment.

### 7.3.24 Scheduled Assessment 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. 7.31).

- 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.

### 7.3.25 Homework, Quiz, and Test Results

This report shows the results on any given quiz and can be generated for the class or for individual students (Fig. 7.32). 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.

### 7.3.26 Class Standards Report
The Standards report analyzes the current progress of the class in terms of the strands and substrands of the applicable standards (Fig. 7.33). For each strand, a vertical bar graph at the top of the display shows the mastery of that strand as measured by ALEKS; the numbers beneath each bar indicate the proportion of substrands under that strand which have been satisfied by the students, according to the parameters set beneath the bars.

The options appearing beneath the bars enable the instructor to choose:

- What percentage of ALEKS items supporting a substrand must be completed by a student for the student to be considered as satisfying that substrand (50% by default, with options of 60% and 70%);
- How the students’ mastery of items will be determined: by initial assessment, by most recent assessment, or by most recent work in the Learning Mode;
- Which students will be used to calculate levels of achievement: all students in the class, or students who have spent at least a certain amount of time (10, 20, 30, 40, or 60 hours) using their ALEKS accounts.

Further down the page, the display provides complete detail on standards-based achievement by the class. The teacher can choose to see this detail organized by student (which substrands have been mastered by each student) or by substrand (what the precise
level of satisfaction is for each substrand, with lists of ALEKS items supporting the substrands and how many of them individual students have mastered).

**NOTE.** Satisfaction of a substrand is defined (by default) as 50% of the ALEKS topics supporting it. There is a great deal of overlap in the coverage of the substrands, and this setting provides a meaningful way to track the students’ progress.

### 7.3.27 Individual Standards Report

![Figure 7.34: Standards Report for a Single Student](image)

The Standards report for a single student analyzes the student’s current progress in terms of the substrands of the applicable standard (Fig. 7.34). For each substrand, the page indicates how many ALEKS items supporting that substrand have been mastered by the student, with detail available on the specific items mastered and not mastered.

### 7.3.28 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.

### 7.3.29 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
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 7.35: Custom Report Template

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.

Add Data
- Student Information
- Assessment Performance
- Pie Masters
- Standards
- Assignments
- Gradebook
- Time and Topic

Report Selections
- Student Information
  - Name
- Assessment Performance
  - Latest assessment
  - Course Mastery
  - Assessment start date
  - Assessment end date
  - Mastery (%)

Figure 7.36: Creating the Custom Report Template
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.

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. 7.35). 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.

Figure 7.37: Scheduling a Custom Report
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. 7.36).

**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. 7.37):

- **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:

**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.
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 Duplication 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.

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 (Fig. 7.39). 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.
The class dates are used to configure the Calendar (Sec. 7.4.41), and should include the entire period of time that the students will be using ALEKS. By default, the class will be automatically archived after the class end date unless this option is deselected (Sec. 7.4.43).

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.

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 (Fig. 7.45).

Note that using the Save for Later or Save and Exit options, saves the data, but 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. 7.40).

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.

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 a 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.

- 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 doing so will combine objectives with the same end date together in one 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 via their pie chart. To access previous Objective topics, click on the black arrows adjacent to the pie slices. 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. 7.41).

- To remove chapters uncheck the box to the left of the Objective.
- 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).
- 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 maintained. 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.
7.4. CLASS CREATION AND CONFIGURATION (CLASS ADMINISTRATION)

![Image](144x458 to 468x695)

Figure 7.41: Objectives Editor

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. 7.42), 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.

Topics may be added or removed from Objectives as follows:

**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.

- 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. The next page will be the Objective Settings page, where the Objective Pie View and the Post Objective Assessment options are set.

7.4.9 Topic Recommendation Tool (TREC)

![Figure 7.43: Topic Recommendation Tool (TREC)](image)

Figure 7.43: Topic Recommendation Tool (TREC)

![Figure 7.44: Tagging Feature](image)

Figure 7.44: Tagging Feature
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. 7.43).

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. 7.4.19). 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.

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. 7.44).
7.4.10 Objective Pie

Enabling the Objective Pie View for students in this class allows students to change their view from the full ALEKS Pie view to the Objective Pie view, focusing their attention on the goal topics needed for the current Objective (Fig. 7.45). Instructors can also choose to make the Objective Pie view the default view for students. Instructors can see the Objective Pie View by using the link on the ALEKS Pie Report for individual students (Sec. 7.3.8).

There are 3 slices in the Objective Pie:

- The Goal Topics slice shows the topics the student must master for the current Objective. These are the topics that affect a student’s grade. If no topics appear in this slice and the student has not completed the Objective, then the student should work on prerequisite material first.

- The Prerequisite Topics slice shows the topics that will help students learn the Goal topics. These topics do not affect a student’s grade. When a student runs out of Goal topics and still has not completed the Objective, the student should work on topics in the Prerequisite topic slice.

- The Previous Objective Topics slice shows topics from earlier Objectives. If you are using Objectives with end dates, then this slice will show only topics from previous Objectives that have extensions. If you are using Objectives without end dates, then this slice will show all topics from previous Objectives that have not yet been mastered.

7.4.11 Post Objective Progress Assessment

![Objective Pie](image)

Figure 7.45: Objective Completion Options and Objective Pie View

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 (Fig. 7.45).

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.

7.4.12 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 unexpected 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.
Figure 7.46: Class Summary Part 1

Figure 7.47: Class Summary Part 2
7.4.16 Class Summary

A summary of the class is presented at the end of the customization process (Figs. 7.46 and 7.47). 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:

- Class Information (Sec. 7.4.2)
- Syllabus (Sec. 7.4.17)
- Standards (Sec. 7.4.18)
- Class Content (Sec. 7.4.19)
- Class Options (Sec. 7.4.20)
- QuickTables Settings (Sec. 7.4.26)
- Implementation Information (Sec. 7.4.27)
- Class Duplicate Settings (Sec. 7.4.28)
- Gradebook (Sec. 7.4.29)
- Resources (Sec. 7.4.30)
- Incoming and Exiting (Sec. 7.4.31)
- Share Class Access (Sec. 7.4.32)
- Student Groups (Sec. 7.4.33)

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 Standards

On the Class Summary page there is a link to details of any state or Common Core standards that the class is aligned with. For each class, reporting will be available based on the applicable standard (Sec. 7.3.26)
7.4.19 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. 7.48). 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).

7.4.20 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. 7.4.21)
- Student Activity Notifications (Sec. 7.4.22)
- Parent Notification (Sec. 7.4.23)
- Class Forum (Sec. 7.4.40)
- Assessment Options (Sec. 7.4.24)
- Worksheet Options (Sec. 7.4.25)

Click on **Edit** to revise any of these options.
7.4.21 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. 7.4.43).

7.4.22 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 and to present a certificate of achievement to students completing certain percentages of the syllabus.

7.4.23 Parent Notification

From the Class Summary page under Class Options, click on Edit to find Parent Notification. This feature allows instructors to elect to email periodic automatic progress reports to the student’s parent/guardian, and to allow the parent/guardian to reply directly to these emailed reports.

Instructors can enter up to two email addresses for each student in the student’s Account Summary (Sec. 7.8.1).

7.4.24 Assessment Options

From the Class Summary page under Class Options, click on Edit to find 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.

7.4.25 Worksheet Options

From the Class Summary page under Class Options, click on Edit to find Worksheet Options (Fig. 7.49). 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).

7.4.26 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.

7.4.27 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 (Fig. 7.50).
### Lv5 - Implementation Information

#### Student Goal
- Finish Pie to 85% <br>
- Work in ALEKS a minimum of 3 hours per week

#### Grades Taught in This Class
- [ ] K <br>
- [ ] 1 <br>
- [ ] 2 <br>
- [ ] 3 <br>
- [ ] 4 <br>
- [ ] 5 <br>
- [ ] 6 <br>
- [ ] 7 <br>
- [ ] 8 <br>
- [ ] 9 <br>
- [ ] 10 <br>
- [ ] 11 <br>
- [ ] 12

#### Implementation

**Scenario**
- [ ] Computer in Classroom <br>
- [ ] Computer Lab <br>
- [ ] Home Access <br>
- [ ] Laptop Carts <br>
- [ ] One to One Laptop <br>
- [ ] Online School

**Purpose**
- [ ] After-School <br>
- [ ] At-Risk Students <br>
- [ ] College and Career Readiness <br>
- [ ] Core Curriculum <br>
- [ ] Credit Recovery <br>
- [ ] Enrichment <br>
- [ ] ESL Students <br>
- [ ] Exit Exam <br>
- [ ] Improve State Test Score <br>
- [ ] Intervention <br>
- [ ] RtI <br>
- [ ] Special Education <br>
- [ ] Summer School <br>
- [ ] Supplement

---

Figure 7.50: Implementation Information
7.4.28 Class Duplication Settings

From the **Class Summary** page there is a link to the **Class Duplication Settings** (Fig. 7.51). 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.

7.4.29 Gradebook

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

7.4.30 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:

- Three types of resources can be added: files, links, or text-only notes (250 characters or less).
- 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.

### 7.4.31 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 within the Same Course Family or 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:

- (Recommended) Always keep a record of student data in my class, regardless if they exit my class. 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.

**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.

### 7.4.3 Share Course Access

From the **Class Summary** page there is a link to the **Share Course 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.
7.4.33 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 Grade-book 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.

7.4.34 Class List

![Class List Image]

Figure 7.53: Class List

From the **Class Administration**, select **Class List**. This feature can also be accessed from the **Instructor Administration**. For each instructor a list of their classes will be displayed (Fig. 7.53). ALEKS Administrators will see all ALEKS classes for each instructor at the school.

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. 7.4.43)
- Delete (only available if no students are enrolled in the class)
7.4.35 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 spent logged 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. Please contact Customer Support for this request.

7.4.36 Class Roster

![Class Roster Image]

Figure 7.54: Class Roster

From the Class Administration, select Class Roster. A list of the students enrolled in the class will be displayed (Fig. 7.54).

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.
7.4. **CLASS CREATION AND CONFIGURATION (CLASS ADMINISTRATION)**

**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.

### 7.4.37 Enroll / Pre-Register Students

From the **Class Administration**, select **Enroll / Pre-Register Students**. This feature allows instructors to register a group of students at the same time for a single class. Students do not need to self-register when instructors use this pre-registration feature.

Student information can be entered by typing, or copied and pasted from another source (such as a spreadsheet).

It is only possible to pre-register students up to the number of available subscriptions.

### 7.4.38 Authorize Students

From the **Class Administration**, select **Authorize Students**. When students self-register into the class, this feature allows instructors to authorize the students’s registration in their own classes so that the student can begin using ALEKS.

1. Select the student(s) that you would like to authorize.
2. Select an action from the drop-down menu.
3. Click on the **Apply** button.
4. Confirm that you want to proceed with the chosen action.

### 7.4.39 Extend Student Accounts

From the **Class Administration**, select **Extend Student Accounts**. This feature allows teachers to efficiently renew student accounts with no action required from the student (Fig. 7.55). After the extension, students can continue to use their accounts without interruption.
7.4.40 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. 7.4.20).

7.4.41 Calendar

The Calendar can be accessed either from the Class Administration or from the Class Tools icon. 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 reuse the same content. The Calendar shows all assignments in the class, one month at a time, with their start and end dates (Fig. 7.56).

Hovering over either a start date or an end date will highlight both the start date and the end date 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).
7.4.42 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.

7.4.43 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. 7.4.34). Classes can be set to automatically archive after their end date (Sec. 7.4.2).
### 7.4.44 Class Tools

After selecting a class, the Class Tools link will be available in the upper right area of the page (Fig. 7.57). Clicking on this link will display icons for quick access to the following for the current class:

- Forum (Sec. 7.4.40)
- Calendar (Sec. 7.4.41)
- Resources (Sec. 7.4.30)
- Student View (Sec. 7.4.42)

### 7.5 Assignments

The following kinds of assignments can be created in ALEKS: Homework, Tests, Quizzes, and Scheduled Assessments. All are optional: ALEKS can be used without any of these, but they may enhance the effectiveness of ALEKS in certain instructional contexts. 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 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. 7.4.29).

7.5.1 Class Assignments

Assignments that have been created for a class can be viewed by clicking on the Assignment List option. The Assignment List will display a table showing all assignments in the class (Fig. 7.59). By default the list is displayed based on the end date, then the name of the assignment. The list can also be sorted based on other columns, and is not fixed. The table includes the following information: Assignment Name, Type of assignment, Start Date, End Date, 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 or more 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 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 New Homework link (Fig. 7.58). Alternatively, instructors can create a new Homework assignment by using the Duplicate from Another Class option from the Assignment List.

The following steps are needed to complete the assignment creation process (Fig. 7.60):

**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).

**STEP 2: Content**
In this step content is added to the assignment (Sec. 7.5.4).
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**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).

### 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.

**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 for students.

**Location**

If IP addresses are used to restrict access to assignments to within the school, 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 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. 7.61). 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 problems 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 5 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 to prevent assessments.**

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

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. 7.62). The sliders on the scale, however, can be moved and renamed; you can also 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 clicking 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. 7.63). 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, however, 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 Worksheets

![Manage Worksheets](image)

Selecting **New Worksheet** lets you create worksheets for the entire class or individual students in the class. Alternatively, you can create worksheets for the class by selecting **Worksheets** and then selecting **in English** or **in Spanish**. On the same page, you can also view worksheets that have been created in the past. You also have the option to create worksheets for an individual student (Sec. 7.8.8). Students also have the ability to print their own worksheets (Sec. 5.6).

For more information about Worksheets, see Sec. 7.4.25.

### 7.6 Gradebook

The Gradebook records student grades for assignments in the categories selected in the Gradebook Setup. The Gradebook is disabled by default but can be enabled by the instructor for each class.

**To enable the Gradebook, do the following:**

1. Select a class.
2. From the **Gradebook** sub-navigation, click on **Gradebook Setup**.
3. Click on **Enable the Gradebook for This Class**.

Alternatively, the Gradebook can be enabled from the **Class Summary** page. Once on the **Class Summary** page, locate the **Gradebook** section, and click on **Enable Gradebook**.

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

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 Pie Mastery, Time, Topic, and External Assignment (Secs. 7.6.4 and 7.6.6) category assignments require specific components (goals or assignments) to be added via the Gradebook Setup page, in order to be included in the 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. 7.65). 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 setup, 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 approximately predicts the student’s grade for the class based on any work 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 chronologically by due date. As the students complete the assignments, values are inserted into the corresponding cells as follows:

- Empty cells - where 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 edit and view 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. 7.66). To be included in the Gradebook, this percentage must be 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 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 contribution to the total grade (Fig. 7.67).

Dropping Low Scores

On the assignment weighting page (Fig. 7.67) 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. Only regular (non-extra credit and non-zero weight) assignments can be dropped. Suppose that 10 ALEKS Quizzes have been setup 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
### Figure 7.66: Gradebook Setup

**Period 1 - Gradebook Setup**

**View Gradebook**

<table>
<thead>
<tr>
<th>Gradebook Category</th>
<th>Category Weight (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pie Mastery</td>
<td>50 %</td>
</tr>
<tr>
<td>Time</td>
<td>25 %</td>
</tr>
<tr>
<td>Topic</td>
<td>25 %</td>
</tr>
<tr>
<td>Objective</td>
<td>0 %</td>
</tr>
<tr>
<td>Assessment</td>
<td>0 %</td>
</tr>
<tr>
<td>Quiz</td>
<td>0 %</td>
</tr>
<tr>
<td>Test</td>
<td>0 %</td>
</tr>
<tr>
<td>Homework</td>
<td>0 %</td>
</tr>
</tbody>
</table>

**Gradebook External Assignment Category**

<table>
<thead>
<tr>
<th>External Assignment</th>
<th>Add New Row</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 %</td>
<td></td>
</tr>
</tbody>
</table>

*Total: 100 %*

---

### Figure 7.67: Assignment Weights

**Lv5 - Gradebook - Homework Weights**

<table>
<thead>
<tr>
<th>Homework Name</th>
<th>Due Date</th>
<th>Extra Credit</th>
<th>Weight</th>
<th>Weight Within Category (%)</th>
<th>Contribution to Total Grade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework 1</td>
<td>05/13/2014</td>
<td>10 points</td>
<td>66.7%</td>
<td>13.3%</td>
<td></td>
</tr>
<tr>
<td>Homework 2</td>
<td>05/13/2014</td>
<td>5 points</td>
<td>33.3%</td>
<td>6.7%</td>
<td></td>
</tr>
</tbody>
</table>

*Default weight: 10 points, Drop the lowest 0 - score(s)*
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 (Fig. 7.67), there is a check box that can be used to designate the assignment as extra credit. 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 flagged as Extra Credit. This ensures that the assignment will not negatively affect 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. 7.68). 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, however, can be moved and renamed; you can also 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’ scores.

### 7.6.4 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.
7.6. GRADEBOOK

Pie Mastery

The Pie Mastery category is used to grade students based on their mastery of a percentage of the ALEKS Pie by specified due dates (Fig. 7.69).

Time

The Time category is used to grade students based on the amount of minutes/hours spent in ALEKS for specified date ranges (Fig. 7.70).

Topic

The Topic category is used to grade students based on the number of topics mastered in the ALEKS Pie by specified end dates (Fig. 7.71).
7.6.5 Chapter or Objective Completion and the Gradebook

Scores for the Objective category will be derived 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, 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 via their pies. The Total Grade column will not include the chapter or Objective assignment type until after the end date 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.

7.6.6 External Assignments

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. 7.72):

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.

### 7.6.7 Adjust Student Scores

Instructors can adjust student scores for ALEKS assignments and external assignments directly through the Gradebook.
To access:

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.

7.6.8 Gradebook Log

From the class **Gradebook** sub-navigation, select **Gradebook Log** to access this feature (Fig. 7.65). 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 Shared Course Access (Sec. 7.4.32).

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

7.8.1 Account Summary

**Student Account Summary** allows instructors to make corrections or changes to a student’s name, email address, ID, password, and account status. For each student, instructors can add a parent/guardian contact information. In addition, instructors can view Student Groups and Share Class Access information (Sec. 7.4.32). To edit a student’s account preferences, click **Edit** next to each category.
7.8. **STUDENT ADMINISTRATION**

![Student Account Summary](image1)

> **Figure 7.73**: Student Account Summary

![Move and Unenroll Student](image2)

> **Figure 7.74**: Move and Unenroll Student
7.8.2 Move and Unenroll Student

Selecting a student account and clicking on Student Administration displays Move/Unenroll. 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. 7.4.36.

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 class level Cleanup Tool, see Sec. 7.4.35.

7.8.4 Student Gradebook

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

- Student Gradebook information
- Class Gradebook (Sec. 7.4.29)

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. 7.3.18)
- Time & Topic (Sec. 7.3.21)
- Knowledge Per Slice (Sec. 7.3.22)
- Assignments (Sec. 7.3.23)
7.8. STUDENT ADMINISTRATION

- 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:

- 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)
- Assignment Reports (Homework, Quiz, Test, and Scheduled Assessment) (Sec. 7.3.23)

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.

Figure 7.75: 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.
CHAPTER 7. INSTRUCTOR MODULE

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. 7.4.25.

7.8.9 Request Assessment

Selecting a student account and clicking on Assignments displays Request Assessment. 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 school 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

Selecting a student account and clicking on Assignments displays Cancel Current Assessment. 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.
7.9. **ADMINISTRATOR FEATURES**

### 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.

### 7.8.12 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

![Figure 7.78: Three levels of hierarchy](image)
ALEKS administrators have access to three levels of hierarchy: instructor, class, and student. This section will focus on the Instructor level. The class and student levels are described in detail in (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 simply 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 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. Administrators can select to Show student passwords on the Class Roster and Show Cartoon under Institution Settings.

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. 7.4.31 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 window of time during which users may upgrade, as well as the default date on which the upgrade will occur if no action is taken. If the school 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 Instructor Roster

![Instructor Roster](image)

**Figure 7.79: 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. 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 instructor’s ability to access their accounts.

### 7.9.4 Create New Instructor Account

Frequently, instructor accounts are created by ALEKS Corporation for the school. 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.

### 7.9.5 Subscription Management System

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 all the details about 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.

7.9.6 Batch Registration

By selecting Subscriptions and clicking Batch Registration, administrators can quickly create multiple classes and student accounts and register up to 10,000 students at once (See Sec. 3.10). This feature will help administrators to significantly reduce the amount of time they spend registering large numbers of students across many classes. ALEKS will generate new classes and accounts for new teachers and students and register the students in the appropriate classes. A confirmation email will be sent to the administrator and teachers that includes the login names and passwords for the registered students.

NOTE. Only authorized administrators should use Batch Registration. Batch Registration is designed to register large numbers of students and will consume corresponding quantities of ALEKS subscriptions.

7.9.7 Authorize Student Account

When students self-register into classes, this feature allows instructors to authorize the students' registrations in their own classes so that they can begin using ALEKS (See Sec. 3.8). By selecting Subscriptions and clicking on Authorize Student, administrators can authorize all students at their institution.

7.9.8 Pre-Registration with alternative subscription length

The Enroll/Pre-Register feature allows instructors to register a group of students at the same time for a single class (Sec. 3.9). Students do not need to self-register when instructors use the pre-registration feature. Instructors that have been given permission to the Alternate Subscription Length have additional options to register students using the subscription length assigned to the class or to assign a different subscription length.

7.9.9 Extend Student Accounts

Selecting Subscriptions and clicking Extend Student Accounts, instructors can efficiently renew student accounts with no action required from students. After the extension, students can continue to use their accounts without interruption.
7.9.10 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. 7.3.29 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.

Class Activity
Administrators can view the number of students who worked in ALEKS or Quick-Tables each month and the average hours worked each week.

State Standard Report
Details student performance against applicable standards, for all students at the school 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.

Average Progress Report
Is a more detailed view of campus activity. For each instructor and course, it shows the total number of students ever enrolled, then, for each of the last six full months, the number of students active and the average hours per week spent by active students. (Note that the current month does not appear in this report.)

Server Stats: Page Hits
Presents a graph of page hits over time by users of ALEKS at the school. The “Data Range” menu can be used to set the time period that is graphed. Beneath the graph may appear summary statistics, 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.
7.10. MASTER TEMPLATES

7.9.11 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. 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:

- **Enrolled**
  Displays students who are currently enrolled.

- **Unenrolled**
  Displays students who are currently unenrolled.

- **Valid Subscription**
  Displays students with a valid ALEKS subscription.

- **Expired**
  Displays students with an expired ALEKS subscription.

For information about student roster at the Instructor level and Class Roster, see Secs. 7.2.9 and 7.4.36.

7.10 Master Templates

The Master Template provides an efficient way to create and control class instances based on a master class. 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. 7.82):

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.
- Select a Grade.
- 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.
- Choose a Subscription Length.

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

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

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)
- Standards (Sec. 7.4.18)
- Class Content (Sec. 7.4.19)
- Class Options (Sec. 7.4.20)
- QuickTables Settings (Sec. 7.4.26 and Chap. 6)
- Implementation Information (Sec. 7.4.27)
- Resources (Sec. 7.4.30)
- Lockout Options (Sec. 7.10.5)
- Gradebook (Sec. 7.4.29)
- Assignments (Sec. 7.10.6)
- Linked Classes (Secs. 7.10.7 and 7.10.8)
- Incoming and Exiting (Sec. 7.4.31)

### 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. 7.83):

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.
CHAPTER 7. INSTRUCTOR MODULE

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. 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. To add more than 15 linked classes, you must 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

The **Classes to be Assigned** page contains linked classes that were set to “Instructor to be announced (TBA)” (Fig. 7.85).

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

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. 7.86). On the page that follows, fill in the new Master Template information, including Name, Start Date/End Date, and Subscription Length. 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

After selecting Duplicate a Master Template, use the drop-down menu to select a Master Template, and click Continue.
On the page that follows, fill in the new Master Template information, including Name, Start Date/End Date, and Subscription Length. 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. Administrators will need to complete this part of the process 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 any template 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. 7.4.34).

### 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. 7.3.29.)
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 what was specifically changed in the linked class. If something was changed in the course settings on the Master Template, then that specific change would be made to all linked classes. All 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 four levels of hierarchy: institution, instructor, class, and student.

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.
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7.11.2 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. 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.

7.11.3 New Administrator

New district administrator accounts can be created through this feature.

7.11.4 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.

7.11.5 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
7.11. District Features

Figure 7.91: New Administrator

this page for updating and managing accounts efficiently. For full details on the student roster, see Sec. 7.9.11.

7.11.6 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. 7.9.5.

7.11.7 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. 7.9.10.
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. 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 in-
structors 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, 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. 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 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
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 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 haven’t learned this yet 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 Arithmetic 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 Guide 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 Assessment,” or “Initial Assessment.” 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 Arithmetic, selects “Reports” and clicks on the “Class” link below the “ALEKS Pie” 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 Arithmetic, selects “Reports”, and clicks on the “Class” link below the “ALEKS Pie” 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 Algebra 1, selects “Reports” and clicks on the “Class” link below the “ALEKS Pie” 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**

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 school 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 (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 (interim 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 program 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 Algebra 1, has a knowledge structure associated with it. The number of items comprised in a knowledge structure ranges roughly between 200 and 500 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 programs within a single class (See the Instructor’s Guide 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. Items that they are ready to learn, but are not on the shortest path to the Objectives, will be “greyed out”; they will appear in the students’ pie charts, but the students will not be able to choose them.
Chapter 9

Knowledge Spaces and the Theory Behind ALEKS

9.1 History

Knowledge Space Theory has been under development since 1983 by Professor Jean-
Claude Falmagne, who is the Chairman and founder of ALEKS Corporation, and other
scientists (especially, Jean-Paul Doignon from Belgium) in the United States and Eu-
rope.

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 Bibliog-
raphy 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 Arithmetic 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 repre-
sentation of the domain of Arithmetic 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.
9.2. THEORY

A possible knowledge state.
In Arithmetic, we use a knowledge structure with roughly 50,000 states.

Figure 9.2: Knowledge State

The beginning of a possible learning path.
Our structure in Arithmetic 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
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 \textbf{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 \textbf{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 \textbf{inner fringe} of a state \( K \) is thus defined as the set of all items, any one of which \textbf{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.

\subsection*{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 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 Arithmetic, 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”:

http://www.aleks.com/about_aleks/Science_Behind_ALEKS.pdf


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**, 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 school district. 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. Very little technical preparation is required. All you need is a self-installing, self-maintaining “plug-in” obtained directly from the ALEKS website. No disks, CD’s, peripherals, or backup facilities are required. All data is kept securely on the ALEKS Corporation servers.

### 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.

**Java-Free Courses:** For some course products, it is not necessary to install Java or the ALEKS plug-in, and Chromebook can be used: All Elementary School courses, All Middle School courses, Math Intervention, Math for College Readiness, High School Preparation for Algebra 1, Foundations of High School Math, Prep for IN Algebra 1 ECA, Prep for LA Algebra 1 EOC Assessment, Prep for
10.2. TECHNICAL

<table>
<thead>
<tr>
<th>Operating System</th>
<th>PC</th>
<th>Macintosh</th>
<th>Chromebook (with some courses)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>Windows</td>
<td>MacOS 10.4+</td>
<td>Any</td>
</tr>
<tr>
<td>RAM Memory</td>
<td>Any</td>
<td>64+ MB</td>
<td>Any</td>
</tr>
<tr>
<td>Browser</td>
<td>Explorer 8.0+, Firefox 3+, Chrome 4+</td>
<td>Safari 4+, Firefox 3+ (Chrome 4+ with some courses)</td>
<td>Chrome</td>
</tr>
<tr>
<td>Screen Resolution</td>
<td>800x600 (1024x768 for Chemistry)</td>
<td>800x600 (1024x768 for Chemistry)</td>
<td>any</td>
</tr>
</tbody>
</table>

Figure 10.1: System Requirements


**Notes:**
Instructors and ALEKS administrators using the Advanced Instructor Module (“IM1”) are required to have Java and the ALEKS plug-in installed.

Where ALEKS is used on a tablet or without Java and the ALEKS plug-in, Firefox 10 and higher are supported.

Note that any of the kinds of Internet connection (cable, ISDN, DSL, or wireless) typical in computer labs are adequate for use with ALEKS. If your computer lab has security safeguards in place, you will need the cooperation of your technology administrator to install the ALEKS plug-in.

Where can I get more information on ALEKS? How can I try out the system?
The ALEKS website provides complete information on the ALEKS system, including a Quick Tour, Free Trial use, licensing, history and theory, and technical support.

http://www.aleks.com

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 Arithmetic. 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 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 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?**

[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 haven’t learned this yet” 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 an assessment, 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 haven’t learned this yet.” 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.

**How should I interpret the assessment report?**

[Sec. 4.12] The results of an ALEKS assessment are shown in the form of a color-keyed pie chart. A pie chart corresponds to a subject matter (domain) or to the curriculum of a particular class. Each slice of the pie corresponds to a general topic. The degree to which the slice is filled in with solid color shows how close the student is to mastering that area.

An extremely important aspect of the pie chart is its indication of what a student is currently most “ready to learn” (that is, the “outer fringe” of the student’s current knowledge state). These items are listed beneath the pie chart in an Assessment Report and are also given through the pie chart itself. When the mouse pointer is placed over a slice of the pie, a list expands out of the pie, showing the concepts that the student is most “ready to learn” in that part of the curriculum. Clicking on any of these concepts takes the student into the Learning Mode.

The pie chart is displayed following assessments, after a concept has been worked on in the Learning Mode, or when a student clicks on “MyPie” to change topics. At any given time, a student can only choose to work on concepts that the student is currently “ready to learn.” This number may vary between two and a few dozen, depending on what part of the structure is involved.

### 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. 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. Students with reading difficulties can also use it, provided that there is someone on hand to help them as needed. The system does not currently contain facilities for audio output.

What burden will ALEKS place on our computer lab and Lab Director/LAN Administrator?
10.6. EDUCATIONAL USE

Normally ALEKS requires very little support from local computer technicians, given the automatic installation and maintenance of the ALEKS plug-in. Most of the time, however, the lab administrator will need to assist with installation in order to overcome security obstacles (school computer labs often prevent students from installing their own software). In some cases, the presence of a “firewall” or other security measures may require some action on the technician’s part for successful installation. Again, ALEKS Corporation stands ready to assist with problems of this nature.

**Does ALEKS need to be used with a particular textbook or curriculum?**

ALEKS is designed to be used with any program, 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 programs and standards used by ALEKS, to configure accounts, to find statistics on school district use, and to exchange messages. A 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

NOTE. Troubleshooting information is found in Appendix A.10 of this Instructor’s Guide. Most problems can be resolved using this brief reference. Current information on ALEKS is available at the ALEKS website:

http://www.aleks.com

Technical support and consultation on the effective use of ALEKS is provided to educators by ALEKS Corporation Customer Support. Please contact the support group via the web:

http://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 Preface

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. ALEKS was developed with support from the National Science Foundation. It is based on a field of Mathematical Cognitive Science called Knowledge Spaces, which models human knowledge for precise assessment and efficient learning in interactive computer programs.

Based on your assessment results, ALEKS will understand what you know, what you don’t know, and most importantly, what you are ready to learn. ALEKS provides individualized, one-on-one instruction that fits your exact knowledge state and helps you select the ideal topics to work on next. That way you will learn concepts in the order that’s best for you. As you learn, ALEKS constantly challenges you and supplies extensive feedback on what you have accomplished.

Since ALEKS is available on the Internet, it fits any busy schedule. To get started immediately, you may refer to the Quick Start Instructions below. More detail is provided in the subsequent sections.

Also, your instructor can help you register and begin using ALEKS. ALEKS includes online instructions and feedback and is designed for use without help from a manual. If you need additional information, refer to this booklet or contact ALEKS Customer Support.

NOTE. Two or more students cannot use the same ALEKS account. ALEKS will regard them as a single person and give incorrect guidance.
A.2 Quick Start Instructions

This section provides concise information to help you get started quickly in ALEKS.

System Requirements

- PCs must have at least 64 MB of RAM and Windows. Compatible browsers are Internet Explorer 8.0 or higher, Firefox 3 or higher, and Chrome 4 or higher.
- PowerMacs or iMacs must have at least 64 MB of RAM and operating system Mac OS 10.4 or higher. Compatible browsers are Safari 4 or higher and Firefox 3 or higher.

Internet Access Requirements
- ALEKS is used over the Internet. It functions well with a connection of at least 56K.

Java Installation
- Java may need to be installed and enabled in order for ALEKS to function. Please see Sec. A.2 for details on which ALEKS classes require Java. If Java is required for your ALEKS class we recommend there be a single installation of a recent version of Java.

The ALEKS Plug-in
- The ALEKS plug-in may be required for the use of ALEKS. Please see Sec. A.2 for details regarding which ALEKS classes require the ALEKS plug-in. It is normally installed as an automatic part of the registration or login process. The ALEKS plug-in can also be downloaded from the ALEKS website by clicking on DOWNLOADS.

The ALEKS Tutorial
- The ALEKS Tutorial shows how to input answers in ALEKS. Taking the time to learn this is important in order to use ALEKS efficiently.

Initial Assessment
- Your ALEKS Initial Assessment will determine what topics you already know, the topics that you don’t yet know, and, most importantly, those you are ready to learn.
- Here is some additional information about the assessment:
  1. It consists of about 20-30 open-response questions (not multiple choice).
  2. It has no time limit. You may take breaks or stop the assessment and return to ALEKS at another time.
  3. You should have a pencil and paper with you in order to work through the problems.
- You should not seek or receive any help during assessments. If you receive help, ALEKS will get a wrong idea of what you are most ready to learn, and will present you with material you are not ready to learn. This will hold up your progress in ALEKS.
- You should do your best on all questions. Do not click the I haven’t learned this yet button when answering a question unless you truly have no idea how to do the problem. When you click the I haven’t learned this yet button, ALEKS assumes that you don’t know how to do the problem type and possibly some of its prerequisite topics.
APPENDIX A. ALEKS STUDENT USER’S GUIDE

- You should not use your browser’s Back and Forward buttons while logged on to ALEKS. Doing so will not help you make progress and may cause temporary software errors.
- ALEKS will not provide feedback when you are taking the Initial Assessment in ALEKS. No messages will be displayed indicating whether you answered correctly or incorrectly during any of the assessment questions in ALEKS.
- External calculators should not be used; the ALEKS Calculator button will become active when calculator use is appropriate.

Assessment Results

- Assessment results are presented in the form of a color-coded pie chart.
- Slices of the pie chart correspond to parts of the program.
- The relative size of the slices reflects the importance of each topic area for the program.
- The darker part of each slice indicates the portion of the topics already mastered. The lighter part of each slice indicates the portion of topics still to be learned.
- The topics that you are ready to learn will be listed as you place the mouse pointer over each slice.
- Not all slices will contain available concepts at any given time. They may have been mastered already, or work may need to be done in other slices before they become available.
- You may choose any topic listed and begin learning.

Learning Mode

- Clicking on the MyPie icon, in the upper left corner of your screen, will display your pie chart and allow you to work in the ALEKS Learning Mode. Topics you are ready to learn will appear in the pie slices.
- It is possible your ALEKS class will include Chapters/Objectives that should be completed by a specific date. The Chapter/Objective will include topics in your pie chart indicated by white dotted lines in some or all of your pie slices. ALEKS will display a message under your pie chart indicating how many topics you have remaining in the Chapter/Objective and the due dates.

Guidelines for Effective Use

- You should have pencil and paper ready for all assessments and for use in the Learning Mode.
- The basic calculator included in ALEKS will only become active and available for use when appropriate.
- To maximize successful learning, ALEKS should be used regularly, and for at least three hours per week.
- You will be given additional assessments each time you have learned about 20 topics or spent about 10 hours in ALEKS (since the previous assessment).
A.3 Registration and Installation

In order to register as an ALEKS user, you 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:

http://www.aleks.com

When entering this URL, pay careful attention to the spelling of aleks.

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 in your ALEKS login name and password before moving on.

5. Enter your personal information and choose a Password. Supplying this information enables your site administrator to help you with problems more quickly. You will also be able to enter your Student ID number.
6. 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 (Sec. A.6.5). 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.

7. When you enter your Login Name and Password on the ALEKS home page, ALEKS will check to see if your ALEKS class requires the ALEKS plug-in. If your class requires the plugin and your computer does not have it installed, one will be installed. Do not interrupt this process until a message appears saying that the installation is complete. Then you will need to quit your web browser (*Exit*, *Close*, or *Quit* under the *File* menu), open your web browser again, and go back to the ALEKS website (use your Bookmark/Favorite).

8. You will need to wait for your instructor’s authorization before starting to use your new account. If you need to log off now, you can log back on later using your Login Name and Password. As soon as your instructor authorizes your registration, you will be able to start using ALEKS by beginning the Tutorial.

### A.4 Student Account Home

After completing the registration process, you will be taken to the ALEKS Tutorial for your class. To access the Student Account Home, click on your name in the upper right corner and select **Account home**. The Student Account Home groups all ALEKS student accounts for a single student under the same umbrella account. This allows
A.4. STUDENT ACCOUNT HOME

Figure A.3: Student Account Home Main Screen

students to manage and add more ALEKS classes to their umbrella account rather than creating separate accounts for each ALEKS class. Students will also only need to remember one Login Name and Password. If you are enrolled in more than one ALEKS class at the same time, you will be taken to the Student Account Home when you log in. Otherwise, you will be taken directly to your class.

The Student Account Home lists your current and past ALEKS classes, and includes options to sign up for new classes, switch classes, download summary reports, and continue working on an expired account as an independent user.

A.4.1 Account Management

When you arrive at the Student Account Home main screen, you have the following options available to you:

Account Settings

To access your account settings, click on your name in the upper right corner of the Student Account Home main screen, and select Account settings. The pop-up window displays information both for the umbrella account and for the school that you attend. This information includes your name, Student ID number, and the email address linked to the account. The email address is the only editable entry.
To return to the main screen, click on the Save button (if changes were made to the email address) or on the Cancel link.

Adding a New Class
You can add a new class by clicking on the button Sign up for a new class (Fig. A.3). 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.

NOTE. Sign up for a new class differs from Switch to a new class in that it will create a new account running in parallel to any existing active accounts.

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.

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.

Accessing a Class
You can access an active class by clicking on the class name. You will be taken to your pie chart 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.
A.4.2 Class Management

Different options are available, depending on whether a class is ACTIVE, INACTIVE, or Pending Instructor Authorization:

ACTIVE Class Options
The following options are available for ACTIVE classes:

Switch 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 (see below).

NOTE. Switch class differs from Sign up for a new class by moving your account into a new class while still using the same subscription. After switching, the information for your old class will be visible in the INACTIVE box.

INACTIVE Class Options
The following options are available for INACTIVE classes:

Summary Report
Clicking on the Summary Report link will give you access to a PDF report displaying the pie chart and learning history progress achieved in the inactive class.

Continue this class on your own
You can continue your work in an inactive class as an independent user by clicking on the Activate link and following the registration prompts. This option should only be used if you wish to use ALEKS outside of the framework of a class.

Pending Instructor Authorization
The following options are available for classes where you are waiting for your instructor to authorize your enrollment:

Switch class
If your instructor had you register your ALEKS account through the ALEKS website, using a class code, you may see your account pending authorization the first time you log in. If you mistakenly enrolled into the wrong class, you can switch into the correct class using the Switch class link and the class code of the class you need to move into.

A.5 Tutorial

ALEKS avoids multiple-choice questions. Most answers are complete mathematical expressions and constructions. After Registration, the ALEKS Tutorial will teach you how to enter your answers in ALEKS (Fig. A.5). There is plenty of feedback to help
you complete it successfully. The Tutorial is not intended to teach mathematics. It just trains you to use the ALEKS input tool (called the Answer Editor). Online help is also available while you are using ALEKS; just click the Help button, which gives you access to the sections of the Tutorial.

A.6 Assessments and Learning

A.6.1 Assessments

Instruction through ALEKS is guided by precise understanding of your knowledge of the subject. This information is obtained by assessments 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 Assessment occurs immediately after the ALEKS Tutorial.

NOTE. Your instructor may require that the Initial Assessment be taken under supervision. Don’t try to begin your Initial Assessment at home until you find out where your instructor wants you to take it. Additional assessments may be scheduled for you by the instructor. These may or may not need to be supervised, depending on the instructor’s preference. ALEKS also prompts automatic re-assessments when you have spent a certain amount of time in ALEKS or have made a certain amount of progress.

A.6.2 Results

Assessment results are presented in the form of a color-coded pie chart. Slices of the pie chart correspond to parts of the program. The solidly colored part of a slice indicates...
A.6. ASSESSMENTS AND LEARNING

how close you are to mastering that part of the program; the lighter portion represents the material you have left to master.

A.6.3 Learning Mode

Following the presentation of assessment results, ALEKS will introduce you to a pie chart navigation tool (MyPie) (Fig. A.6). By placing the mouse pointer over slices of the pie, you can see which concepts you are now most ready to learn. Not all slices will contain concepts at any given time. They may have been mastered already, or work may need to be done in other slices before they become available. The concept you click on becomes your entry into the Learning Mode. ALEKS will help you to master that concept and add it to your pie.

A.6.4 Progress in the Learning Mode

In the Learning Mode, you are given problems based on the chosen topic. Additionally, you have access to explanations of how to solve the particular kind of problem and to a dictionary of mathematical concepts. Underlined mathematical terms are links to the Dictionary. Click on any term to get a complete definition. ALEKS will require a number of correct answers before it assumes that you have mastered the concept. When the topic is mastered, ALEKS will add the topic to your pie. At that point, a revised pie chart will be shown reflecting your new knowledge. You will be able to choose a new concept to begin. If you make mistakes, more correct answers may be required. If
you tire of the topic and wish to choose another, you can click on MyPie near the top of the window. If you make repeated errors on a concept, the system will conclude that the concept was not mastered, and will offer you a new choice of other concepts.

A.6.5 Additional Features

All buttons described below are available in the Learning Mode. In the Assessment Mode, certain buttons may be temporarily inactive.

HELP

For online help with the use of the Answer Editor, click Help.

CLASS FORUM

To participate in class discussions, click Class Forum.

WORKSHEET

To print out an individualized homework sheet based on your most recent work in ALEKS, use the Worksheet button.

INBOX

Your instructor can send you messages via ALEKS. You see new messages when you log on. You can also check for messages by clicking on Inbox (Sec. A.6.6). ALEKS provides a way to send your instructor a specific problem you are working on in ALEKS. Your instructor can choose to let you reply to messages as well.

REPORT

Any time you wish to look at your assessment reports, click on Report. Choose any date from the drop-down menu and click OK.

Options

This page gives you the option to forward your ALEKS messages to your email account. This page also shows the total number of hours you have spent using ALEKS.

RESOURCES

To access any special resources posted to your class by your instructor, click on the Resources button. This button will only be available if resources have been posted to your class.

Log out

To end your ALEKS session and exit, click on your name (top right), and select Log out from the drop-down menu.

MyPie

Clicking MyPie gives you a pie chart summarizing your current mastery. You can use this pie chart to choose a new concept.

Review

To review past material, use the Review button.
To search the online Dictionary of mathematical terms, click Dictionary. You can also click on hyperlinked terms in the ALEKS interface to access the Dictionary.

To access the online ALEKS Calculator, use the Calculator button. This button will be inactive for material where the use of a calculator is not appropriate. When this button is inactive, do not use any calculator.

To see the results of assignments you have taken in ALEKS or to begin a pending assignment, use the Assignments button. If assignments are currently available, you will see an orange burst on the Assignments button.

To access the Gradebook for your class, click on the Gradebook button.

To access the Calendar for your class, click on the Calendar button.

### A.6.6 ALEKS Inbox

The Inbox allows you to send messages to your instructor if you need assistance with a topic or problem in ALEKS. To compose a message, click Compose. There is an option to include mathematical notation in your messages.

To include mathematical notation and illustrations:

1. Click the math 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 type 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, make sure the practice problem is still on the screen, then:

1. Click on the Inbox link. This will take you into the ALEKS Message Center.
2. Click on the Compose button.
3. Below the body message section, check the box next to Attach Page.
4. Click on the Send button to send the message.

You also have an option to include attachments in your messages. The attachments can be up to 2MB in size.
A.7 Guidelines for Effective Use

Please take note of the following important suggestions for successful use of ALEKS.

Supplementary Materials
You should have pencil and paper ready for all assessments and for use in the Learning Mode. Basic calculators should be used only when you are instructed to do so. (A basic calculator is part of ALEKS.)

Assessments
You should not ask for any help during assessments. Even explanations or rephrasing of problems are not permitted. If you receive help, ALEKS will get a wrong idea of what you are most ready to learn, and this will hold up your progress. If you are sure you don’t know the answer, click I haven’t learned this yet.

Learning Mode
You should learn to use the special features of the Learning Mode, especially the explanations and the Dictionary.

Review
Whenever ALEKS suggests topics for you to review, you should review them. Spending a few minutes daily on such review will help you retain what you have learned and do well on reassessments.

Regular Use
Nothing is more important to your progress than regular use of ALEKS. Three hours per week is a recommended minimum; five or more are normal in many cases.

A.8 QuickTables

![Figure A.7: ALEKS QuickTables](image-url)
QuickTables is a special tool in ALEKS for learning the math facts of Addition, Subtraction, Multiplication, and Division. It is available as part of ALEKS classes, or as a separate class in ALEKS.

When you log in to an ALEKS class where QuickTables is enabled, you will see the QuickTables link in the top bar menu. Clicking on this link will switch you into the QuickTables environment. To begin using QuickTables, click on the OK button under the Welcome message (Fig. A.7).

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 test or assessment of what you know now about the math facts. Do not be anxious about this test; just relax and do your best. The results of the test will tell QuickTables where you should start off in your math facts table. This Initial Assessment test 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 test when you first start working in any table.

Once you finish the test, you will see a colored display that shows all the facts in the table (Fig. A.8). 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, down in the lower right-hand corner. You will have fun filling in this table!

Also, to the right of the table is a thermometer that gives your overall percentage of the table. Notice that there are gold stars on the thermometer. Every time you fill in to one of these stars, there will be a new game for you to play. You earn 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 green button marked **Games** at the top of the window. 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.

### A.9 Frequently Asked Questions

For further information on any of these questions, follow the references provided to other sections of this guide.

**What are the rules for taking an assessment in ALEKS?**

[Sec. A.7] You must have paper and pencil when taking an assessment in ALEKS. A basic calculator should be used only when you are instructed to do so. A basic calculator may be provided for some questions. No help whatsoever is permitted, not even rephrasing a problem.

During the assessment, you will not be given feedback about your answers. **The assessment is not a test.** Its main purpose is to determine what you are most ready to learn and help you make the best possible progress toward mastery.

**How do I add concepts to my pie?**

[Sec. A.6.4] You fill in your pie and achieve mastery in the subject matter by working in the Learning Mode on concepts and skills that the assessment has determined you are most **ready to learn.** When you master a concept in the Learning Mode by successfully solving an appropriate number of problems, you will see that your pie chart has been changed by the addition of that concept. The goal is to fill the pie in completely.

**Why is it that I mastered all the concepts in the Learning Mode, but my assessment still says I have concepts to learn?**

In the Learning Mode, you are always working on one concept at a time, whereas assessments are cumulative and evaluate you on everything in the given subject matter. It may be more difficult to show mastery of concepts you have recently worked on, when you are being quizzed on many different topics at the same time. For this reason, your assessment results may not exactly match what you had
mastered in the Learning Mode. This is normal and simply means that you should keep working in the system. (Sometimes the opposite also occurs, and progress in the assessment turns out to be faster than in the Learning Mode.)

**Why doesn’t my pie chart show any concepts from a slice if I haven’t filled in that slice yet?**

[Sec. A.6.3] You are completely **ready to learn** a set of concepts or skills when you have mastered all the prerequisite concepts or skills for them. For example, in order to learn **addition of two-digit numbers with carry** you might have to first learn **addition of two-digit numbers without carry** and nothing else.

Your pie chart will not offer you concepts to work on if you are not ideally ready to begin learning them, that is, if they have prerequisites you have not yet mastered. For this reason, your pie chart may show that you have mastered only 8 out of 10 concepts for a particular slice of the pie (a particular part of the curriculum), but the pie chart says you have no concepts available from that slice to work on. This means that the concepts left to master have prerequisites in other areas of the curriculum that you must master first. Keep working in the other slices, and eventually the concepts in that slice will **open up**.

**How can I best use the Learning Mode to help me learn?**

[Sec. A.6.4] In the Learning Mode, you should do your best to solve the problems that are offered to you. You should not change topics casually or stop before the system tells you that you are done.

The Learning Mode will always tell you if your answer is correct or not. In many cases it will provide information on the kind of error you may have made. You should pay attention to this feedback and be sure to understand it.

At the bottom of the Explanation page you have the **Practice** button, and sometimes other options for more detailed explanations and help. The Explanation page may also contain a link or reference to a textbook used with the class. If you click the **Practice** button following an explanation, you are offered a different problem of the same type, not the one whose solution was explained. In order to master the concept and add it to your pie, you must successfully solve a certain number of practice problems. If you wish to choose a new concept, you can click the **MyPie** button on the ALEKS menu bar.

You should **not** use your browser’s **Back** and **Forward** buttons while logged on to ALEKS. Doing so will not help you make progress and may cause temporary software errors.

Keep in mind that ALEKS is always giving you material that, in its estimation, you are ideally ready to learn. It does not offer material you have already mastered, except in the Review mode. To go back to concepts you have already worked on, click the **Review** button on the ALEKS menu bar.

**How does ALEKS create problems?**

ALEKS creates problems in both Assessment and Learning Mode by means of computer algorithms, based on the definition of a particular concept or skill to be
mastered. Thus, a particular concept or problem-type may serve as the basis for
a very large number of specific problems, each with different numerical values and
sometimes (as in application problems) differing in other ways as well.

Why is ALEKS giving me a new assessment?

[Sec. A.6.1] New assessments may be prompted automatically by ALEKS when
you have spent sufficient time in the Learning Mode or when you have made
adequate progress.

Your instructor may also request an assessment for you personally, or for everyone
in the class. In this case it may be stipulated that the assessment must be taken
at school. (If you attempt to work at home when an assessment has been ordered
to be done at school, ALEKS will deny access and tell you that you need to log on
from school.)

Why do I need to take the Tutorial to use ALEKS?

[Sec. A.5] The Tutorial is a brief interactive training program that teaches you
to use the ALEKS input tools, or Answer Editor. ALEKS requires that answers
be given in the form of numbers, mathematical expressions and geometrical and
other constructions. The Answer Editor is a flexible set of tools enabling you to
provide such answers. Although the Answer Editor is easy to use, the Tutorial
will make sure you are completely proficient with it before beginning the ALEKS
system. The Tutorial guides you through every step of learning to use the Answer
Editor.

What can I do if I make a mistake entering an answer?

If you make an error entering an answer with the Answer Editor, you should click
on Undo to go back one step, or on Clear to start over. You can also use the
Backspace key on your keyboard in the usual way.

NOTE. You cannot use Undo or the Back button on your browser to go back
if you have submitted an answer by clicking on Next. If you realize that the
answer you submitted is incorrect, don’t be concerned; the system will most likely
recognize this as a careless error based on your other answers and make allowances
for it.

What are the icon buttons for?

They are used to enter mathematical symbols and to create forms for mathematical
expressions. In some cases the keyboard equivalents for icon buttons can be used.

How do I get help on using ALEKS?

[Sec. A.6.5] You can get help using the Answer Editor by clicking the Help
button on the ALEKS menu bar.

Can my instructor or friend help me (or can I use a calculator) in the
Learning Mode?

[Sec. A.7] Help and collaboration are allowed in the Learning Mode. Keep in
mind, however, that if you get too much help, the system will start giving you
problems that you are not prepared to solve.
You need paper and pencil for the Learning Mode, just as you did for the assessment. ALEKS provides a calculator when appropriate; when the Calculator button is active, the use of the calculator is permitted.

Why are some of the words I see hyperlinked?

[Sec. A.6.5] Underlined words in the Learning Mode are links to the online Dictionary. You can click on any hyperlinked word to see its definition. You can also access the Dictionary by clicking the Dictionary button on the ALEKS menu bar. The Dictionary is not available during assessment.

Note that the Dictionary is opened in a new window. When you are finished reading the definition, you can close or minimize the window, and you will see the previous screen.

How can I change my Password?

[Sec. A.3] You can change your ALEKS password by going to the ALEKS website: http://www.aleks.com and clicking on the Forgot your login info? link. As long as you have an email connected to your ALEKS account you will receive an email with your ALEKS login name and a link to reset your password. If no email address is connected to your ALEKS account please see your instructor to retrieve your password.

How can I review material I have already worked on?

[Sec. A.6.5] You can click on the Review button to work on material you have already spent time on.

How can I choose a new topic to work on?

[Sec. A.6.5] To see your current pie chart and choose a new concept in the Learning Mode, click on MyPie (on the ALEKS menu bar), move your pointer over the pie, and choose a new concept from one of the slices.

How can I print something in ALEKS?

[Sec. A.10] To print the contents of the screen, you can click on the Print icon in the upper part of the ALEKS window. This produces a new, printable window (the ALEKS display is not normally printable). Depending on your browser, you may also have to click the browser’s Print button. When you are done, you can close the new window.

What should I do if it’s taking too long for a new page to load (or if the program freezes)?

[Sec. A.10] It shouldn’t take more than a few seconds for ALEKS to respond when you click on any button. If you experience delay, freezing, or crashing, you can click your browser’s Reload or Refresh button. If this doesn’t work, you can close your browser and restart it. In extreme cases, use Ctrl-Alt-Delete (Cmd-Opt-Esc on Macintosh) and end the task. You will come back to the exact place you left off when you log back on to ALEKS.

How do I exit the ALEKS program?

To leave ALEKS, you can click on your name (top right) and select Log out or simply close your browser. ALEKS always remembers where you left off.
What if I have a question or problem using ALEKS?
If you have a question or problem using ALEKS that is not answered here, contact your instructor. Your instructor has been provided with extensive information on the operation of ALEKS and should be able to answer most questions you may have.

What if I forget my Login Name or Password?
If you forget your Login Name or Password, you can use the link on the ALEKS home page marked *Forgot your login info?* If you entered an email address at registration time, a link to reset your password will be sent to you by email. Otherwise, contact your instructor.

A.10 Troubleshooting

Difficulties in using ALEKS can often be resolved by following the suggestions given in this section.

**Login Not Successful**
Be careful to type your Login Name and Password correctly, with no spaces or punctuation. If you forget your Login Name or Password, you can use the link on the ALEKS home page marked *Forgot your login info?* If you entered an email address at registration time, a link to reset your password will be sent to you by email. Otherwise, contact your instructor.

**Mixed Number Difficulties**
Mixed numbers must be entered using the Mixed Number icon, not by entering the whole part and then using the Fraction icon.

**Freezing and Slow Response**
If you are logged on to ALEKS and the program is either not responding or taking too long to load a new page, try the following:
1. Click on your browser’s *Reload* (or *Refresh*) button;
2. Close the browser and log on again (the system will bring you back to where you left off); if you cannot close the browser, use Ctrl-Alt-Delete (PC) or Cmd-Opt-Esc (Macintosh) and end the task (or reboot if necessary).

Open applications, other than the web browser that you are using to access ALEKS, are another cause of slowness. Closing these applications may correct the problem.
If slowness persists, it is most likely due to a problem in the local network. Bring this to the attention of your instructor.

**Lengthy Assessment**
It is not possible to know exactly how many questions will be asked in an assessment. The number of questions asked does not reflect your knowledge of the subject matter.
Loss of topics from Pie Chart
You may observe a loss of concepts in your pie chart following an assessment. This is not a malfunction in the system, but results from errors made by you on material you had previously mastered. Don’t worry: that is the way the system works. In particular, it is not unusual to have a bad assessment, one that, for external reasons (distractions, etc.), does not reflect your actual knowledge. ALEKS will quickly bring you back to where you belong.

Printing Problems
To print ALEKS output (for instance, the pie chart Report) you must click on the ALEKS Print icon. This opens a new browser window containing the contents of the previous window in the form of a Print Preview. When this page has been printed, it should be closed to return to the normal ALEKS interface.
Appendix B

Programs in ALEKS

B.1 Arithmetic - 3

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
- arith128 Adding or subtracting 10, 100, or 1000
- 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
- arith606 Subtraction with borrowing
- arith682 Subtraction with multiple regrouping steps
- arith637 Subtraction and regrouping with zeros
- arith126 Multiplication as repeated addition
- 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
- arith639 Using multiplication to find the number of squares
- arith640 Using addition and multiplication to count the objects on a grid
- arith641 Multiples: Problem type 1
- arith642 Multiples: Problem type 2
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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
arith614 Word problem with multiplication or division of whole numbers
arith023 Word problem with division of whole numbers and rounding
arith651 Introduction to inequalities
arith077 Ordering large numbers
arith061 Rounding to thousands, ten thousands, or hundred thousands
arith123 Rounding to hundreds or thousands
arith101 Estimating a sum of whole numbers
arith102 Estimating a difference of whole numbers
arith677 Estimating a product
arith678 Estimating a quotient
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
arith646 Even and odd numbers
arith647 Divisibility rules for 2, 5, and 10
arith648 Divisibility rules for 3 and 9
arith666 Factors
arith634 Prime numbers
arith635 Prime factorization
arith633 Greatest common factor of 2 numbers
arith670 Least common multiple of 2 numbers
arith240 Word problem with common multiples
arith653 Fact families for addition and subtraction
arith654 Fact families for multiplication and division
alge807 Finding the next terms of a sequence with whole numbers

Fractions

arith623 Introduction to fractions
arith665 Understanding equivalent fractions
arith212 Equivalent fractions
arith666 Introduction to simplifying a fraction
arith067 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
arith688 The reciprocal of a number
arith679 Product of a unit fraction and a whole number
arith119 Introduction to fraction multiplication
arith086 Product of a fraction and a whole number: Problem type 1
B.1. ARITHMETIC - 3

arith053 Fraction multiplication
arith095 Multi-step word problem involving fractions and multiplication
arith022 Fraction division
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
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

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
arith608 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
arith668 Addition with money
arith624 Addition of aligned decimals
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
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
arith046 Decimal multiplication: Problem type 2
arith628 Word problem with multiple decimal operations: 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
arith629 Word problem with multiple decimal operations: Problem type 2

Measurement and Geometry

mstat033 Measuring length to the nearest inch
mstat034 Measuring length to the nearest quarter or half inch
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
mstat035 Conversions involving measurements in feet and inches
mstat036 Adding measurements in feet and inches
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
unit012 Time unit conversion with whole number values
time008 Reading a calendar
time009 Introduction to adding time
time006 Adding time
time011 Introduction to elapsed time
time007 Elapsed time
arith063 Word problem with clocks
mstat024 Interpreting a bar graph
mstat044 Interpreting a double bar graph
mstat007 Interpreting a line graph
stat804 Interpreting a circle graph or pie chart
arith103 Average of two numbers
mstat001 Mean of a data set
ggeom866 Perimeter and area on a grid
ggeom300 Perimeter of a square or a rectangle
ggeom339 Perimeter of a polygon
ggeom019 Area of a square or a rectangle
ggeom221 Finding the missing length in a figure
ggeom340 Area of a piecewise rectangular figure
ggeom801 Area of a triangle
ggeom022 Area of a parallelogram
ggeom016 Circumference of a circle
ggeom002 Circumference and area of a circle
ggeom354 Volume of a rectangular prism made of unit cubes
ggeom311 Volume of a rectangular prism
ggeom031 Surface area of a cube or a rectangular prism

Proportions and Percents

arith663 Writing ratios for real-world situations
arith064 Solving a word problem on proportions using a unit rate
arith045 Word problem with powers of ten
arith122 Word problem on rates
arith073 Word problem with inverse proportion
arith064 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
arith30 Finding a percentage of a whole number without a calculator: Basic
arith069 Writing a ratio as a percentage without a calculator
arith074 Finding the sale price without a calculator given the original price and percent discount
arith120 Word problem on percentage: Problem type 2
arith121 Word problem on percentage: Problem type 3
arith232 Finding simple interest without a calculator

Signed Numbers and Exponents

mstat038 Reading the temperature from a thermometer
alg286 Plotting integers on a number line
arith071 Absolute value of a number
arith020 Integer addition: Problem type 1
arith108 Integer addition: Problem type 2
arith88 Integer subtraction: Problem type 1
arith689 Integer subtraction: Problem type 2
arith690 Integer subtraction: Problem type 3
B.2. Arithmetic - 4

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
arith128 Adding or subtracting 10, 100, or 1000
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
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
arith675 Understanding multiplication of a one-digit number with a larger number
arith003 Multiplication without carry
arith004 Multiplication with carry
APPENDIX B. PROGRAMS IN ALEKS

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
arith639 Using multiplication to find the number of squares
arith640 Using addition and multiplication to count the objects on a grid
arith641 Multiples: Problem type 1
arith642 Multiples: Problem type 2
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
arith644 Word problem on quotient and remainder
arith617 Quotient and remainder: Problem type 2
arith631 Quotient and remainder: Problem type 3
arith614 Word problem with multiplication or division of whole numbers
arith623 Word problem with division of whole numbers and rounding
arith130 Word problem with multiplication and addition or subtraction of whole 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
arith6101 Estimating a sum of whole numbers
arith677 Estimating a difference of whole numbers
arith677 Estimating a product
arith678 Estimating a quotient
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
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
arith240 Word problem with common multiples
arith653 Fact families for addition and subtraction
arith654 Fact families for multiplication and division
alg807 Finding the next terms of a sequence 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
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
B.2. ARITHMETIC - 4

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
arith088 The reciprocal of a number
arith079 Product of a unit fraction and a whole number
arith119 Introduction to 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
arith662 Writing a mixed number and an improper fraction for a shaded region
arith015 Writing an improper fraction as a mixed number
arith084 Addition of mixed numbers with the same denominator and carry
arith085 Subtraction of mixed numbers with the same denominator and borrowing
arith020 Mixed number multiplication: Problem type 1
arith076 Mixed number multiplication: Problem type 2
arith013 Mixed number division

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
arith070 Converting a decimal to a fraction: Basic
arith087 Converting a decimal to a proper fraction in simplest form: Advanced
arith071 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
arith072 Converting a decimal to a mixed number
arith223 Converting a mixed number to a decimal
arith068 Addition with money
arith024 Addition of aligned decimals
arith013 Decimal addition with 3 numbers
arith025 Subtraction of aligned decimals
arith069 Subtraction with money
arith026 Word problem with one decimal operation: Problem type 1
arith027 Word problem with one decimal operation: Problem type 2
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
arith046 Decimal multiplication: Problem type 2
arith028 Word problem with multiple decimal operations: 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
arith029 Word problem with multiple decimal operations: Problem type 2

Measurement and Geometry

mstat033 Measuring length to the nearest inch
mstat034 Measuring length to the nearest quarter or half inch
APPENDIX B. PROGRAMS IN ALEKS

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
mstat035 Conversions involving measurements in feet and inches
mstat036 Adding measurements in feet and inches
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
unit012 Time unit conversion with whole number values
time008 Reading a calendar
time009 Introduction to adding time
time006 Adding time
time011 Introduction to elapsed time
time007 Elapsed time
arith063 Word problem with clocks
mstat024 Interpreting a bar graph
mstat044 Interpreting a double bar graph
mstat007 Interpreting a line graph
stat804 Interpreting a circle graph or pie chart
arith103 Average of two numbers
mstat001 Mean of a data set
ggeom066 Perimeter and area on a grid
ggeom300 Perimeter of a square or a rectangle
ggeom339 Perimeter of a polygon
ggeom019 Area of a square or a rectangle
ggeom221 Finding the missing length in a figure
ggeom340 Area of a piecewise rectangular figure
ggeom801 Area of a triangle
ggeom022 Area of a parallelogram
ggeom016 Circumference of a circle
ggeom024 Circumference and area of a circle
ggeom554 Volume of a rectangular prism made of unit cubes
ggeom311 Volume of a rectangular prism
ggeom031 Surface area of a cube or a rectangular prism

Proportions and Percents

arith063 Writing ratios for real-world situations
arith064 Solving a word problem on proportions using a unit rate
arith045 Word problem with powers of ten
arith122 Word problem on rates
arith073 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
arith030 Finding a percentage of a whole number without a calculator: Basic
arith069 Writing a ratio as a percentage without a calculator
arith074 Finding the sale price without a calculator given the original price and percent discount
arith120 Word problem on percentage: Problem type 2
arith121 Word problem on percentage: Problem type 3
arith232 Finding simple interest without a calculator

Signed Numbers and Exponents
B.3. ARITHMETIC - 5

mstat038 Reading the temperature from a thermometer
alge286 Plotting integers on a number line
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
arith231 Integer multiplication and division
arith117 Signed decimal addition and subtraction
arith234 Signed decimal addition and subtraction with 3 numbers
arith116 Signed fraction addition or subtraction: Basic
arith105 Signed fraction multiplication: Advanced
arith104 Operations with absolute value: Problem type 2
arith233 Introduction to exponents
arith683 Power of 10: Positive exponent
arith684 Power of 10: Negative exponent
arith636 Scientific notation with positive exponent
arith637 Scientific notation with 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
arith029 Ordering numbers with positive exponents
arith024 Ordering numbers with negative exponents
arith042 Evaluating an expression with a negative exponent: Positive fraction base
arith043 Evaluating an expression with a negative exponent: Negative integer base
arith016 Square root of a perfect square
arith062 Estimating a square root
arith061 Square root of a rational perfect square
arith093 Simplifying the square root of a whole number less than 100
arith094 Cube root of an integer
arith032 Square root addition or subtraction
arith039 Square root multiplication: Advanced

B.3 Arithmetic - 5

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
arith128 Adding or subtracting 10, 100, or 1000
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
arith682 Subtraction with multiple regrouping steps
arithmetic Subtraction and regrouping with zeros
arithmetic Word problem with addition or subtraction of whole numbers
arithmetic Multiplication as repeated addition
arithmetic One-digit multiplication
arithmetic Multiplication by 10, 100, and 1000
arithmetic Understanding multiplication of a one-digit number with a larger number
arithmetic Multiplication without carry
arithmetic Multiplication with carry
arithmetic Introduction to multiplication of large numbers
arithmetic Multiplication with trailing zeros: Problem type 1
arithmetic Multiplication with trailing zeros: Problem type 2
arithmetic Multiplication of large numbers
arithmetic Using multiplication to find the number of squares
arithmetic Using addition and multiplication to count the objects on a grid
arithmetic Multiples: Problem type 1
arithmetic Multiples: Problem type 2
arithmetic Division facts
arithmetic Division without carry
arithmetic Division with carry
arithmetic Division with trailing zeros: Problem type 1
arithmetic Division with trailing zeros: Problem type 2
arithmetic Division involving quotients with intermediate zeros
arithmetic Quotient and remainder: Problem type 1
arithmetic Word problem on quotient and remainder
arithmetic Quotient and remainder: Problem type 2
arithmetic Quotient and remainder: Problem type 3
arithmetic Word problem with multiplication or division of whole numbers
arithmetic Word problem with division of whole numbers and rounding
arithmetic Word problem with multiplication and addition or subtraction of whole numbers
arithmetic Introduction to inequalities
arithmetic Ordering large numbers
arithmetic Rounding to tens or hundreds
arithmetic Rounding to hundreds or thousands
arithmetic Rounding to thousands, ten thousands, or hundred thousands
arithmetic Estimating a sum of whole numbers
arithmetic Estimating a difference of whole numbers
arithmetic Estimating a product
arithmetic Estimating a quotient
arithmetic Introduction to parentheses
arithmetic Introduction to order of operations
arithmetic Order of operations with whole numbers
arithmetic Order of operations with whole numbers and grouping symbols
arithmetic Even and odd numbers
arithmetic Divisibility rules for 2, 5, and 10
arithmetic Divisibility rules for 3 and 9
arithmetic Factors
arithmetic Prime numbers
arithmetic Prime factorization
arithmetic Greatest common factor of 2 numbers
arithmetic Least common multiple of 2 numbers
arithmetic Word problem with common multiples
arithmetic Fact families for addition and subtraction
arithmetic Fact families for multiplication and division
arithmetic Finding the next terms of a sequence with whole numbers

Fractions

arithmetic Introduction to fractions
arithmetic Understanding equivalent fractions
arithmetic Equivalent fractions
B.3. ARITHMETIC - 5

arith066 Introduction to simplifying a fraction
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
arith087 Fractional position on a number line
arith067 Plotting fractions on a number line
arith088 Addition or subtraction of fractions with the same denominator
arith090 Addition or subtraction of unit fractions
arith092 Using a common denominator to order fractions
arith023 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
arith088 The reciprocal of a number
arith079 Product of a unit fraction and a whole number
arith119 Introduction to 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
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
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
arith027 Mixed number multiplication: Problem type 2
arith086 Mixed number division

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
arith668 Addition with money
arith624 Addition of aligned decimals
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
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
arith046 Decimal multiplication: Problem type 2
arith628 Word problem with multiple decimal operations: Problem type 1
arith083 Division of a decimal by a power of ten
arith681 Division of a decimal by a whole number
arith019 Division of a decimal by a 2-digit decimal
APPENDIX B. PROGRAMS IN ALEKS

arith629 Word problem with multiple decimal operations: Problem type 2

Measurement and Geometry

mstat033 Measuring length to the nearest inch
mstat034 Measuring length to the nearest quarter or half inch
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
mstat035 Conversions involving measurements in feet and inches
unit036 Adding measurements in feet and inches
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
time012 Time unit conversion with whole number values
time008 Reading a calendar
time009 Introduction to adding time
time006 Adding time
time011 Introduction to elapsed time
time007 Elapsed time
arith063 Word problem with clocks
mstat024 Interpreting a bar graph
mstat044 Interpreting a double bar graph
mstat007 Interpreting a line graph
stat804 Interpreting a circle graph or pie chart
arith103 Average of two numbers
mstat001 Mean of a data set
geom866 Perimeter and area on a grid
geom300 Perimeter of a square or a rectangle
geom339 Perimeter of a polygon
geom019 Area of a square or a rectangle
geom221 Finding the missing length in a figure
geom340 Area of a piecewise rectangular figure
geom801 Area of a triangle
geom022 Area of a parallelogram
geom016 Circumference of a circle
geom802 Circumference and area of a circle
geom354 Volume of a rectangular prism made of unit cubes
geom311 Volume of a rectangular prism
geom831 Surface area of a cube or a rectangular prism

Proportions and Percents

arith663 Writing ratios for real-world situations
arith064 Solving a word problem on proportions using a unit rate
arith045 Word problem with powers of ten
arith122 Word problem on rates
arith073 Word problem with inverse proportion
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
arith639 Finding a percentage of a whole number without a calculator: Basic
arith069 Writing a ratio as a percentage without a calculator
arith074 Finding the sale price without a calculator given the original price and percent discount
Signed Numbers and Exponents

mstat038 Reading the temperature from a thermometer
algx286 Plotting integers on a number line
arith071 Absolute value of a number
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
arith231 Integer multiplication and division
arith117 Signed decimal addition and subtraction
arith234 Signed decimal addition and subtraction with 3 numbers
arith116 Signed fraction addition or subtraction: Basic
arith105 Signed fraction multiplication: Advanced
arith104 Operations with absolute value: Problem type 2
arith233 Introduction to exponents
arith683 Power of 10: Positive exponent
arith684 Power of 10: Negative exponent
arith036 Scientific notation with positive exponent
arith037 Scientific notation with 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
arith029 Ordering numbers with positive exponents
arith024 Ordering numbers with negative exponents
arith642 Evaluating an expression with a negative exponent: Positive fraction base
arith043 Evaluating an expression with a negative exponent: Negative integer base
arith016 Square root of a perfect square
arith602 Estimating a square root
arith601 Square root of a rational perfect square
arith609 Simplifying the square root of a whole number less than 100
arith694 Cube root of an integer
arith632 Square root addition or subtraction
arith639 Square root multiplication: Advanced

B.4 Arithmetic - 6

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
arith128 Adding or subtracting 10, 100, or 1000
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
APPENDIX B. PROGRAMS IN ALEKS

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
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
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
arith639 Using multiplication to find the number of squares
arith640 Using addition and multiplication to count the objects on a grid
arith641 Multiples: Problem type 1
arith642 Multiples: Problem type 2
arith675 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
arith614 Word problem with multiplication or division of whole numbers
arith623 Word problem with division of whole numbers and rounding
arith130 Word problem with multiplication and addition or subtraction of whole numbers
arith651 Introduction to inequalities
arith677 Ordering large numbers
arith078 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
arith677 Estimating a product
arith678 Estimating a quotient
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
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
arith240 Word problem with common multiples
arith653 Fact families for addition and subtraction
arith654 Fact families for multiplication and division
alge807 Finding the next terms of a sequence with whole numbers

**Fractions**

arith623 Introduction to fractions
arith665 Understanding equivalent fractions
arith212 Equivalent fractions
arith666 Introduction to simplifying a fraction
arith867 Simplifying a fraction
arith844 Ordering fractions with the same denominator
arith911 Ordering fractions with the same numerator
arith92 Usings a common denominator to order fractions
arith867 Fractional position on a number line
arith667 Plotting fractions on a number line
arith818 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
arith888 The reciprocal of a number
arith879 Product of a unit fraction and a whole number
arith119 Introduction to fraction multiplication
arith886 Product of a fraction and a whole number: Problem type 1
arith853 Fraction multiplication
arith895 Multi-step word problem involving fractions and multiplication
arith822 Fraction division
arith662 Writing a mixed number and an improper fraction for a shaded region
arith815 Writing an improper fraction as a mixed number
arith869 Writing a mixed number as an improper fraction
arith825 Addition or subtraction of mixed numbers with the same denominator
arith884 Addition of mixed numbers with the same denominator and carry
arith826 Subtraction of mixed numbers with the same denominator and borrowing
arith885 Addition or subtraction of mixed numbers with different denominators
arith820 Mixed number multiplication: Problem type 1
arith876 Mixed number multiplication: Problem type 2
arith868 Mixed number division

**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
arith222 Rounding decimals
arith129 Introduction to ordering decimals
arith808 Ordering 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
arith889 Converting a fraction to a repeating decimal
arith672 Converting a decimal to a mixed number
arith223 Converting a mixed number to a decimal
arith668 Addition with money
arith624 Addition of aligned decimals
arith613 Decimal addition with 3 numbers
arith625 Subtraction of aligned decimals
arith669 Subtraction with money
arith626 Word problem with one decimal operation: Problem type 1
appendix B. Programs in ALEKS

arith627 Word problem with one decimal operation: Problem type 2
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
arith046 Decimal multiplication: Problem type 2
arith628 Word problem with multiple decimal operations: 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
arith629 Word problem with multiple decimal operations: Problem type 2

Measurement and Geometry

mstat033 Measuring length to the nearest inch
mstat034 Measuring length to the nearest quarter or half inch
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
mstat035 Conversions involving measurements in feet and inches
mstat036 Adding measurements in feet and inches
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
time012 Time unit conversion with whole number values
time008 Reading a calendar
time009 Introduction to adding time
time006 Adding time
time011 Introduction to elapsed time
time007 Elapsed time
arith063 Word problem with clocks
mstat024 Interpreting a bar graph
mstat044 Interpreting a double bar graph
mstat001 Mean of a data set
mstat007 Interpreting a line graph
stat804 Interpreting a circle graph or pie chart
arith103 Average of two numbers
mstat001 Mean of a data set
gem866 Perimeter and area on a grid
gem300 Perimeter of a square or a rectangle
gem339 Perimeter of a polygon
gem019 Area of a square or a rectangle
gem221 Finding the missing length in a figure
gem340 Area of a piecewise rectangular figure
gem019 Area of a square or a rectangle
gem022 Area of a parallelogram
gem046 Circumference of a circle
gem8092 Circumference and area of a circle
gem354 Volume of a rectangular prism made of unit cubes
gem311 Volume of a rectangular prism
gem3831 Surface area of a cube or a rectangular prism

Proportions and Percents

arith663 Writing ratios for real-world situations
arith064 Solving a word problem on proportions using a unit rate
arith045 Word problem with powers of ten
Signed Numbers and Exponents

mstat038 Reading the temperature from a thermometer
alge286 Plotting integers on a number line
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
arith231 Integer multiplication and division
arith117 Signed decimal addition and subtraction
arith234 Signed decimal addition and subtraction with 3 numbers
arith116 Signed fraction addition or subtraction: Basic
arith105 Signed fraction multiplication: Advanced
arith104 Operations with absolute value: Problem type 2
arith233 Introduction to exponents
arith684 Power of 10: Negative exponent
arith036 Scientific notation with positive exponent
arith037 Scientific notation with 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
arith029 Ordering numbers with positive exponents
arith624 Ordering numbers with negative exponents
arith042 Evaluating an expression with a negative exponent: Positive fraction base
arith043 Evaluating an expression with a negative exponent: Negative integer base
arith016 Square root of a perfect square
arith602 Estimating a square root
arith601 Square root of a rational perfect square
arith093 Simplifying the square root of a whole number less than 100
arith094 Cube root of an integer
arith032 Square root addition or subtraction
arith039 Square root multiplication: Advanced

B.5 LV3

Place Value and Money

arith124 Whole number place value: Problem type 1
arith125 Whole number place value: Problem type 2
APPENDIX B. PROGRAMS IN ALEKS

arith066 Expanded form
arith643 Expanded form with zeros
arith028 Numeral translation: Problem type 1
arith060 Numeral translation: Problem type 2
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
arith660 Finding the value of a collection of coins
arith661 Finding the value of a collection of bills and coins

Addition and Subtraction

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
arith601 Addition without 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
arith006 Subtraction with borrowing
arith682 Subtraction with multiple regrouping steps
arith637 Subtraction and regrouping with zeros
arith123 Adding or subtracting 10, 100, or 1000
arith613 Word problem with addition or subtraction of whole numbers
arith101 Estimating a sum of whole numbers
arith102 Estimating a difference of whole numbers
arith653 Fact families for addition and subtraction
arith655 Introduction to properties of addition
alge284 Evaluating an algebraic expression: Whole number addition or subtraction
alge009 Additive property of equality with whole numbers

Multiplication and Division

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
arith632 Multiplication with trailing zeros: Problem type 1
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
arith641 Multiples: Problem type 1
arith642 Multiples: Problem type 2
arith130 Word problem on multiplication and addition or subtraction of whole numbers
arith075 Division facts
arith052 Division without carry
arith055 Division with carry
arith680 Division with trailing zeros: Problem type 1
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
B.5. LV3

arith614 Word problem with multiplication or division of whole numbers
arith677 Estimating a product
arith678 Estimating a quotient
arith645 Introduction to parentheses
arith658 Filling in missing operations to make an equation
arith654 Fact families for multiplication and division
arith656 Introduction to properties of multiplication
alge683 Evaluating an algebraic expression: Whole number multiplication or division
alge813 Solving simple equations with multiplication or division
arith656 Factors
arith646 Even and odd numbers
arith647 Divisibility rules for 2, 5, and 10
alge807 Finding the next terms of a sequence with whole numbers
alge281 Function tables with one-step rules
mstat061 Describing an increasing or decreasing pattern from a table of values

Geometry, Measurement, and Graphs

geom349 Naming segments, rays, and lines
geom358 Identifying parallel and perpendicular lines
geom303 Acute, obtuse, and right angles
geom361 Naming polygons
geom306 Acute, obtuse, and right triangles
geom300 Perimeter of a square or a rectangle
geom339 Perimeter of a polygon
geom366 Perimeter and area on a grid
geom019 Area of a square or a rectangle
geom386 Identifying parallelograms, rectangles, and squares
geom357 Classifying solids
geom354 Volume of a rectangular prism made of unit cubes
geom348 Vertices, edges, and faces of a solid
geom219 Nets of solids
geom359 Identifying congruent shapes on a grid
geom360 Identifying similar or congruent shapes on a grid
geom357 Identifying transformations
geom334 Drawing lines of symmetry
alge732 Finding patterns in shapes
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
unit005 U.S. Customary unit conversion with whole number values
mstat035 Conversions involving measurements in feet and inches
mstat060 Choosing metric measurement units
mstat063 Measuring length to the nearest centimeter
unit001 Metric distance conversion with whole number values
unit002 Metric mass or capacity conversion with whole number values
time010 Telling time
time008 Reading a calendar
unit012 Time unit conversion with whole number values
time009 Introduction to adding time
time011 Introduction to elapsed time
alge278 Reading a point in quadrant 1
alge279 Plotting a point in quadrant 1
mstat056 Interpreting a tally table
mstat005 Constructing a bar graph for non-numerical data
mstat024 Interpreting a bar graph
mstat057 Interpreting a pictograph table
mstat037 Constructing a line plot
Interpreting a line graph
Interpreting a Venn diagram of 2 sets
Finding the mode and range of a data set
Introduction to the counting principle
Classifying likelihood
Introduction to the probability of an event

Fractions and Decimals

Introduction to fractions
Understanding equivalent fractions
Equivalent fractions
Introduction to simplifying a fraction
Writing a mixed number and an improper fraction for a shaded region
Ordering fractions with the same denominator
Ordering fractions with the same numerator
Addition or subtraction of fractions with the same denominator
Product of a unit fraction and a whole number
Writing a decimal and a fraction for a shaded region
Decimal place value: Tenths and hundredths
Decimal place value: Hundreds to ten thousandths
Introduction to ordering decimals
Ordering decimals
Converting a decimal to a fraction: Basic
Converting a fraction with a denominator of 10, 100, or 1000 to a decimal
Addition of aligned decimals
Decimal addition with 3 numbers
Addition with money
Subtraction of aligned decimals
Subtraction with money
Word problem with one decimal operation: Problem type 1
Word problem with one decimal operation: Problem type 2

B.6 LV4

Number Sense, Addition, and Subtraction

Whole number place value: Problem type 1
Whole number place value: Problem type 2
Expanded form
Expanded form with zeros
Numerical translation: Problem type 1
Numerical translation: Problem type 2
Introduction to inequalities
Ordering large numbers
Rounding to tens or hundreds
Rounding to hundreds or thousands
Rounding to thousands, ten thousands, or hundred thousands
One-digit addition with carry
Addition of 3 or 4 one-digit numbers
Adding a 2-digit number and a 1-digit number with carry
Addition without carry
Addition with carry
Addition with carry to the hundreds place
Addition of large numbers
B.6. LV4

arith008 One-digit multiplication
arith079 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
arith632 Multiplication with trailing zeros: Problem type 1
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
arith641 Multiples: Problem type 1
arith642 Multiples: Problem type 2
arith615 Introduction to multiplication of large numbers
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
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
arith614 Word problem with multiplication or division of whole numbers
arith631 Quotient and remainder: Problem type 3
arith649 Division with trailing zeros: Problem type 2
arith022 Word problem with division of whole numbers and rounding
arith677 Estimating a product
arith678 Estimating a quotient
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
arith657 Understanding the distributive property
arith652 Comparing a numerical expression with a number
arith654 Fact families for multiplication and division
arith658 Filling in missing operations to make an equation
arith656 Introduction to properties of multiplication
alg007 Finding the next terms of a sequence 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
arith633 Greatest common factor of 2 numbers
arith070 Least common multiple of 2 numbers
arith634 Prime numbers

Multiplication and Division
APPENDIX B. PROGRAMS IN ALEKS

arith035 Prime factorization

Fractions, Time, and Customary Measurement

arith623 Introduction to fractions
arith665 Understanding equivalent fractions
arith212 Equivalent fractions
arith666 Introduction to simplifying a fraction
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
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
arith050 Fractional part of a circle
arith079 Product of a fraction and a whole number
arith086 Product of a fraction and a whole number: Problem type 1
arith662 Writing a mixed number and an improper fraction for a shaded region
arith015 Writing an improper fraction as a mixed number
arith19 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
time010 Telling time
unit012 Time unit conversion with whole number values
time008 Reading a calendar
time009 Introduction to adding time
time006 Adding time
time011 Introduction to elapsed time
time007 Elapsed time
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

Decimals, Money, and Metric Measurement

arith660 Finding the value of a collection of coins
arith661 Finding the value of a collection of bills and coins
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
arith687 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
arith672 Converting a decimal to a mixed number
B.6. LV4

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
arith631 Estimating a decimal sum or difference
arith674 Finding the percentage of a grid that is shaded
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

Geometry

geom349 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
geom303 Acute, obtuse, and right angles
geom361 Naming polygons
geom306 Acute, obtuse, and right triangles
geom307 Scalene, isosceles, and equilateral triangles
geom001 Finding an angle measure of a triangle given two angles
geom367 Identifying parallelograms, rectangles, and squares
geom310 Classifying quadrilaterals
geom300 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
geom350 Distinguishing between area and perimeter
geom351 Areas of rectangles with the same perimeter
geom340 Area of a piecewise rectangular figure
geom869 Estimates and exact answers
alge732 Finding patterns in shapes
geom347 Introduction to a circle: Diameter, radius, and chord
geom311 Volume of a rectangular prism
geom354 Volume of a rectangular prism made of unit cubes
geom868 Classifying solids
geom348 Vertices, edges, and faces of a solid
geom219 Nets of solids
geom359 Identifying congruent shapes on a grid
geom360 Identifying similar or congruent shapes on a grid
geom355 Introduction to translations
geom356 Introduction to reflections
geom357 Identifying transformations
geom334 Drawing lines of symmetry

Algebra, Graphs, and Probability

mstat004 Constructing a histogram for numerical data
mstat005 Constructing a bar graph for non-numerical data
mstat037 Constructing a line plot
APPENDIX B. PROGRAMS IN ALEKS

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
mstat031 Interpreting a stem-and-leaf plot
mstat003 Mode of a data set
mstat028 Mean and median of a data set
mstat041 Interpreting a tree diagram
mstat040 Introduction to the counting principle
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
arith699 Writing a signed number for a real-world situation
mstat038 Reading the temperature from a thermometer
alge286 Plotting integers on a number line
arith691 Ordering integers
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
alge009 Additive property of equality with whole numbers
alge813 Solving simple equations with multiplication or division
alge008 Multiplicative property of equality with whole numbers
alge733 Writing a one-step expression for a real-world situation
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
alge279 Plotting a point in quadrant 1
alge283 Graphing whole number functions
alge280 Graphing a line in quadrant 1

B.7 LV5

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
arith650 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
app\textsuperscript{e}807 Finding the next terms of a sequence with whole numbers

\textbf{Fractions and Proportions}

\texttt{arith623} Introduction to fractions
\texttt{arith663} Writing ratios for real-world situations
\texttt{arith665} Understanding equivalent fractions
\texttt{arith212} Equivalent fractions
\texttt{arith666} Introduction to simplifying a fraction
\texttt{arith667} Simplifying a fraction
\texttt{arith644} Ordering fractions with the same denominator
\texttt{arith691} Ordering fractions with the same numerator
\texttt{arith692} Using a common denominator to order fractions
\texttt{arith687} Fractional position on a number line
\texttt{arith667} Plotting fractions on a number line
\texttt{arith618} Addition or subtraction of fractions with the same denominator
\texttt{arith109} Addition or subtraction of unit fractions
\texttt{arith664} Introduction to addition or subtraction of fractions with different denominators
\texttt{arith230} Addition or subtraction of fractions with different denominators
\texttt{arith100} Fractional part of a circle
\texttt{arith697} Product of a unit fraction and a whole number
\texttt{arith086} Product of a fraction and a whole number: Problem type 1
\texttt{arith119} Introduction to fraction multiplication
\texttt{arith653} Fraction multiplication
\texttt{arith695} Multi-step word problem involving fractions and multiplication
\texttt{arith688} The reciprocal of a number
\texttt{arith694} Division involving a whole number and a fraction
\texttt{arith622} Fraction division
\texttt{arith662} Writing a mixed number and an improper fraction for a shaded region
\texttt{arith605} Writing an improper fraction as a mixed number
\texttt{arith619} Writing a mixed number as an improper fraction
\texttt{arith615} Addition or subtraction of mixed numbers with the same denominator
\texttt{arith684} Addition of mixed numbers with the same denominator and carry
\texttt{arith626} Subtraction of mixed numbers with the same denominator and borrowing
\texttt{arith685} Addition or subtraction of mixed numbers with different denominators
\texttt{arith620} Mixed number multiplication: Problem type 1
\texttt{arith676} Mixed number multiplication: Problem type 2
\texttt{arith608} Mixed number division
\texttt{arith228} Word problem on unit rates associated with ratios of whole numbers: Decimal answers
\texttt{alge272} Solving a proportion of the form $x/a = b/c$
\texttt{arith664} Solving a word problem on proportions using a unit rate
\texttt{arith610} Word problem on proportions: Problem type 1
\texttt{unit034} Converting between metric and U.S. Customary unit systems

\textbf{Decimals and Percents}

\texttt{arith127} Writing a decimal and a fraction for a shaded region
\texttt{arith110} Decimal place value: Tenths and hundredths
\texttt{arith220} Decimal place value: Hundreds to ten thousandths
\texttt{arith221} Rounding decimals
\texttt{arith129} Introduction to ordering decimals
\texttt{arith608} Ordering decimals
\texttt{arith009} Ordering fractions and decimals
\texttt{arith670} Converting a decimal to a fraction: Basic
\texttt{arith687} Converting a decimal to a proper fraction in simplest form: Advanced
\texttt{arith671} Converting a fraction with a denominator of 10, 100, or 1000 to a decimal
\texttt{arith222} Converting a fraction to a terminating decimal
\texttt{arith089} Converting a fraction to a repeating decimal
B.7. LV5

Converting a decimal to a mixed number
Converting a mixed number to a decimal
Addition of aligned decimals
Addition with money
Decimal addition with 3 numbers
Subtraction of aligned decimals
Subtraction with money
Word problem with one decimal operation: Problem type 1
Word problem with one decimal operation: Problem type 2
Estimating a decimal sum or difference
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
Word problem with powers of ten
Word problem with multiple decimal operations: Problem type 1
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 multiple decimal operations: Problem type 2
Finding the percentage of a grid that is shaded
Converting between percentages and decimals
Converting a percentage to a fraction in simplest form
Converting a fraction to a percentage: Denominator of 20, 25, or 50
Writing a ratio as a percentage without a calculator
Finding a percentage of a whole number without a calculator; Basic
Finding the sale price without a calculator given the original price and percent discount
Finding simple interest without a calculator

Geometry and Measurement

Measuring an angle with the protractor
Drawing an angle with the protractor
Acute, obtuse, and right angles
Constructing congruent angles
Constructing an angle bisector
Naming segments, rays, and lines
Identifying parallel and perpendicular lines
Constructing the perpendicular bisector of a line segment
Naming polygons
Acute, obtuse, and right triangles
Scalene, isosceles, and equilateral triangles
Area of a triangle
Finding an angle measure of a triangle given two angles
Finding an angle measure for a triangle with an extended side
Sum of the angle measures of a quadrilateral
Identifying parallelograms, rectangles, and squares
Classifying quadrilaterals
Perimeter of a square or a rectangle
Perimeter of a polygon
Sides of polygons having the same perimeter
Finding the missing length in a figure
Perimeter of a piecewise rectangular figure
Perimeter and area on a grid
Area of a square or a rectangle
Finding the side length of a rectangle given its perimeter or area
Distinguishing between area and perimeter
Areas of rectangles with the same perimeter
Area of a piecewise rectangular figure
APPENDIX B. PROGRAMS IN ALEKS

gem022 Area of a parallelogram
gem023 Area of a trapezoid
gem347 Introduction to a circle: Diameter, radius, and chord
gem016 Circumference of a circle
gem802 Circumference and area of a circle
gem869 Estimates and exact answers
alge732 Finding patterns in shapes
gem868 Classifying solids
gem354 Volume of a rectangular prism made of unit cubes
gem311 Volume of a rectangular prism
gem090 Volume of a triangular prism
gem031 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
gem219 Nets of solids
gem348 Vertices, edges, and faces of a solid
gem816 Side views of a solid made of cubes
gem359 Identifying congruent shapes on a grid
gem360 Identifying similar or congruent shapes on a grid
gem037 Similar polygons
gem355 Introduction to translations
gem356 Introduction to reflections
gem357 Identifying transformations
gem334 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
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
mstat025 Finding if a question can be answered by the data
mstat041 Interpreting a tree diagram
mstat040 Introduction to the counting principle
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
arith699 Writing a signed number for a real-world situation
mstat038 Reading the temperature from a thermometer
alge286 Plotting integers on a number line
arith691 Ordering integers
arith605 Plotting rational numbers on a number line
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
arith701 Word problem with addition or subtraction of integers
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
alge733 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 Solving simple equations with multiplication or division
alge608 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
alge280 Graphing a line in quadrant 1
arith233 Introduction to exponents
arith692 Writing expressions using exponents
arith693 Order of operations with whole numbers and exponents: Basic
arith683 Power of 10: Positive exponent
arith636 Scientific notation with positive exponent
arith816 Square root of a perfect square
B.8 Essential Mathematics

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
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
arith006 Subtraction with borrowing
arith682 Subtraction with multiple regrouping steps
arith637 Subtraction and regrouping with zeros
arith653 Fact families for addition and subtraction
arith13 Word problem with addition or subtraction of whole numbers
instat061 Describing an increasing or decreasing pattern from a table of values
arith126 Multiplication as repeated addition
arith008 One-digit multiplication
arith639 Using multiplication to find the number of squares
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
arith675 Understanding multiplication of a one-digit number with a larger number
arith638 Multiplication with trailing zeros: Problem type 2
arith014 Multiplication of large numbers
arith649 Multiplication involving zero
arith654 Fact families for multiplication and division
arith614 Word problem with multiplication or division of whole numbers
arith130 Word problem with multiplication and addition or subtraction of whole numbers
arith451 Word problem on unit rates associated with ratios of whole numbers: Whole number answers
arith243 Division of whole numbers given in fractional form
arith711 Division involving zero
arith652 Division without carry
arith005 Division with carry
arith901 Whole number division: 2-digit by 2-digit, no remainder
arith902 Whole number division: 3-digit by 2-digit, no remainder
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
arith67 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
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
arith692 Writing expressions using exponents
arith233 Introduction to exponents
arith683 Power of 10: Positive exponent
arith645 Introduction to parentheses
arith865 Comparing numerical expressions with 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
arith646 Even and odd numbers
arith647 Divisibility rules for 2, 5, and 10
arith648 Divisibility rules for 3 and 9
arith055 Factors
arith034 Prime numbers
arith035 Prime factorization
arith516 Greatest common factor of 3 numbers
arith409 Introduction to the distributive property
arith657 Understanding the distributive property
arith410 Introduction to factoring with numbers
arith411 Factoring a sum or difference of whole numbers
arith070 Least common multiple of 2 numbers
arith804 Least common multiple of 3 numbers
arith418 Word problem involving the least common multiple of 2 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
alge649 Evaluating a formula
alge648 Evaluating an algebraic expression: Whole numbers with one operation and an exponent
alge832 Evaluating an algebraic expression: Whole number operations and exponents
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
alge650 Identifying solutions to a one-step linear equation: Problem type 1
alge651 Identifying solutions to a one-step linear equation: Problem type 2
alge069 Additive property of equality with whole numbers
alge813 Solving simple equations with multiplication or division
alge008 Multiplicative property of equality with whole numbers
alge016 Translating a sentence into a one-step equation
geom339 Perimeter of a polygon
geom300 Perimeter of a square or a rectangle
geom019 Area of a square or a rectangle
geom866 Perimeter and area on a grid

Decimals

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 greater than 1 given its name: Advanced
arith829 Reading decimal position on a number line: Tenths
APPENDIX B. PROBLEMS 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
arith608 Ordering decimals
arith221 Rounding decimals
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
arith668 Addition with money
arith669 Subtraction with money
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
arith628 Word problem with multiple decimal operations: Problem type 1
arith744 Whole number division with decimal answers
arith608 Division of a decimal by a whole number
arith743 Division of a decimal by a 1-digit decimal
arith619 Division of a decimal by a 2-digit decimal
arith683 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
arith629 Word problem with multiple decimal operations: Problem type 2
arith103 Average of two numbers
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
scinot023 Introduction to scientific notation with positive exponents
arith036 Scientific notation with positive exponent

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
arith444 Ordering fractions with the same denominator
arith091 Ordering fractions with the same numerator
arith092 Using a common denominator to order fractions
B.8. ESSENTIAL MATHEMATICS

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
arith095 Determining if a quantity is increased or decreased when multiplied by a fraction
arith509 Modeling multiplication of proper fractions
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
arith694 Division involving a whole number and a fraction
arith022 Fraction division
arith507 Fact families for multiplication and division of fractions
arith508 Modeling division of a whole number by a fraction
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 Division involving a whole number and a fraction
arith230 Addition or subtraction of fractions with different denominators
arith803 Addition and subtraction of 3 fractions with different denominators
arith85 Product word problem involving addition or subtraction of fractions with different denominators
arith170 Fractional part of a circle
arith622 Writing a mixed number and an improper fraction for a shaded region
arith051 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
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
arith127 Writing a decimal and a fraction for a shaded region
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
arith113 Converting a proper fraction with a denominator of 2, 4, or 5 to a decimal
arith114 Converting a mixed number with a denominator of 2, 4, or 5 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
arith099 Ordering fractions and decimals
arith727 Converting a decimal to a proper fraction without simplifying: Basic
arith729 Converting a decimal to a proper fraction without simplifying: Advanced
arith728 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
### APPENDIX B. PROGRAMS IN ALEKS

<table>
<thead>
<tr>
<th>Program Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
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<td>arith513</td>
<td>Identifying rational decimal numbers</td>
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<tr>
<td>arith821</td>
<td>Exponents and fractions</td>
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<tr>
<td>arith859</td>
<td>Order of operations with fractions: Problem type 1</td>
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<tr>
<td>arith860</td>
<td>Order of operations with fractions: Problem type 2</td>
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<tr>
<td>arith861</td>
<td>Order of operations with fractions: Problem type 3</td>
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<tr>
<td>arith695</td>
<td>Complex fraction without variables: Problem type 1</td>
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<tr>
<td>arith748</td>
<td>Addition or subtraction with a decimal and a mixed number</td>
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<tr>
<td>arith749</td>
<td>Multiplication with a decimal and a fraction</td>
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</tbody>
</table>

### Ratios, Proportions, and Measurement

<table>
<thead>
<tr>
<th>Program Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>arith823</td>
<td>Writing ratios using different notations</td>
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<tr>
<td>arith63</td>
<td>Writing ratios for real-world situations</td>
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<tr>
<td>arith450</td>
<td>Identifying statements that describe a ratio</td>
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<tr>
<td>arith824</td>
<td>Simplifying a ratio of whole numbers: Problem type 1</td>
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<tr>
<td>arith825</td>
<td>Simplifying a ratio of decimals</td>
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<tr>
<td>arith827</td>
<td>Finding a unit price</td>
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<td>arith452</td>
<td>Using tables to compare ratios</td>
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<td>arith828</td>
<td>Computing unit prices to find the better buy</td>
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<tr>
<td>arith228</td>
<td>Word problem on unit rates associated with ratios of whole numbers: Decimal answers</td>
</tr>
<tr>
<td>arith064</td>
<td>Solving a word problem on proportions using a unit rate</td>
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<tr>
<td>alge823</td>
<td>Solving a one-step word problem using the formula ( d = rt )</td>
</tr>
<tr>
<td>alge281</td>
<td>Function tables with one-step rules</td>
</tr>
<tr>
<td>arith452</td>
<td>Finding missing values in a table of equivalent ratios</td>
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<tr>
<td>arith453</td>
<td>Using a table of equivalent ratios to find a missing quantity in a ratio</td>
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<tr>
<td>arith454</td>
<td>Writing an equation to represent a proportional relationship</td>
</tr>
<tr>
<td>alge819</td>
<td>Solving a proportion of the form ( \frac{x}{a} = \frac{b}{c} ): Basic</td>
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<tr>
<td>alge272</td>
<td>Solving a proportion of the form ( \frac{x}{a} = b/c )</td>
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<tr>
<td>arith10</td>
<td>Word problem on proportions: Problem type 1</td>
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<tr>
<td>arith611</td>
<td>Word problem on proportions: Problem type 2</td>
</tr>
<tr>
<td>arith455</td>
<td>Word problem with powers of ten</td>
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<tr>
<td>geom360</td>
<td>Identifying congruent shapes on a grid</td>
</tr>
<tr>
<td>geom367</td>
<td>Similar polygons</td>
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<tr>
<td>geom368</td>
<td>Similar right triangles</td>
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<tr>
<td>geom337</td>
<td>Indirect measurement</td>
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<tr>
<td>geom538</td>
<td>Finding lengths using scale models</td>
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<tr>
<td>geom539</td>
<td>Finding a scale factor: Same units</td>
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<tr>
<td>geom541</td>
<td>Using a scale drawing to find actual area</td>
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<tr>
<td>geom542</td>
<td>Reproducing a scale drawing at a different scale</td>
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<tr>
<td>mstat058</td>
<td>Choosing a measuring tool</td>
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<tr>
<td>mstat059</td>
<td>Choosing U.S. Customary measurement units</td>
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<td>mstat033</td>
<td>Measuring length to the nearest inch</td>
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<tr>
<td>mstat034</td>
<td>Measuring length to the nearest quarter or half inch</td>
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<tr>
<td>u0005</td>
<td>U.S. Customary unit conversion with whole number values</td>
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<tr>
<td>mstat035</td>
<td>Conversions involving measurements in feet and inches</td>
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<tr>
<td>mstat036</td>
<td>Adding measurements in feet and inches</td>
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<tr>
<td>u0006</td>
<td>U.S. Customary unit conversion with whole number values: Two-step conversion</td>
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<tr>
<td>u0007</td>
<td>U.S. Customary unit conversion with mixed number values: One-step conversion</td>
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<tr>
<td>u0008</td>
<td>U.S. Customary unit conversion with mixed number values: Two-step conversion</td>
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<tr>
<td>u0009</td>
<td>U.S. Customary area unit conversion with whole number values</td>
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<tr>
<td>mstat060</td>
<td>Choosing metric measurement units</td>
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<tr>
<td>mstat063</td>
<td>Measuring length to the nearest centimeter</td>
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<tr>
<td>mstat064</td>
<td>Measuring length to the nearest millimeter</td>
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<tr>
<td>u0001</td>
<td>Metric distance conversion with whole number values</td>
</tr>
<tr>
<td>u0002</td>
<td>Metric mass or capacity conversion with whole number values</td>
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<tr>
<td>u0003</td>
<td>Metric distance conversion with decimal values</td>
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<tr>
<td>u0004</td>
<td>Metric conversion with decimal values: Two-step problem</td>
</tr>
<tr>
<td>u0010</td>
<td>Metric area unit conversion with decimal values</td>
</tr>
<tr>
<td>u0012</td>
<td>Time unit conversion with whole number values</td>
</tr>
</tbody>
</table>
time009 Introduction to adding time
time006 Adding time
time011 Introduction to elapsed time
time007 Elapsed time
mstat062 Reading a positive temperature from a thermometer
mstat065 Converting between temperatures in Fahrenheit and Celsius
arith826 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
unit036 Converting between compound units: Advanced

**Percents**

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
arith903 Representing benchmark percentages on a grid
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
arith904 Finding benchmark fractions and percentages for a figure
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
arith850 Finding the rate of a tax or commission
arith849 Finding the total amount given the percentage of a partial amount
stat805 Making a reasonable inference based on proportion statistics
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
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
arith32 Finding simple interest without a calculator
arith918 Comparing discounts
arith914 Calculations involving paying for college
arith916 Computing percentages for categories of a budget
arith921 Comparing annual salaries of different occupations
arith911 Calculations involving purchases with debit and credit cards
APPENDIX B. PROGRAMS IN ALEKS

Integers and Rational Numbers

- arith950 Comparing costs of checking accounts
- arith951 Balancing a check register
- arith912 Reading a credit report
- arith913 Understanding the impact of a credit score

- arith400 Interpreting a table of signed numbers that relate to a real-world situation: Problem type 1
- arith511 Interpreting a table of signed numbers that relate to a real-world situation: Problem type 2
- arith416 Comparing signed numbers relating to a real-world situation
- arith403 Finding opposites of integers
- arith071 Absolute value of a number
- arith412 Finding all numbers with a given absolute value
- arith605 Plotting rational numbers on a number line
- arith200 Integer addition: Problem type 1
- arith108 Integer addition: Problem type 2
- arith431 Identifying a sum as a point located a given distance from another point
- arith430 Identifying relative change when combining two quantities
- 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
- arith440 Operations with absolute value: Problem type 1
- arith104 Operations with absolute value: Problem type 2
- alge694 Computing the distance between two integers on a number line
- arith701 Word problem with addition or subtraction of integers
- arith231 Integer multiplication and division
- arith800 Multiplication of 3 or 4 integers
- arith702 Exponents and integers: Problem type 1
- arith118 Order of operations with integers
- arith600 Order of operations with integers and exponents
- alge790 Evaluating expressions with exponents of zero
- arith684 Power of 10: Negative exponent
- scinot024 Introduction to scientific notation with negative exponents
- arith037 Scientific notation with negative exponent
- scinot012 Converting between scientific notation and standard form in a real-world situation
- arith117 Signed decimal addition and subtraction
- arith234 Signed decimal addition and subtraction with 3 numbers
- arith750 Signed decimal multiplication
- arith751 Signed decimal division
- alge660 Identifying equivalent signed fractions
- arith822 Signed fraction multiplication: Basic
- arith105 Signed fraction multiplication: Advanced
- arith814 Signed fraction division
- 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
- geom525 Computing distances between decimals on the number line
- alge005 Evaluating a linear expression: Integer multiplication with addition or subtraction
- alge004 Evaluating a quadratic expression: Integers
alge302 Evaluating a linear expression: Signed decimal addition and subtraction
alge303 Evaluating a linear expression: Signed decimal multiplication with addition or subtraction
alge808 Evaluating a linear expression: Signed fraction multiplication with addition or subtraction
alge001 Identifying numbers as integers or non-integers
alge647 Identifying like terms
alge700 Combining like terms: Whole number coefficients
alge607 Combining like terms: Integer coefficients
arith655 Introduction to properties of addition
alge187 Properties of addition
alge665 Combining like terms: Decimal coefficients
alge666 Combining like terms: Fractional coefficients
alge310 Multiplying a constant and a linear monomial
alge647 Identifying like terms
alge187 Properties of addition
alge606 Distributive property: Whole number coefficients
alge610 Distributive property: Fractional coefficients
alge605 Factoring a linear binomial
alge612 Identifying parts in an algebraic expression
alge613 Identifying equivalent algebraic expressions
arith656 Introduction to properties of multiplication
alge188 Properties of real numbers
alge608 Using distribution and combining like terms to simplify: Univariate
alge667 Identifying properties used to simplify an algebraic expression

Equations and Inequalities

alge800 Additive property of equality with decimals
alge801 Additive property of equality with fractions and mixed numbers
alge010 Additive property of equality with integers
alge836 Additive property of equality with signed fractions
alge825 Multiplicative property of equality with decimals
alge646 Multiplicative property of equality with whole numbers: Fractional answers
alge820 Multiplicative property of equality with fractions
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
alge266 Additive property of equality with a negative coefficient
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
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
alge611 Introduction to solving a linear equation with a variable on each side
alge658 Introduction to solving a rational equation
alge802 Solving a fraction word problem using a linear equation of the form Ax = B
alge671 Choosing stories that can be represented by given one-step equations
alge841 Translating a sentence into a multi-step equation
alge628 Writing an equation of the form Ax + B = C to solve a word problem
alge618 Comparing arithmetic and algebraic solutions to a word problem
alge672 Choosing stories that can be represented by given two-step equations
alge014 Solving a word problem with two unknowns using a linear equation
alge511 Solving for a variable in terms of other variables using addition or subtraction: Basic
alge513 Solving for a variable in terms of other variables using multiplication or division: Basic
alge015 Translating a sentence by using an inequality symbol
alge845 Translating a sentence into a one-step inequality
alge653 Introduction to identifying solutions to an 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
alge166 Graphing a compound inequality on the number line
alge652 Identifying solutions to a one-step linear inequality
alge848 Additive property of inequality with whole numbers
alge849 Additive property of inequality with integers
alge809 Multiplicative property of inequality with whole numbers
alge854 Multiplicative property of inequality with integers
alge636 Solving a two-step linear inequality with whole numbers
alge846 Translating a sentence into a multi-step inequality
alge621 Solving a word problem using a one-step linear inequality
alge623 Solving a word problem using a two-step linear inequality

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alge278 Reading a point in quadrant 1
alge279 Plotting a point in quadrant 1
alge064 Reading a point in the coordinate plane
alge067 Plotting a point in the coordinate plane
alge692 Plotting a point in quadrant 1: Mixed number coordinates
alge693 Plotting a point in the coordinate plane: Mixed number coordinates
arith404 Naming the quadrant or axis of a point given its graph
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
alge695 Finding distances between points that share a common coordinate: Problem type 1
alge696 Finding distances between points that share a common coordinate: Problem type 2
arith454 Making a table and plotting points given a unit rate
alge283 Graphing whole number functions
alge282 Function tables with two-step rules
alge850 Table for a linear equation
fun001 Table for a linear function
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
alge873 Identifying solutions to a linear equation in two variables
alge066 Finding a solution to a linear equation in two variables
alge280 Graphing a line in quadrant 1
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
alge198 Graphing a vertical or horizontal line
alge884 Finding x- and y-intercepts given the graph of a line on a grid
mstat007 Interpreting a line graph
alge575 Finding slope given the graph of a line in quadrant 1 that models a real-world situation
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
alge630 Finding outputs of a one-step function that models a real-world situation: Two variable equation
alge632 Finding outputs of a two-step function with decimals that models a real-world situation: Two variable equation
alge633 Finding inputs and outputs of a two-step function that models a real-world situation: Two variable equation
alge655 Writing and evaluating a function that models a real-world situation: Basic
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
alge656 Writing an equation and drawing its graph to model a real-world situation: Basic
alge701 Writing an equation and drawing its graph to model a real-world situation: Advanced
alge818 Finding the initial amount and rate of change given a graph of a linear function
alge670 Identifying independent and dependent quantities from tables and graphs
mstat052 Identifying independent and dependent variables from equations or real-world situations
alge999 Finding where a function is increasing, decreasing, or constant given the graph
mstat018 Choosing a graph to fit a narrative: Basic
mstat051 Choosing a graph to fit a narrative: Advanced
alge263 Interpreting the graphs of two functions
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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
alge906 Finding the next terms of an arithmetic sequence with integers
alge979 Identifying arithmetic sequences and finding the common difference
alge931 Finding a specified term of an arithmetic sequence given the first terms
alge907 Finding the next terms of a geometric sequence with signed numbers
alge981 Identifying arithmetic and geometric sequences
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ggeom151 Measuring an angle with the protractor
ggeom152 Drawing an angle with the protractor
ggeom303 Acute, obtuse, and right angles
ggeom339 Finding supplementary and complementary angles
ggeom551 Finding the complement or supplement of an angle given a figure
ggeom305 Identifying supplementary and vertical angles
ggeom553 Finding angle measures given two intersecting lines
ggeom304 Identifying corresponding and alternate angles
ggeom349 Naming segments, rays, and lines
ggeom358 Identifying parallel and perpendicular lines
ggeom554 Finding angle measures given two parallel lines cut by a transversal
ggeom154 Constructing the perpendicular bisector of a line segment
ggeom158 Constructing an angle bisector
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ggeom150 Constructing the perpendicular bisector of a line segment
ggeom157 Constructing a pair of parallel lines
ggeom306 Acute, obtuse, and right triangles
ggeom307 Scalene, isosceles, and equilateral triangles
ggeom501 Finding an angle measure of a triangle given two angles
ggeom308 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
ggeom519 Identifying and naming congruent parts of congruent triangles
ggeom543 Drawing a circle with a given radius or diameter
ggeom544 Creating triangles from given side lengths: Problem type 1
ggeom545 Creating triangles from given side lengths: Problem type 2
ggeom844 Triangle inequality: Problem type 1
ggeom546 Determining if a triangle is possible based on given angle measures
ggeom547 Drawing triangles with given conditions: Angle measures
ggeom545 Drawing triangles with given side lengths using a compass
ggeom361 Naming polygons
mstat042 Interpreting a Venn diagram of 2 sets
ggeom536 Drawing and identifying a polygon in the coordinate plane
ggeom367 Identifying parallelograms, rectangles, and squares
ggeom310 Classifying quadrilaterals
ggeom532 Classifying parallelograms
ggeom818 Finding the coordinates of a point to make a parallelogram
ggeom870 Sum of the angle measures of a quadrilateral
ggeom852 The sum of interior angle measures in a convex polygon
arith016 Square root of a perfect square
alge413 Finding all square roots of a number
arith763 Using a calculator to approximate a square root
arith762 Estimating a square root
alge407 Introduction to the Pythagorean Theorem
ggeom044 Pythagorean Theorem
alge408 Word problem involving the Pythagorean Theorem
ggeom093 Identifying side lengths that give right triangles
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ggeom357 Identifying transformations
ggeom355 Introduction to translations
ggeom356 Translating a point and giving its coordinates: One step
ggeom909 Translating a point and giving its coordinates: Two steps
ggeom357 Properties of translated figures
ggeom358 Determining if figures are related by a translation
ggeom330 Translating a polygon
g geom356 Introduction to reflections
arithmetic408 Reflecting a point across an axis
g geom533 Reflecting a point across both coordinate axes
g geom356 Identifying reflections
arithmetic407 Reflecting a point across an axis
g geom560 Coordinates of a point reflected across both axes
g geom534 Reflecting a point across both coordinate axes
g geom591 Properties of reflected figures
g geom592 Determining if figures are related by a reflection
g geom332 Reflecting a polygon over a vertical or horizontal line
g geom334 Drawing lines of symmetry
g geom602 Finding the coordinates of a point reflected across an axis and translated
arithmetic815 Finding an angle of rotation
g geom624 Identifying rotational symmetry and angles of rotation
g geom938 Rotating a point and giving its coordinates
g geom594 Properties of rotated figures
g geom595 Determining if figures are related by a rotation
g geom335 Rotating a figure about the origin
g geom580 Determining if figures are congruent and related by a transformation
g geom606 Dilating a segment and giving the coordinates of its endpoints
g geom607 The effect of dilation on side length
g geom608 Determining if figures are related by a dilation
g geom636 The effect of dilation on area

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geom618 Perimeter of a polygon involving mixed numbers and fractions
geom678 Sides of polygons having the same perimeter
g geom221 Finding the missing length in a figure
g geom553 Perimeter of a piecewise rectangular figure
algebra615 Writing algebraic expressions for the perimeter of a figure
g geom620 Area of a rectangle involving fractions
geom619 Area of a rectangle involving mixed numbers and fractions
geom350 Areas of rectangles with the same perimeter
geom690 Estimates and exact answers
algebra616 Writing algebraic expressions for the area of a figure
geom410 Word problem involving the area of a square or a rectangle
geom217 Finding the side length of a rectangle given its perimeter or area
geom340 Area of a piecewise rectangular figure
geom562 Area between two rectangles
geom142 Word problem involving the area between two rectangles
geom501 Finding the area of a right triangle on a grid
geom509 Finding the area of a right triangle or its corresponding rectangle
geom801 Area of a triangle
geom517 Finding the area of a trapezoid on a grid by using triangles and rectangles
geom344 Area involving rectangles and triangles
geom822 Area of a parallelogram
geom823 Area of a trapezoid
geom537 Finding the perimeter or area of a rectangle in the coordinate plane
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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
geom838 Circumference ratios
geom301 Perimeter involving rectangles and circles
geom026 Area of a circle
geom802 Circumference and area of a circle
geom570 Distinguishing between the area and circumference of a circle
geom302 Area involving rectangles and circles
geom563 Area between two concentric circles
geom036 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
geom816 Side views of a solid made of cubes
geom550 Identifying horizontal and vertical cross sections of solids
geom311 Volume of a rectangular prism
geom354 Volume of a rectangular prism made of unit cubes
geom518 Volume of a solid made of cubes with unit fraction edge lengths
geom535 Volume of a rectangular prism with fractional edge lengths
alge617 Writing equivalent expressions for the volume of a rectangular prism
geom571 Word problem involving the volume of a rectangular prism
geom558 Word problem involving the rate of filling or emptying a rectangular prism
geom505 Volume of a piecewise rectangular prism
geom990 Volume of a triangular prism
geom572 Word problem involving the volume of a triangular prism
geom033 Volume of a pyramid
geom637 Relating the volumes of a rectangular prism and a rectangular pyramid
geom638 Relating the volumes of a triangular prism and a triangular pyramid
geom850 Volume of a cylinder
geom573 Word problem involving the volume of a cylinder
geom892 Word problem involving the rate of filling or emptying a cylinder
geom622 Volume of a cone
geom866 Volume of a cone: Exact answers in terms of pi
geom639 Relating the volumes of a cylinder and a cone
geom575 Word problem involving the volume of a cone
geom219 Nets of solids
geom831 Surface area of a cube or a rectangular prism
geom832 Surface area of a rectangular prism made of unit cubes
geom555 Distinguishing between surface area and volume
geom556 Using a net to find the surface area of a rectangular prism
geom576 Word problem involving the surface area of a rectangular prism
geom345 Surface area of a piecewise rectangular prism made of unit cubes
geom991 Surface area of a triangular prism
geom557 Using a net to find the surface area of a triangular prism
geom621 Surface area of a cylinder
geom634 Surface area of a cylinder: Exact answers in terms of pi
geom578 Word problem involving the surface area of a cylinder

Data Analysis and Probability

mstat088 Identifying statistical questions
mstat080 Choosing an appropriate method for gathering data: Problem type 1
mstat081 Choosing an appropriate method for gathering data: Problem type 2
mstat056 Interpreting a tally table
mstat007 Constructing a two-way frequency table: Basic
mstat098 Constructing a two-way frequency table: Advanced
mstat049 Computing a percentage from a table of values
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mstat087 Making an inference using a two-way frequency table
stat020 Calculating relative frequencies in a contingency table
mstat025 Finding if a question can be answered by the data
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
mstat031 Interpreting a stem-and-leaf plot
ggeom814 Angle measure in a circle graph
mstat094 Constructing a scatter plot
mstat030 Sketching the line of best fit
mstat023 Scatter plots and correlation
mstat003 Mode of a data set
mstat055 Finding the mode and range of a data set
mstat092 Finding the mode and range from a line plot
mstat001 Mean of a data set
mstat077 Using a model to find the mean
mstat075 Understanding the mean graphically: Two bars
mstat076 Understanding the mean graphically: Four or more bars
mstat091 Finding the mean of a symmetric distribution
mstat079 Finding sample size and comparing samples for estimating the mean
mstat089 Computations involving the mean, sample size, and sum of a data set
stat803 Finding the value for a new score that will yield a given mean
stat802 Rejecting unreasonable claims based on average statistics
mstat096 Weighted mean
mstat028 Mean and median of a data set
mstat029 How changing a value affects the mean and median
mstat095 Finding outliers in a data set
mstat053 Choosing the best measure to describe data
mstat078 Comparing measures of center and variation
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
mstat082 Computing mean absolute deviation from a list of numerical values
mstat083 Computing mean absolute deviation from a bar graph
mstat043 Interpreting a Venn diagram of 3 sets
mstat041 Interpreting a tree diagram
mstat040 Introduction to the counting principle
mstat015 Counting principle
mstat099 Determining a sample space and outcomes for a simple event
mstat100 Determining a sample space and outcomes for a compound event
pcalc082 Factorial expressions
mstat017 Computing permutations and combinations
mstat008 Word problem involving permutations
mstat009 Word problem involving combinations
mstat054 Classifying likelihood
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
mstat011 Area as probability
mstat046 Experimental and theoretical probability
mstat047 Introduction to expectation
mstat012 Probability of independent events
mstat013 Probability of dependent events
B.9 MS RtI Tier 3

Whole Numbers

arith124 Whole number place value: Problem type 1
arith125 Whole number place value: Problem type 2
arith066 Expanded form
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
arith650 Addition with carry
arith630 Addition with carry to the hundreds place
arith612 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
arith606 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
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
arith614 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
arith641 Multiples: Problem type 1
arith642 Multiples: Problem type 2
arith075 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
arith644 Word problem on quotient and remainder
arith617 Quotient and remainder: Problem type 2
arith631 Quotient and remainder: Problem type 3
arith623 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
arith677 Ordering large numbers
arith078 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
arith677 Estimating a product
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arith678 Estimating a quotient
arith645 Introduction to parentheses
arith681 Introduction to order of operations
arith048 Order of operations with whole numbers
arith646 Even and odd numbers
arith647 Divisibility rules for 2, 5, and 10
arith056 Factors
arith034 Prime numbers
arith035 Prime factorization
arith033 Greatest common factor of 2 numbers
arith070 Least common multiple of 2 numbers
arith655 Introduction to properties of addition
arith656 Introduction to properties of multiplication
arith653 Fact families for addition and subtraction
arith654 Fact families for multiplication and division
alge807 Finding the next terms of a sequence 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
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
arith079 Product of a unit fraction and a whole number
arith119 Introduction to fraction multiplication
arith653 Fraction multiplication
arith088 The reciprocal of a number
arith694 Division involving a whole number and a fraction
arith022 Fraction division
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
arith684 Addition of mixed numbers with the same denominator and carry
arith216 Subtraction of mixed numbers with the same denominator and borrowing
arith020 Mixed number multiplication: 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
arith221 Rounding decimals
arith129 Introduction to ordering decimals
arith608 Ordering decimals
arith670 Converting a decimal to a fraction: Basic
arith087 Converting a decimal to a proper fraction in simplest form: Advanced
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>arith671</td>
<td>Converting a fraction with a denominator of 10, 100, or 1000 to a decimal</td>
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<tr>
<td>arith222</td>
<td>Converting a fraction to a terminating decimal</td>
</tr>
<tr>
<td>arith672</td>
<td>Converting a decimal to a mixed number</td>
</tr>
<tr>
<td>arith624</td>
<td>Addition of aligned decimals</td>
</tr>
<tr>
<td>arith668</td>
<td>Addition with money</td>
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<tr>
<td>arith613</td>
<td>Decimal addition with 3 numbers</td>
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<tr>
<td>arith625</td>
<td>Subtraction of aligned decimals</td>
</tr>
<tr>
<td>arith669</td>
<td>Subtraction with money</td>
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<tr>
<td>arith626</td>
<td>Word problem with one decimal operation: Problem type 1</td>
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<tr>
<td>arith627</td>
<td>Word problem with one decimal operation: Problem type 2</td>
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<td>arith131</td>
<td>Estimating a decimal sum or difference</td>
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<td>arith017</td>
<td>Multiplication of a decimal by a power of ten</td>
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<td>arith655</td>
<td>Decimal multiplication: Problem type 1</td>
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<td>arith628</td>
<td>Word problem with multiple decimal operations: Problem type 1</td>
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<td>arith082</td>
<td>Multiplication of a decimal by a whole number</td>
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<td>arith019</td>
<td>Division of a decimal by a power of ten</td>
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<td>arith081</td>
<td>Division of a decimal by a whole number</td>
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<tr>
<td>arith019</td>
<td>Division of a decimal by a 2-digit decimal</td>
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<td>arith064</td>
<td>Solving a word problem on proportions using a unit rate</td>
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<td>arith090</td>
<td>Finding the percentage of a grid that is shaded</td>
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<td>arith002</td>
<td>Converting a percentage to a fraction in simplest form</td>
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<tr>
<td>arith030</td>
<td>Finding a percentage of a whole number without a calculator: Basic</td>
</tr>
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</table>

**Geometry**

<table>
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<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>geom151</td>
<td>Measuring an angle with the protractor</td>
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<tr>
<td>geom303</td>
<td>Acute, obtuse, and right angles</td>
</tr>
<tr>
<td>geom306</td>
<td>Acute, obtuse, and right triangles</td>
</tr>
<tr>
<td>geom001</td>
<td>Finding an angle measure of a triangle given two angles</td>
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<tr>
<td>geom300</td>
<td>Perimeter of a square or a rectangle</td>
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<tr>
<td>geom339</td>
<td>Perimeter of a polygon</td>
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<td>geom221</td>
<td>Finding the missing length in a figure</td>
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<tr>
<td>geom866</td>
<td>Perimeter and area on a grid</td>
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<tr>
<td>geom019</td>
<td>Area of a square or a rectangle</td>
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<tr>
<td>geom350</td>
<td>Distinguishing between area and perimeter</td>
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<tr>
<td>geom568</td>
<td>Classifying solids</td>
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<tr>
<td>geom311</td>
<td>Volume of a rectangular prism</td>
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<tr>
<td>geom354</td>
<td>Volume of a rectangular prism made of unit cubes</td>
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<tr>
<td>geom219</td>
<td>Nets of solids</td>
</tr>
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</table>

**Measurement and Data**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>mstat058</td>
<td>Choosing a measuring tool</td>
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<td>mstat059</td>
<td>Choosing U.S. Customary measurement units</td>
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<tr>
<td>mstat062</td>
<td>Reading a positive temperature from a thermometer</td>
</tr>
<tr>
<td>mstat033</td>
<td>Measuring length to the nearest inch</td>
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<tr>
<td>mstat035</td>
<td>Conversions involving measurements in feet and inches</td>
</tr>
<tr>
<td>unit005</td>
<td>U.S. Customary unit conversion with whole number values</td>
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<tr>
<td>unit006</td>
<td>U.S. Customary unit conversion with whole number values: Two-step conversion</td>
</tr>
<tr>
<td>mstat060</td>
<td>Choosing metric measurement units</td>
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<td>mstat063</td>
<td>Measuring length to the nearest centimeter</td>
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<td>unit001</td>
<td>Metric distance conversion with whole number values</td>
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<td>unit002</td>
<td>Metric mass or capacity conversion with whole number values</td>
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<tr>
<td>time010</td>
<td>Telling time</td>
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<tr>
<td>unit012</td>
<td>Time unit conversion with whole number values</td>
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<tr>
<td>time009</td>
<td>Introduction to adding time</td>
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<tr>
<td>time011</td>
<td>Introduction to elapsed time</td>
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</table>
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
mstat055 Finding the mode and range of a data set
mstat001 Mean of a data set
mstat028 Mean and median of a data set
mstat031 Interpreting a stem-and-leaf plot
mstat042 Interpreting a Venn diagram of 2 sets
mstat054 Classifying likelihood
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mstat038 Reading the temperature from a thermometer
alge286 Plotting integers on a number line
arith691 Ordering integers
arith200 Integer addition: Problem type 1
arith108 Integer addition: Problem type 2
arith068 Integer subtraction: Problem type 1
arith231 Integer multiplication and division
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
alge009 Additive property of equality with whole numbers
alge800 Additive property of equality with decimals
alge813 Solving simple equations with multiplication or division
alge068 Multiplicative property of equality 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
alge279 Plotting a point in quadrant 1
alge280 Graphing a line in quadrant 1
arith233 Introduction to exponents
arith692 Writing expressions using exponents

B.10  RtI 6

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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
B.10. RTI 6

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
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
arith641 Multiples: Problem type 1
arith642 Multiples: Problem type 2
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
arith658 Filling in missing operations to make an equation
arith646 Even and odd numbers
arith647 Divisibility rules for 2, 5, and 10
arith648 Divisibility rules for 3 and 9
arith056 Factors
arith634 Prime numbers
arith635 Prime factorization
arith633 Greatest common factor of 2 numbers
APPENDIX B. PROGRAMS IN ALEKS

arith070 Least common multiple of 2 numbers
arith240 Word problem with common multiples
arith655 Introduction to properties of addition
arith656 Introduction to properties of multiplication
arith657 Understanding the distributive property
arith653 Fact families for addition and subtraction
arith654 Fact families for multiplication and division
arith687 Finding the next terms of a sequence with whole numbers

**Fractions**

arith623 Introduction to fractions
arith665 Understanding equivalent fractions
arith212 Equivalent fractions
arith666 Introduction to simplifying a fraction
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
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
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
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
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
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**

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
arith069 Ordering fractions and 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
B.10. RTI 6

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
arith668 Addition with money
arith613 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
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
arith646 Decimal multiplication: Problem type 2
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
arith019 Division of a decimal by a 2-digit decimal
arith629 Word problem with multiple decimal operations: Problem type 2

Geometry

geom151 Measuring an angle with the protractor
geom152 Drawing an angle with the protractor
geom303 Acute, obtuse, and right angles
geom349 Naming segments, rays, and lines
geom358 Identifying parallel and perpendicular lines
geom361 Naming polygons
geom306 Acute, obtuse, and right triangles
geom307 Scalene, isosceles, and equilateral triangles
geom801 Area of a triangle
geom001 Finding an angle measure of a triangle given two angles
geom908 Finding an angle measure for a triangle with an extended side
geom870 Sum of the angle measures of a quadrilateral
geom867 Identifying parallelograms, rectangles, and squares
geom310 Classifying quadrilaterals
geom300 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
geom350 Distinguishing between area and perimeter
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
geom022 Area of a parallelogram
geom869 Estimates and exact answers
alge732 Finding patterns in shapes
geom347 Introduction to a circle: Diameter, radius, and chord
geom016 Circumference of a circle
geom802 Circumference and area of a circle
geom308 Classifying solids
geom311 Volume of a rectangular prism
geom354 Volume of a rectangular prism made of unit cubes
geom900 Volume of a triangular prism
geom031 Surface area of a cube or a rectangular prism
geom219 Nets of solids
APPENDIX B. PROGRAMS IN ALEKS

geom348 Vertices, edges, and faces of a solid
geom359 Identifying congruent shapes on a grid
geom360 Identifying similar or congruent shapes on a grid
geom334 Drawing lines of symmetry
geom355 Introduction to translations
geom356 Introduction to reflections

Measurement and Graphs

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
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
unit034 Converting between metric and U.S. Customary unit systems
time010 Telling time
unit012 Time unit conversion with whole number values
time008 Reading a calendar
time009 Introduction to adding time
time006 Adding time
time011 Introduction to elapsed time
time007 Elapsed time
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
mstat055 Finding the mode and range of a data set
mstat001 Mean of a data set
mstat028 Mean and median of a data set
mstat031 Interpreting a stem-and-leaf plot
stat803 Finding the value for a new score that will yield a given mean

Proportions, Percents, and Probability

arith663 Writing ratios for real-world situations
alge272 Solving a proportion of the form x/a = b/c
arith610 Word problem on proportions using a unit rate
arith606 Solving a word problem on proportions using a unit rate
arith674 Finding the percentage of a grid that is shaded
B.10. RTI 6

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
arith069 Writing a ratio as a percentage without a calculator
arith74 Finding the sale price without a calculator given the original price and percent discount
arith32 Finding simple interest without a calculator
mstat041 Interpreting a tree diagram
mstat040 Introduction to the counting principle
stat106 Outcomes and event probability
mstat054 Classifying 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

Algebra

arith699 Writing a signed number for a real-world situation
mstat038 Reading the temperature from a thermometer
alge286 Plotting integers on a number line
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
arith231 Integer multiplication and division
alge606 Distributive property: Whole number coefficients
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
alge733 Writing a one-step expression for a real-world situation
alge005 Evaluating a linear expression: Integer multiplication with addition or subtraction
alge009 Additive property of equality with whole numbers
alge800 Additive property of equality with decimals
alge010 Additive property of equality with integers
alge813 Solving simple equations with multiplication or division
alge008 Multiplicative property of equality with whole numbers
alge797 Multiplicative property of equality with integers
alge803 Using two steps to solve an equation with whole numbers
alge016 Translating a sentence into a one-step equation
alge802 Solving a fraction word problem using a linear equation of the form Ax = B
alge015 Translating a sentence by using an inequality symbol
alge019 Solving a linear inequality: Problem type 1
alge017 Graphing a linear inequality on the number line
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
alge280 Graphing a line in quadrant 1
arith233 Introduction to exponents
arith692 Writing expressions using exponents
arith693 Order of operations with whole numbers and exponents: Basic
arith683 Power of 10: Positive exponent
APPENDIX B. PROGRAMS IN ALEKS

B.11  RtI 7

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 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
arith601 Addition without carry
arith650 Addition with carry
arith630 Addition with carry to the hundreds place
arith612 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
arith607 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
arith613 Word problem with addition or subtraction of whole numbers
arith608 One-digit multiplication
arith679 Multiplication by 10, 100, and 1000
arith675 Understanding multiplication of a one-digit number with a larger number
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
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
arith641 Multiples: Problem type 1
arith642 Multiples: Problem type 2
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
arith623 Word problem with division of whole numbers and rounding
arith614 Word problem with multiplication or division of whole numbers
arith6130 Word problem with multiplication and addition or subtraction of whole numbers
arith651 Introduction to inequalities
B.11.  RTI 7

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
arith658 Filling in missing operations to make an equation
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
arith240 Word problem with common multiples
arith655 Introduction to properties of addition
arith656 Introduction to properties of multiplication
arith657 Understanding the distributive property
arith653 Fact families for addition and subtraction
arith654 Fact families for multiplication and division
alge807 Finding the next terms of a sequence with whole numbers

Fractions

arith623 Introduction to fractions
arith665 Understanding equivalent fractions
arith212 Equivalent fractions
arith666 Introduction to simplifying a fraction
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
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
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
arith095 Multi-step word problem involving fractions and multiplication
arith088 The reciprocal of a number
arith694 Division involving a whole number and a fraction
arith222 Fraction division
arith697 Mixed arithmetic operations with fractions
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
APPENDIX B. PROGRAMS IN ALEKS

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
arith086 Mixed number division

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
arith608 Ordering decimals
arith609 Ordering fractions and decimals
arith670 Converting a decimal to a fraction: Basic
arith671 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
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
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
arith046 Decimal multiplication: Problem type 2
arith628 Word problem with multiple decimal operations: 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
arith629 Word problem with multiple decimal operations: Problem type 2

Geometry

geom151 Measuring an angle with the protractor
geom152 Drawing an angle with the protractor
geom303 Acute, obtuse, and right angles
geom349 Naming segments, rays, and lines
geom358 Identifying parallel and perpendicular lines
geom361 Naming polygons
geom306 Acute, obtuse, and right triangles
geom307 Scalene, isosceles, and equilateral triangles
geom801 Area of a triangle
geom001 Finding an angle measure of a triangle given two angles
geom008 Finding an angle measure for a triangle with an extended side
geom044 Pythagorean Theorem
geom870 Sum of the angle measures of a quadrilateral
geom867 Identifying parallelograms, rectangles, and squares
geom310 Classifying quadrilaterals
geom300 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
geom350 Distinguishing between area and perimeter
geom251 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
geom022 Area of a parallelogram
geom023 Area of a trapezoid
geom344 Area involving rectangles and triangles
geom869 Estimates and exact answers
alge732 Finding patterns in shapes
geom347 Introduction to a circle: Diameter, radius, and chord
geom016 Circumference of a circle
geom802 Circumference and area of a circle
geom302 Area involving rectangles and circles
geom868 Classifying solids
geom311 Volume of a rectangular prism
geom354 Volume of a rectangular prism made of unit cubes
geom890 Volume of a triangular prism
geom035 Volume of a cylinder
geom031 Surface area of a cube or a rectangular prism
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
geom59 Identifying congruent shapes on a grid
geom360 Identifying similar or congruent shapes on a grid
geom357 Identifying transformations

Measurement and Graphs

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
unit034 Converting between metric and U.S. Customary unit systems
APPENDIX B. PROGRAMS IN ALEKS

time010 Telling time
time008 Reading a calendar
time009 Introduction to adding time
time006 Adding time
time011 Introduction to elapsed time
time007 Elapsed time
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
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
mstat031 Interpreting a stem-and-leaf plot
stat803 Finding the value for a new score that will yield a given mean

Proportions, Percents, and Probability

arith663 Writing ratios for real-world situations
arith228 Word problem on unit rates associated with ratios of whole numbers: Decimal answers
alge272 Solving a proportion of the form \( x/a = b/c \)
arith064 Solving a word problem on proportions using a unit rate
arith610 Word problem on proportions: Problem type 1
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
arith002 Converting a fraction to a percentage: Denominator of 20, 25, or 50
arith630 Finding a percentage of a whole number without a calculator: Basic
arith699 Writing a ratio as a percentage without a calculator
arith698 Applying the percent equation
arith674 Finding the sale price without a calculator given the original price and percent discount
arith225 Finding the percentage increase or decrease: Advanced
arith232 Finding simple interest without a calculator
mstat049 Computing a percentage from a table of values
mstat041 Interpreting a tree diagram
mstat040 Introduction to the counting principle
mstat015 Counting principle
stat106 Outcomes and event probability
mstat054 Classifying 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

Algebra

arith699 Writing a signed number for a real-world situation
mstat036 Reading the temperature from a thermometer
alge286 Plotting integers on a number line
arith691 Ordering integers
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
arith701 Word problem with addition or subtraction of integers
arith231 Integer multiplication and division
arith118 Order of operations with integers
arith116 Signed fraction addition or subtraction: Basic
arith105 Signed fraction multiplication: Advanced
arith117 Signed decimal addition and subtraction
arith234 Signed decimal addition and subtraction with 3 numbers
alg001 Identifying numbers as integers or non-integers
alg606 Distributive property: Whole number coefficients
alg284 Evaluating an algebraic expression: Whole number addition or subtraction
alg683 Evaluating an algebraic expression: Whole number multiplication or division
alg285 Evaluating an algebraic expression: Whole numbers with two operations
alg733 Writing a one-step expression for a real-world situation
alg602 Writing a one-step variable expression for a real-world situation
alg005 Evaluating a linear expression: Integer multiplication with addition or subtraction
alg009 Additive property of equality with whole numbers
alg800 Additive property of equality with decimals
alg801 Additive property of equality with fractions and mixed numbers
alg010 Additive property of equality with integers
alg813 Solving simple equations with multiplication or division
alg008 Multiplicative property of equality with whole numbers
alg797 Multiplicative property of equality with integers
alg803 Using two steps to solve an equation with whole numbers
alg006 Solving a two-step equation with integers
alg016 Translating a sentence into a one-step equation
alg802 Solving a fraction word problem using a linear equation of the form Ax = B
alg015 Translating a sentence by using an inequality symbol
alg019 Solving a linear inequality: Problem type 1
alg017 Graphing a linear inequality on the number line
alg281 Function tables with one-step rules
alg282 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
alg278 Reading a point in quadrant 1
alg064 Reading a point in the coordinate plane
alg279 Plotting a point in quadrant 1
alg067 Plotting a point in the coordinate plane
alg280 Graphing a line in quadrant 1
alg194 Graphing a line given its equation in slope-intercept form
alg198 Graphing a vertical or horizontal line
alg263 Interpreting the graphs of two functions
arith233 Introduction to exponents
arith692 Writing expressions using exponents
arith693 Order of operations with whole numbers and exponents: Basic
arith683 Power of 10: Positive exponent
arith036 Scientific notation with positive exponent
arith702 Exponents and integers: Problem type 1
alg004 Evaluating a quadratic expression: Integers
arith029 Ordering numbers with positive exponents
arith016 Square root of a perfect square
arith062 Estimating a square root
B.12 RtI 8

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
arith601 Addition without carry
arith650 Addition with carry
arith630 Addition with carry to the hundreds place
arith612 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
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
arith641 Multiples: Problem type 1
arith642 Multiples: Problem type 2
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
arith644 Word problem on quotient and remainder
arith617 Quotient and remainder: Problem type 2
arith631 Quotient and remainder: Problem type 3
arith623 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
arith661 Rounding to thousands, ten thousands, or hundred thousands
arith101 Estimating a sum of whole numbers
arith102 Estimating a difference of whole numbers
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arith677 Estimating a product
arith678 Estimating a quotient
arith103 Average of two numbers
arith645 Introduction to parentheses
arith681 Introduction to order of operations
arith848 Order of operations with whole numbers
arith651 Order of operations with whole numbers and grouping symbols
arith658 Filling in missing operations to make an equation
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
arith240 Word problem with common multiples
arith655 Introduction to properties of addition
arith656 Introduction to properties of multiplication
arith657 Understanding the distributive property
arith653 Fact families for addition and subtraction
arith654 Fact families for multiplication and division
alge807 Finding the next terms of a sequence with whole numbers

Fractions

arith623 Introduction to fractions
arith665 Understanding equivalent fractions
arith212 Equivalent fractions
arith666 Introduction to simplifying a fraction
arith67 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
arith108 Fractional part of a circle
arith679 Product of a unit fraction and a whole number
arith806 Product of a fraction and a whole number: Problem type 1
arith119 Introduction to fraction multiplication
arith653 Fraction multiplication
arith695 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
arith697 Mixed arithmetic operations with 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
arith884 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
arith820 Mixed number multiplication: Problem type 1
arith876 Mixed number multiplication: Problem type 2
arith68 Mixed number division
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
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
arith89 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
arith17 Multiplication of a decimal by a whole number
arith655 Decimal multiplication: Problem type 1
arith646 Decimal multiplication: Problem type 2
arith628 Word problem with multiple decimal operations: Problem type 1
arith83 Division of a decimal by a power of ten
arith81 Division of a decimal by a whole number
arith019 Division of a decimal by a 2-digit decimal
arith629 Word problem with multiple decimal operations: Problem type 2

Geometry

geom151 Measuring an angle with the protractor
geom152 Drawing an angle with the protractor
geom03 Acute, obtuse, and right angles
geom348 Naming segments, rays, and lines
geom358 Identifying parallel and perpendicular lines
geom361 Naming polygons
geom306 Acute, obtuse, and right triangles
geom307 Scalene, isosceles, and equilateral triangles
geom01 Area of a triangle
geom01 Finding an angle measure of a triangle given two angles
geom08 Finding an angle measure for a triangle with an extended side
geom544 Pythagorean Theorem
geom870 Sum of the angle measures of a quadrilateral
geom867 Identifying parallelograms, rectangles, and squares
geom310 Classifying quadrilaterals
geom300 Perimeter of a square or a rectangle
geom339 Perimeter of a polygon
geom078 Sides of polygons having the same perimeter
geom22 Finding the missing length in a figure
geom0353 Perimeter of a piecewise rectangular figure
geom866 Perimeter and area on a grid
geom019 Area of a square or a rectangle
geom350 Distinguishing between area and perimeter
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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
geom022 Area of a parallelogram
geom023 Area of a trapezoid
geom344 Area involving rectangles and triangles
geom869 Estimates and exact answers
alge732 Finding patterns in shapes
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
geom802 Circumference and area of a circle
geom036 Word problem involving the area between two concentric circles
geom02 Area involving rectangles and circles
geom868 Classifying solids
geom311 Volume of a rectangular prism
geom354 Volume of a rectangular prism made of unit cubes
geom090 Volume of a triangular prism
geom035 Volume of a cylinder
geom031 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
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
geom334 Drawing lines of symmetry
geom357 Identifying transformations

Measurement and Graphs

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
unit034 Converting between metric and U.S. Customary unit systems
time010 Telling time
unit012 Time unit conversion with whole number values
time008 Reading a calendar
time009 Introduction to adding time
time006 Adding time
time011 Introduction to elapsed time
time007 Elapsed time
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
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
mstat053 Choosing the best measure to describe data
mstat031 Interpreting a stem-and-leaf plot
stat803 Finding the value for a new score that will yield a given mean

Proportions, Percents, and Probability

arith663 Writing ratios for real-world situations
arith228 Word problem on unit rates associated with ratios of whole numbers: Decimal answers
alge272 Solving a proportion of the form $x/a = b/c$
arith064 Solving a word problem on proportions using a unit rate
arith610 Word problem on proportions: Problem type 1
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
arith630 Finding a percentage of a whole number without a calculator: Basic
arith696 Writing a ratio as a percentage without a calculator
arith698 Applying the percent equation
arith674 Finding the sale price without a calculator given the original price and percent discount
arith225 Finding the percentage increase or decrease: Advanced
arith232 Finding simple interest without a calculator
mstat049 Computing a percentage from a table of values
mstat041 Interpreting a tree diagram
mstat040 Introduction to the counting principle
mstat015 Counting principle
stat106 Outcomes and event probability
mstat054 Classifying likelihood
mstat026 Introduction to the probability of an event
mstat010 Probability of an event
mstat046 Experimental and theoretical probability
mstat047 Introduction to expectation
mstat042 Interpreting a Venn diagram of 2 sets
mstat043 Interpreting a Venn diagram of 3 sets

Algebra

arith699 Writing a signed number for a real-world situation
mstat038 Reading the temperature from a thermometer
alge286 Plotting integers on a number line
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
arith701 Word problem with addition or subtraction of integers
arith231 Integer multiplication and division
arith118 Order of operations with integers
arith116 Signed fraction addition or subtraction: Basic
arith105 Signed fraction multiplication: Advanced
arith117 Signed decimal addition and subtraction
arith234 Signed decimal addition and subtraction with 3 numbers
alge001 Identifying numbers as integers or non-integers
alge606 Distributive property: Whole number coefficients
alge607 Combining like terms: Integer coefficients
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
alge733 Writing a one-step expression for a real-world situation
alge602 Writing a one-step variable expression for a real-world situation
alge605 Evaluating a linear expression: Integer multiplication with addition or subtraction
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
alge813 Solving simple equations with multiplication or division
alge008 Multiplicative property of equality with whole numbers
alge797 Multiplicative property of equality with integers
alge803 Using two steps to solve an equation with whole numbers
alge006 Solving a two-step equation with integers
alge16 Translating a sentence into a one-step equation
alge802 Solving a fraction word problem using a linear equation of the form Ax = B
alge015 Translating a sentence by using an inequality symbol
alge019 Solving a linear inequality: Problem type 1
alge017 Graphing a linear inequality on the number line
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
alge25 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
alge066 Finding a solution to a linear equation in two variables
alge280 Graphing a line in quadrant 1
alge194 Graphing a line given its equation in slope-intercept form
alge198 Graphing a vertical or horizontal line
alge263 Interpreting the graphs of two functions
arith233 Introduction to exponents
arith692 Writing expressions using exponents
arith693 Order of operations with whole numbers and exponents: Basic
arith683 Power of 10: Positive exponent
arith684 Power of 10: Negative exponent
arith636 Scientific notation with positive exponent
arith637 Scientific notation with negative exponent
arith702 Exponents and integers: Problem type 1
arith600 Order of operations with integers and exponents
alge004 Evaluating a quadratic expression: Integers
arith029 Ordering numbers with positive exponents
arith016 Square root of a perfect square
arith602 Estimating a square root
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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
- `arith601` Addition of large numbers
- `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
- `arith653` Fact families for addition and subtraction
- `arith613` Word problem with addition or subtraction of whole numbers
- `mstat061` Describing an increasing or decreasing pattern from a table of values
- `arith126` Multiplication as repeated addition
- `arith008` One-digit multiplication
- `arith639` Using multiplication to find the number of squares
- `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
- `arith675` Understanding multiplication of a one-digit number with a larger number
- `arith638` Multiplication with trailing zeros: Problem type 2
- `arith614` Word problem with multiplication or division of whole numbers
- `arith616` Word problem on quotient and remainder
- `arith617` Quotient and remainder: Problem type 2
- `arith631` Quotient and remainder: Problem type 3
- `arith641` Division facts
- `arith654` Fact families for multiplication and division
- `arith614` Word problem with multiplication or division of whole numbers
- `arith130` Word problem with multiplication and addition or subtraction of whole numbers
- `arith451` Word problem on unit rates associated with ratios of whole numbers: Whole number answers
- `arith243` Division of whole numbers given in fractional form
- `arith711` Division involving zero
- `arith652` Division without carry
- `arith605` Division with carry
- `arith901` Whole number division: 2-digit by 2-digit, no remainder
- `arith902` Whole number division: 3-digit by 2-digit, no remainder
- `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
- `arith652` Comparing a numerical expression with a number
- `arith077` Rounding to tens or hundreds
Decimals

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
APPENDIX B. PROGRAMS 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
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
arith668 Addition with money
arith669 Subtraction with money
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
arith628 Word problem with multiple decimal operations: Problem type 1
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
arith629 Word problem with multiple decimal operations: Problem type 2
arith103 Average of two numbers
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
scinot023 Introduction to scientific notation with positive exponents
arith036 Scientific notation with positive exponent

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
arith444 Ordering fractions with the same denominator
arith091 Ordering fractions with the same numerator
arith092 Using a common denominator to order fractions
APPENDIX B. PROGRAMS IN ALEKS

arith513 Identifying rational decimal 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
arith859 Complex fraction without variables: Problem type 1
arith748 Addition or subtraction with a decimal and a mixed number
arith749 Multiplication with a decimal and a fraction

Ratios, Proportions, and Measurement

arith823 Writing ratios using different notations
arith825 Writing ratios for real-world situations
arith824 Identifying statements that describe a ratio
arith824 Simplifying a ratio of whole numbers: Problem type 1
arith825 Simplifying a ratio of decimals
arith827 Finding a unit price
arith455 Using tables to compare ratios
arith828 Computing unit prices to find the better buy
arith228 Word problem on unit rates associated with ratios of whole numbers: Decimal answers
arith8064 Solving a word problem on proportions using a unit rate
alge823 Solving a one-step word problem using the formula d = rt
alge272 Solving a proportion of the form x/a = b/c: Basic
arith845 Finding missing values in a table of equivalent ratios
arith452 Using tables to compare ratios
arith843 Using a table of equivalent ratios to find a missing quantity in a ratio
arith504 Writing an equation to represent a proportional relationship
alge819 Solving a proportion of the form x/a = b/c: Basic
arith610 Word problem on proportions: Problem type 1
arith611 Word problem on proportions: Problem type 2
arth8045 Word problem with powers of ten
geom360 Identifying similar or congruent shapes on a grid
geom542 Identifying congruent shapes on a grid
geom538 Finding lengths using scale models
geom539 Finding a scale factor: Same units
geom541 Using a scale drawing to find actual area
geom542 Reproducing a scale drawing at a different scale
mstat058 Choosing a measuring tool
mstat059 Choosing U.S. Customary measurement units
mstat033 Measuring length to the nearest inch
mstat034 Measuring length to the nearest quarter or half inch
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
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
unit010 Metric area unit conversion with decimal values
unit012 Time unit conversion with whole number values
time009 Introduction to adding time
time006 Adding time
time011 Introduction to elapsed time
time007 Elapsed time
mstat062 Reading a positive temperature from a thermometer
mstat065 Converting between temperatures in Fahrenheit and Celsius
arith826 Simplifying a ratio of whole numbers: Problem type 2
alg218 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
unit036 Converting between compound units: Advanced

**Percents**

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
arith903 Representing benchmark percentages on a grid
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
arith904 Finding benchmark fractions and percentages for a figure
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
arith869 Writing a ratio as a percentage without a calculator
arith850 Finding the rate of a tax or commission
arith849 Finding the total amount given the percentage of a partial amount
stat805 Making a reasonable inference based on proportion statistics
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
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
arith818 Comparing discounts
arith914 Calculations involving paying for college
arith916 Computing percentages for categories of a budget
arith921 Comparing annual salaries of different occupations
arith911 Calculations involving purchases with debit and credit cards
Integers and Rational Numbers

arith950 Comparing costs of checking accounts
arith951 Balancing a check register
arith912 Reading a credit report
arith913 Understanding the impact of a credit score

Integers and Rational Numbers

alg286 Plotting integers on a number line
mstat038 Reading the temperature from a thermometer
arith691 Ordering integers
arith415 Using a number line to compare integers
arith699 Writing a signed number for a real-world situation
arith400 Interpreting a table of signed numbers that relate to a real-world situation: Problem type 1
arith511 Interpreting a table of signed numbers that relate to a real-world situation: Problem type 2
arith416 Comparing signed numbers relating to a real-world situation
arith402 Plotting opposite integers on a number line
arith403 Finding opposites of integers
arith071 Absolute value of a number
arith412 Finding all numbers with a given absolute value
arith605 Plotting rational numbers on a number line
arith200 Integer addition: Problem type 1
arith108 Integer addition: Problem type 2
arith431 Identifying a sum as a point located a given distance from another point
arith430 Identifying relative change when combining two quantities
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
arith440 Operations with absolute value: Problem type 1
arith104 Operations with absolute value: Problem type 2
arith433 Computing and understanding distances between integers on a number line
arith701 Word problem with addition or subtraction of integers
arith231 Integer multiplication and division
arith800 Multiplication of 3 or 4 integers
arith952 Word problem with multiplication or division of integers
arith702 Exponents and integers: Problem type 1
arith118 Order of operations with integers
arith600 Order of operations with integers and exponents
alge790 Evaluating expressions with exponents of zero
arith684 Power of 10: Negative exponent
scinot024 Introduction to scientific notation with negative exponents
arith037 Scientific notation with negative exponent
scinot012 Converting between scientific notation and standard form in a real-world situation
arith117 Signed decimal addition and subtraction
arith234 Signed decimal addition and subtraction with 3 numbers
arith750 Signed decimal multiplication
arith751 Signed decimal division
alge660 Identifying equivalent signed fractions
arith822 Signed fraction multiplication: Basic
arith105 Signed fraction multiplication: Advanced
arith814 Signed fraction division
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
g geom525 Computing distances between decimals on the number line
alg005 Evaluating a linear expression: Integer multiplication with addition or subtraction
alg004 Evaluating a quadratic expression: Integers
Equations and Inequalities

alge800 Additive property of equality with decimals
alge801 Additive property of equality with fractions and mixed numbers
alge010 Additive property of equality with integers
alge836 Additive property of equality with signed fractions
alge825 Multiplicative property of equality with decimals
alge646 Multiplicative property of equality with whole numbers: Fractional answers
alge820 Multiplicative property of equality with fractions
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
alge920 Introduction to solving an equation with parentheses
alge837 Solving a multi-step equation given in fractional form
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
alge611 Introduction to solving a linear equation with a variable on each side
alge658 Introduction to solving a rational equation
alge802 Solving a fraction word problem using a linear equation of the form Ax = B
alge671 Choosing stories that can be represented by given one-step equations
alge841 Translating a sentence into a multi-step equation
alge628 Writing an equation of the form Ax + B = C to solve a word problem
alge618 Comparing arithmetic and algebraic solutions to a word problem
alge672 Choosing stories that can be represented by given two-step equations
alge014 Solving a word problem with two unknowns using a linear equation
alge511 Solving for a variable in terms of other variables using addition or subtraction: Basic
alge513 Solving for a variable in terms of other variables using multiplication or division: Basic
alge015 Translating a sentence by using an inequality symbol
alge845 Translating a sentence into a one-step inequality
alge653 Introduction to identifying solutions to an 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
alge166 Graphing a compound inequality on the number line
alge652 Identifying solutions to a one-step linear inequality
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alge848 Additive property of inequality with whole numbers
alge849 Additive property of inequality with integers
alge809 Multiplicative property of inequality with whole numbers
alge854 Multiplicative property of inequality with integers
alge636 Solving a two-step linear inequality with whole numbers
alge846 Translating a sentence into a multi-step inequality
alge621 Solving a word problem using a one-step linear inequality
alge623 Solving a word problem using a two-step linear inequality

Graphs and Functions

alge278 Reading a point in quadrant 1
alge279 Plotting a point in quadrant 1
alge064 Reading a point in the coordinate plane
alge067 Plotting a point in the coordinate plane
alge692 Plotting a point in quadrant 1: Mixed number coordinates
alge693 Plotting a point in the coordinate plane: Mixed number coordinates
arith404 Naming the quadrant or axis of a point given its graph
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
alge695 Finding distances between points that share a common coordinate: Problem type 1
alge696 Finding distances between points that share a common coordinate: Problem type 2
arith454 Making a table and plotting points given a unit rate
alge283 Graphing whole number functions
alge850 Table for a linear equation
fun001 Table for a linear function
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
alge873 Identifying solutions to a linear equation in two variables
alge066 Finding a solution to a linear equation in two variables
alge280 Graphing a line in quadrant 1
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
alge198 Graphing a vertical or horizontal line
alge884 Finding x- and y-intercepts given the graph of a line on a grid
mstat007 Interpreting a line graph
alge575 Finding slope given the graph of a line in quadrant 1 that models a real-world situation
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
alge630 Finding outputs of a one-step function that models a real-world situation: Two variable equation
alge632 Finding outputs of a two-step function with decimals that models a real-world situation: Two variable equation
alge633 Finding inputs and outputs of a two-step function that models a real-world situation: Two variable equation
alge655 Writing and evaluating a function that models a real-world situation: Basic
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
alge656 Writing an equation and drawing its graph to model a real-world situation: Basic
alge701 Writing an equation and drawing its graph to model a real-world situation: Advanced
alge818 Finding the initial amount and rate of change given a graph of a linear function
alge670 Identifying independent and dependent quantities from tables and graphs
mstat052 Identifying independent and dependent variables from equations or real-world situations
alge999 Finding where a function is increasing, decreasing, or constant given the graph
mstat018 Choosing a graph to fit a narrative: Basic
mstat051 Choosing a graph to fit a narrative: Advanced
alge263 Interpreting the graphs of two functions
Angles, Lines, and Polygons

geom151 Measuring an angle with the protractor
geom152 Drawing an angle with the protractor
geom303 Acute, obtuse, and right angles
geom339 Finding supplementary and complementary angles
geom551 Finding the complement or supplement of an angle given a figure
geom305 Identifying supplementary and vertical angles
geom553 Finding angle measures given two intersecting lines
geom304 Identifying corresponding and alternate angles
geom349 Naming segments, rays, and lines
geom358 Identifying parallel and perpendicular lines
geom554 Finding angle measures given two parallel lines cut by a transversal
geom154 Constructing the perpendicular bisector of a line segment
geom158 Constructing an angle bisector
geom159 Constructing congruent angles
geom150 Constructing a pair of perpendicular lines
geom157 Constructing a pair of parallel lines
geom306 Acute, obtuse, and right triangles
geom307 Scalene, isosceles, and equilateral triangles
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
geom519 Identifying and naming congruent parts of congruent triangles
geom543 Drawing a circle with a given radius or diameter
geom554 Creating triangles from given side lengths: Problem type 1
geom654 Creating triangles from given side lengths: Problem type 2
geom844 Triangle inequality: Problem type 1
geom548 Determining if a triangle is possible based on given angle measures
geom546 Drawing triangles with given conditions: Angle measures
geom547 Drawing triangles with given conditions: Side lengths and angle measures
geom545 Drawing triangles with given side lengths using a compass
geom361 Naming polygons
mstat042 Interpreting a Venn diagram of 2 sets
geom353 Drawing and identifying a polygon in the coordinate plane
geom867 Identifying parallelograms, rectangles, and squares
geom310 Classifying quadrilaterals
geom332 Classifying parallelograms
geom818 Finding the coordinates of a point to make a parallelogram
geom870 Sum of the angle measures of a quadrilateral
geom852 The sum of interior angle measures in a convex polygon
arith016 Square root of a perfect square
alge413 Finding all square roots of a number
arith763 Using a calculator to approximate a square root
arith602 Estimating a square root
alge407 Introduction to the Pythagorean Theorem
geom044 Pythagorean Theorem
alge468 Word problem involving the Pythagorean Theorem
geom03 Identifying side lengths that give right triangles
Transitions

geom357 Identifying transformations
geom355 Introduction to translations
geom396 Translating a point and giving its coordinates: One step
geom909 Translating a point and giving its coordinates: Two steps
geom397 Properties of translated figures
geom908 Determining if figures are related by a translation
geom330 Translating a polygon
geom356 Introduction to reflections
arith408 Reflecting a point across an axis
geom533 Reflecting a point across both coordinate axes
geom590 Reflecting a point across an axis and giving its coordinates
arith407 Coordinates of a point reflected across an axis
geom560 Coordinates of a point reflected across both axes
geom534 Reflecting a polygon across the x-axis or y-axis
geom391 Properties of reflected figures
geom592 Determining if figures are related by a reflection
geom332 Reflecting a polygon over a vertical or horizontal line
geom334 Drawing lines of symmetry
geom602 Finding the coordinates of a point reflected across an axis and translated
geom815 Finding an angle of rotation
geom624 Identifying rotational symmetry and angles of rotation
geom393 Rotating a point and giving its coordinates
geom594 Properties of rotated figures
geom395 Determining if figures are related by a rotation
geom335 Rotating a figure about the origin
geom580 Determining if figures are congruent and related by a transformation
geom606 Dilating a segment and giving the coordinates of its endpoints
geom607 The effect of dilation on side length
geom608 Determining if figures are related by a dilation
geom636 The effect of dilation on area

Perimeters, Areas, and Volumes

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
alge615 Writing algebraic expressions for the perimeter of a figure
geom620 Area of a rectangle involving fractions
geom619 Area of a rectangle involving mixed numbers and fractions
geom350 Distinguishing between area and perimeter
geom351 Areas of rectangles with the same perimeter
geom869 Estimates and exact answers
alge616 Writing algebraic expressions for the area of a figure
geom410 Word problem involving the area of a square or a rectangle
geom217 Finding the side length of a rectangle given its perimeter or area
geom340 Area of a piecewise rectangular figure
geom562 Area between two rectangles
geom142 Word problem involving the area between two rectangles
geom501 Finding the area of a right triangle on a grid
geom509 Finding the area of a right triangle or its corresponding rectangle
geom801 Area of a triangle
geom517 Finding the area of a trapezoid on a grid by using triangles and rectangles
geom344 Area involving rectangles and triangles
geom022 Area of a parallelogram
geom023 Area of a trapezoid
geom537 Finding the perimeter or area of a rectangle in the coordinate plane
geom832 Area of quadrilaterals in the coordinate plane
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
geom838 Circumference ratios
geom301 Perimeter involving rectangles and circles
geom026 Area of a circle
geom802 Circumference and area of a circle
geom390 Distinguishing between the area and circumference of a circle
geom302 Area involving rectangles and circles
geom563 Area between two concentric circles
geom036 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
geom816 Side views of a solid made of cubes
geom540 Identifying horizontal and vertical cross sections of solids
geom311 Volume of a rectangular prism
geom354 Volume of a rectangular prism made of unit cubes
geom518 Volume of a solid made of cubes with unit fraction edge lengths
geom535 Volume of a rectangular prism with fractional edge lengths
alge617 Writing equivalent expressions for the volume of a rectangular prism
geom571 Word problem involving the volume of a rectangular prism
geom558 Word problem involving the rate of filling or emptying a rectangular prism
geom505 Volume of a piecewise rectangular prism
geom90 Volume of a triangular prism
geom572 Word problem involving the volume of a triangular prism
geom033 Volume of a pyramid
geom637 Relating the volumes of a rectangular prism and a rectangular pyramid
geom538 Relating the volumes of a triangular prism and a triangular pyramid
geom535 Volume of a cylinder
geom573 Word problem involving the volume of a cylinder
geom92 Word problem involving the rate of filling or emptying a cylinder
geom22 Volume of a cone
geom868 Volume of a cone: Exact answers in terms of pi
geom639 Relating the volumes of a cylinder and a cone
geom575 Word problem involving the volume of a cone
geom219 Nets of solids
geom631 Surface area of a cube or a rectangular prism
geom632 Surface area of a rectangular prism made of unit cubes
geom555 Distinguishing between surface area and volume
geom556 Using a net to find the surface area of a rectangular prism
geom576 Word problem involving the surface area of a rectangular prism
geom345 Surface area of a piecewise rectangular prism made of unit cubes
geom091 Surface area of a triangular prism
geom557 Using a net to find the surface area of a triangular prism
geom621 Surface area of a cylinder
geom634 Surface area of a cylinder: Exact answers in terms of pi
geom578 Word problem involving the surface area of a cylinder

Data Analysis and Probability

mstat088 Identifying statistical questions
mstat080 Choosing an appropriate method for gathering data: Problem type 1
mstat081 Choosing an appropriate method for gathering data: Problem type 2
mstat056 Interpreting a tally table
mstat007 Constructing a two-way frequency table: Basic
mstat098 Constructing a two-way frequency table: Advanced
mstat049 Computing a percentage from a table of values
mstat087 Making an inference using a two-way frequency table
stat020 Calculating relative frequencies in a contingency table
mstat025 Finding if a question can be answered by the data
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
mstat031 Interpreting a stem-and-leaf plot
geom814 Angle measure in a circle graph
mstat094 Constructing a scatter plot
mstat030 Sketching the line of best fit
mstat023 Scatter plots and correlation
mstat003 Mode of a data set
mstat055 Finding the mode and range of a data set
mstat092 Finding the mode and range from a line plot
mstat001 Mean of a data set
mstat077 Using a model to find the mean
mstat075 Understanding the mean graphically: Two bars
mstat076 Understanding the mean graphically: Four or more bars
mstat091 Finding the mean of a symmetric distribution
mstat079 Finding sample size and comparing samples for estimating the mean
mstat089 Computations involving the mean, sample size, and sum of a data set
stat803 Finding the value for a new score that will yield a given mean
stat802 Rejecting unreasonable claims based on average statistics
mstat066 Weighted mean
mstat028 Mean and median of a data set
mstat029 How changing a value affects the mean and median
mstat095 Finding outliers in a data set
mstat053 Choosing the best measure to describe data
mstat078 Comparing measures of center and variation
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
mstat082 Computing mean absolute deviation from a list of numerical values
mstat083 Computing mean absolute deviation from a bar graph
mstat043 Interpreting a Venn diagram of 3 sets
mstat041 Interpreting a tree diagram
mstat040 Introduction to the counting principle
mstat015 Counting principle
mstat099 Determining a sample space and outcomes for a simple event
mstat100 Determining a sample space and outcomes for a compound event
pcalc082 Factorial expressions
mstat017 Computing permutations and combinations
mstat008 Word problem involving permutations
mstat009 Word problem involving combinations
mstat054 Classifying likelihood
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
mstat011 Area as probability
mstat046 Experimental and theoretical probability
mstat047 Introduction to expectation
mstat012 Probability of independent events
mstat013 Probability of dependent events
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Whole Numbers and Integers

- 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
- arith630 Addition with carry to the hundreds place
- arith612 Addition of large numbers
- 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
- mstat061 Describing an increasing or decreasing pattern from a table of values
- arith126 Multiplication as repeated addition
- arith004 Multiplication with carry
- arith615 Introduction to multiplication of large numbers
- arith675 Understanding multiplication of a one-digit number with a larger number
- arith014 Multiplication of large numbers
- arith641 Multiples: Problem type 1
- arith642 Multiples: Problem type 2
- arith614 Word problem with multiplication or division of whole numbers
- arith130 Word problem with multiplication and addition or subtraction of whole numbers
- arith451 Word problem on unit rates associated with ratios of whole numbers: Whole number answers
- arith243 Division of whole numbers given in fractional form
- arith711 Division involving zero
- arith005 Division with carry
- arith091 Whole number division: 2-digit by 2-digit, no remainder
- arith092 Whole number division: 3-digit by 2-digit, no remainder
- arith016 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
- arith023 Word problem with division of whole numbers and rounding
- arith651 Introduction to inequalities
- arith652 Comparing a numerical expression with a number
- arith077 Ordering large numbers
- arith678 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
- arith692 Writing expressions using exponents
- arith233 Introduction to exponents
- arith683 Power of 10: Positive exponent
- arith645 Introduction to parentheses
- arith865 Comparing numerical expressions with 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
- arith646 Even and odd numbers
- arith647 Divisibility rules for 2, 5, and 10
- arith648 Divisibility rules for 3 and 9
- arith056 Factors
APPENDIX B. PROGRAMS IN ALEKS

arith034 Prime numbers
arith035 Prime factorization
arith033 Greatest common factor of 2 numbers
arith516 Greatest common factor of 3 numbers
arith409 Introduction to the distributive property
arith657 Understanding the distributive property
arith410 Introduction to factoring with numbers
arith411 Factoring a sum or difference of whole numbers
arith870 Least common multiple of 2 numbers
arith804 Least common multiple of 3 numbers
arith418 Word problem involving the least common multiple of 2 numbers
arith240 Word problem with common multiples
alge286 Plotting integers on a number line
arith691 Ordering integers
arith415 Using a number line to compare integers
arith699 Writing a signed number for a real-world situation
arith400 Interpreting a table of signed numbers that relate to a real-world situation: Problem type 1
arith511 Interpreting a table of signed numbers that relate to a real-world situation: Problem type 2
arith416 Comparing signed numbers relating to a real-world situation
arith402 Plotting opposite integers on a number line
arith403 Finding opposites of integers
arith671 Absolute value of a number
arith412 Finding all numbers with a given absolute value
arith200 Integer addition: Problem type 1
arith108 Integer addition: Problem type 2
arith431 Identifying a sum as a point located a given distance from another point
arith430 Identifying relative change when combining two quantities
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
arith440 Operations with absolute value: Problem type 1
arith104 Operations with absolute value: Problem type 2
arith433 Computing and understanding distances between integers on a number line
arith701 Word problem with addition or subtraction of integers
arith231 Integer multiplication and division
arith800 Multiplication of 3 or 4 integers
arith952 Word problem with multiplication or division of 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
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
alge649 Evaluating a formula
alge648 Evaluating an algebraic expression: Whole numbers with one operation and an exponent
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
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
geom339 Perimeter of a polygon
geom300 Perimeter of a square or a rectangle
geom019 Area of a square or a rectangle
geom866 Perimeter and area on a grid
geom311 Volume of a rectangular prism
alge650 Identifying solutions to a one-step linear equation: Problem type 1
alge651 Identifying solutions to a one-step linear equation: Problem type 2
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alge009 Additive property of equality with whole numbers
alge010 Additive property of equality with integers
alge008 Multiplicative property of equality with whole numbers
alge797 Multiplicative property of equality with integers

Fractions

arith623 Introduction to fractions
arith665 Understanding equivalent fractions
arith212 Equivalent fractions
arith666 Introduction to simplifying a fraction
arith067 Simplifying a fraction
alge660 Identifying equivalent signed fractions
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
arith653 Fraction multiplication
arith812 Product of a fraction and a whole number: Problem type 2
arith805 Determining if a quantity is increased or decreased when multiplied by a fraction
arith509 Modeling multiplication of proper fractions
arith813 Multiplication of 3 fractions
arith822 Signed fraction multiplication: Basic
arith105 Signed fraction multiplication: Advanced
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
arith622 Fraction division
arith507 Fact families for multiplication and division of fractions
arith508 Modeling division of a whole number by a fraction
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
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
arith605 Plotting rational numbers on a number line
arith215 Addition or subtraction of mixed numbers with the same denominator
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
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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
arith818 Mixed number division
arith820 Word problem involving multiplication or division with mixed numbers
arith821 Exponents and fractions
alg790 Evaluating expressions with exponents of zero
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
arith895 Complex fraction without variables: Problem type 1
alge808 Evaluating a linear expression: Signed fraction multiplication with addition or subtraction
alge801 Additive property of equality with fractions and mixed numbers
alge836 Additive property of equality with signed fractions
alge646 Multiplicative property of equality with whole numbers: Fractional answers
alge820 Multiplicative property of equality with fractions
alge012 Multiplicative property of equality with signed fractions

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
arith13 Decimals 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
arith117 Signed decimal addition and subtraction
arith234 Signed decimal addition and subtraction with 3 numbers
geom525 Computing distances between decimals on the number line
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
arith607 Multiplication of a decimal by a whole number
arith055 Decimal multiplication: Problem type 1
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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
arith750 Signed decimal multiplication
arithh135 Word problem with multiplication of a decimal and a whole number
arithh137 Word problem with multiplication of two decimals
arithh28 Word problem with multiple decimal operations: Problem type 1
arithh744 Whole number division with decimal answers
arithh081 Division of a decimal by a whole number
arithh743 Division of a decimal by a 1-digit decimal
arithh019 Division of a decimal by a 2-digit decimal
arithh083 Division of a decimal by a power of ten
arithh742 Division of a decimal by a power of 0.1
arithh745 Decimal division with rounding
arithh751 Signed decimal division
arithh136 Word problem with division of a decimal and a whole number
arithh138 Word problem with division of two decimals
arithh629 Word problem with multiple decimal operations: Problem type 2
arithh103 Average of two numbers
arithh725 Converting a fraction with a denominator of 10 or 100 to a decimal
arithh726 Converting a fraction with a denominator of 100 or 1000 to a decimal
arithh113 Converting a proper fraction with a denominator of 2, 4, or 5 to a decimal
arithh114 Converting a mixed number with a denominator of 2, 4, or 5 to a decimal
arithh727 Converting a fraction to a terminating decimal: Basic
arithh728 Converting a fraction to a terminating decimal: Advanced
arithh730 Converting a fraction to a repeating decimal: Basic
arithh731 Converting a fraction to a repeating decimal: Advanced
arithh733 Using a calculator to convert a fraction to a rounded decimal
arithh111 Converting a mixed number to a terminating decimal: Basic
arithh112 Converting a mixed number to a terminating decimal: Advanced
arithh732 Converting a fraction or mixed number to a rounded decimal
arithh609 Ordering fractions and decimals
alg001 Identifying numbers as integers or non-integers
arithh513 Identifying rational decimal numbers
arithh753 Squaring decimal bases: Products greater than 0.1
arithh741 Exponents and decimals: Products less than 0.1
arithh720 Order of operations with decimals: Problem type 1
arithh746 Order of operations with decimals: Problem type 2
arithh747 Order of operations with decimals: Problem type 3
arithh748 Addition or subtraction with a decimal and a mixed number
arithh749 Multiplication with a decimal and a fraction
alg302 Evaluating a linear expression: Signed decimal addition and subtraction
alg303 Evaluating a linear expression: Signed decimal multiplication with addition or subtraction
alg080 Additive property of equality with decimals
alg825 Multiplicative property of equality with decimals

Ratios, Proportions, and Measurement

arithh823 Writing ratios using different notations
arithh663 Writing ratios for real-world situations
arithh450 Identifying statements that describe a ratio
arithh824 Simplifying a ratio of whole numbers: Problem type 1
arithh825 Simplifying a ratio of decimals
arithh827 Finding a unit price
arithh455 Using tables to compare ratios
arithh828 Computing unit prices to find the better buy
arithh28 Word problem on unit rates associated with ratios of whole numbers: Decimal answers
arithh505 Word problem on unit rates associated with ratios of fractions
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arith506 Word problem on unit rates associated with ratios of mixed numbers
arith054 Solving a word problem on proportions using a unit rate
alge823 Solving a one-step word problem using the formula d = rt
arith452 Finding missing values in a table of equivalent ratios
arith453 Using a table of equivalent ratios to find a missing quantity in a ratio
arith504 Writing an equation to represent a proportional relationship
alge819 Solving a proportion of the form x/a=b/c: Basic
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
arith500 Identifying proportional relationships in tables by calculating unit rates: Whole numbers
arith510 Identifying proportional relationships in tables by calculating unit rates: Fractions
geom359 Identifying congruent shapes on a grid
geom360 Identifying similar or congruent shapes on a grid
geom037 Similar polygons
geom038 Similar right triangles
geom337 Indirect measurement
geom538 Finding lengths using scale models
geom539 Finding a scale factor: Same units
geom541 Using a scale drawing to find actual area
geom542 Reproducing a scale drawing at a different scale
mstat058 Choosing a measuring tool
mstat059 Choosing U.S. Customary measurement units
mstat033 Measuring length to the nearest inch
mstat034 Measuring length to the nearest quarter or half inch
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
mstat066 Choosing metric measurement units
mstat067 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
unit010 Metric area unit conversion with decimal values
unit012 Time unit conversion with whole number values
time009 Introduction to adding time
time006 Adding time
time011 Introduction to elapsed time
time007 Elapsed time
mstat062 Reading a positive temperature from a thermometer
mstat038 Reading the temperature from a thermometer
mstat065 Converting between temperatures in Fahrenheit and Celsius
arith826 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
unit036 Converting between compound units: Advanced

Percents

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
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arith903 Representing benchmark percentages on a grid
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
arith909 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
arith904 Finding benchmark fractions and percentages for a figure
arith902 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
arith853 Writing a ratio as a percentage without a calculator
arith850 Finding the rate of a tax or commission
arith849 Finding the total amount given the percentage of a partial amount
stat805 Making a reasonable inference based on proportion statistics
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
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
arith232 Finding simple interest without a calculator
arith853 Introduction to compound interest
arith915 Calculating income tax
arith918 Comparing discounts
arith909 Examining a savings plan for college
arith914 Calculations involving paying for college
arith920 Comparing total costs for attending different colleges
arith922 Distinguishing between fixed and variable expenses
arith916 Computing percentages for categories of a budget
arith919 Computations involving cost of living and hourly wage
arith921 Comparing annual salaries of different occupations
arith911 Calculations involving purchases with debit and credit cards
arith950 Comparing costs of checking accounts
arith951 Balancing a check register
arith912 Reading a credit report
arith913 Understanding the impact of a credit score
arith917 Computing a person’s net worth
arith906 Calculating and comparing monthly payments using the ALEKS loan calculator
arith907 Calculating monthly payment, total payment, and interest using the ALEKS loan calculator
arith908 Calculating and comparing total loan payments using the ALEKS loan calculator
arith910 Calculating and comparing simple interest and compound interest

Equations and Inequalities
APPENDIX B. PROGRAMS IN ALEKS

alge647 Identifying like terms
alge700 Combining like terms: Whole number coefficients
alge607 Combining like terms: Integer coefficients
arith655 Introduction to properties of addition
alge187 Properties of addition
alge666 Combining like terms: Fractional coefficients
alge665 Combining like terms: Decimal coefficients
alge510 Multiplying a constant and a linear monomial
alge606 Distributive property: Whole number coefficients
alge604 Distributive property: Integer coefficients
alge610 Distributive property: Fractional coefficients
alge605 Factoring a linear binomial
alge612 Identifying parts in an algebraic expression
alge613 Identifying equivalent algebraic expressions
arith656 Introduction to properties of multiplication
alge188 Properties of real numbers
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
alge293 Combining like terms in a quadratic expression
alge610 Identifying equivalent algebraic expressions
alge613 Identifying equivalent algebraic expressions
arith656 Introduction to properties of multiplication
alge188 Properties of real numbers
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
alge293 Combining like terms in a quadratic expression
alge436 Adding rational expressions with different denominators and a single occurrence of a variable
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
alge200 Solving an equation to find the value of an expression
alge209 Solving a linear equation with several occurrences of the variable: Variables on both sides
alge208 Solving a two-step equation with signed fractions
alge824 Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
alge016 Translating a sentence into a one-step equation
alge671 Choosing stories that can be represented by given one-step equations
alge841 Translating a sentence into a multi-step equation
alge628 Writing an equation of the form $Ax + B = C$ to solve a word problem
alge618 Comparing arithmetic and algebraic solutions to a word problem
alge672 Choosing stories that can be represented by given two-step equations
alge173 Solving a decimal word problem using a linear equation of the form $Ax + B = C$
alge629 Writing an equation of the form $A(x + B) = C$ to solve a word problem
alge014 Solving a word problem with two unknowns using a linear equation
alge673 Writing an equation to represent a real-world problem: Variable on both sides
alge674 Writing and solving a real-world problem given an equation with the variable on both sides
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
alge795 Solving a percent mixture problem using a linear equation
alge796 Solving a distance, rate, time problem using a linear equation
alge615 Translating a sentence by using an inequality symbol
alge845 Translating a sentence into a one-step inequality
alge653 Introduction to identifying solutions to an 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
alge652 Identifying solutions to a one-step linear inequality
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
alge899 Multiplicative property of inequality with whole numbers
alge854 Multiplicative property of inequality with integers
alge964 Multiplicative property of inequality with signed fractions
alge64 Solving a two-step linear inequality with whole numbers
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
alge846 Translating a sentence into a multi-step inequality
alge619 Solving a word problem using a two-step linear inequality and describing the solution
alge623 Solving a word problem using a two-step linear inequality
alge749 Solving a decimal word problem using a two-step linear inequality

Graphing, Functions, and Sequences

alge278 Reading a point in quadrant 1
alge279 Plotting a point in quadrant 1
alge064 Reading a point in the coordinate plane
alge067 Plotting a point in the coordinate plane
alge692 Plotting a point in quadrant 1: Mixed number coordinates
alge693 Plotting a point in the coordinate plane: Mixed number coordinates
arith404 Naming the quadrant or axis of a point given its graph
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
alge695 Finding distances between points that share a common coordinate: Problem type 1
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alge696 Finding distances between points that share a common coordinate: Problem type 2
alge191 Midpoint of a line segment in the plane
alge282 Function tables with two-step rules
alge850 Table for a linear equation
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
alge873 Identifying solutions to a linear equation in two variables
alge866 Finding a solution to a linear equation in two variables
alge280 Graphing a line in quadrant 1
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
alge874 Identifying linear functions given ordered pairs
geom358 Identifying parallel and perpendicular lines
mstat007 Interpreting a line graph
arith454 Making a table and plotting points given a unit rate
arith501 Identifying proportional relationships in graphs: Basic
arith502 Identifying proportional relationships in graphs: Advanced
arith512 Finding outputs and rate of increase given the graph of a line that models a real-world situation
alge699 Comparing proportional relationships given in different forms
alge875 Finding slope given the graph of a line in quadrant 1 that models a real-world situation
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
alge814 Using right triangles to find the slope of a line
alge888 Finding the coordinate that yields a given slope
alge196 Graphing a line through a given point with a given slope
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
alge625 Identifying linear equations: Basic
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
alge938 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
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geom808 Writing equations of lines parallel and perpendicular to a given line through a point
alge630 Finding outputs of a one-step function that models a real-world situation: Two variable equation
alge632 Finding outputs of a two-step function with decimals that models a real-world situation: Two variable equation
alge633 Finding inputs and outputs of a two-step function that models a real-world situation: Two variable equation
alge655 Writing and evaluating a function that models a real-world situation: Basic
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
alge656 Writing an equation and drawing its graph to model a real-world situation: Basic
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
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
alge670 Identifying independent and dependent quantities from tables and graphs
mstat052 Identifying independent and dependent variables from equations or real-world situations
fun032 Identifying functions from relations
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
fun007 Domain and range from the graph of a discrete relation
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
alge999 Finding where a function is increasing, decreasing, or constant given the graph
mstat018 Choosing a graph to fit a narrative: Basic
mstat051 Choosing a graph to fit a narrative: Advanced
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
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
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
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
alge906 Finding the next terms of an arithmetic sequence with integers
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
alge909 Writing an explicit rule for 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
pcalc713 Arithmetic and geometric sequences: Identifying and writing an explicit rule
alge914 Identifying solutions to a system of linear equations
alge9725 Graphically solving a system of linear equations
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alge815 Introduction to using substitution to solve a linear equation
alge816 Solving a system of linear equations of the form $y = mx + b$
alge751 Solving a system of linear equations using substitution
alge915 Solving a system of linear equations using elimination with addition
alge676 Solving a system of linear equations using elimination with multiplication and addition
alge624 Solving systems of linear equations with 0, 1, or infinitely many solutions
alge263 Interpreting the graphs of two functions
alge678 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
pcalc038 Addition or subtraction of matrices
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
alge679 Graphing a system of two linear inequalities: Basic
alge621 Graphing a system of two linear inequalities: Advanced

Exponents, Polynomials, and Radicals

alge686 Introduction to the product rule with positive exponents: Whole number base
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
alge690 Introduction to the power of a power rule with positive exponents: Whole number base
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
alge688 Introduction to the quotient rule with positive exponents: Whole number base
alge827 Introduction to the quotient rule of exponents
alge452 Simplifying a ratio of univariate monomials
alge026 Quotient of expressions involving exponents
arith029 Ordering numbers with positive exponents
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
alge687 Introduction to the product rule with negative exponents: Whole number base
alge961 Introduction to the product rule with negative exponents
alge689 Introduction to the quotient rule with negative exponents: Whole number base
alge755 Quotient rule with negative exponents: Problem type 1
alge691 Introduction to the power of a power rule with negative exponents: Whole number base
alge625 Power of a power rule with negative exponents
scinot023 Introduction to scientific notation with positive exponents
arith036 Scientific notation with positive exponent
arith024 Introduction to scientific notation with negative exponents
arith037 Scientific notation with negative exponent
scinot012 Converting between scientific notation and standard form in a real-world situation
scinot025 Estimating numbers using scientific notation
scinot020 Choosing metric units and converting to the base unit in scientific notation
scinot024 Expressing calculator notation as scientific notation
scinot008 Multiplying numbers written in scientific notation: Basic
scinot009 Multiplying numbers written in scientific notation: Advanced
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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
scinot015 Adding or subtracting numbers written in scientific notation: Same exponents, basic
scinot022 Adding or subtracting numbers written in scientific notation: Same exponents, advanced
scinot016 Adding or subtracting numbers written in scientific notation: Different exponents
scinot017 Estimating the sum or difference of two numbers written in scientific notation
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
alge735 Multiplying a univariate polynomial by a monomial with a positive coefficient
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
alge032 Squaring a binomial: Univariate
alge935 Multiplication involving binomials and trinomials in one variable
alge180 Multiplication involving binomials and trinomials in two variables
alge737 Introduction to the LCM of two monomials
alge055 Least common multiple of two monomials
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
alge039 Factoring a quadratic with leading coefficient 1
alge944 Factoring a perfect square trinomial with leading coefficient 1
alge290 Factoring a difference of squares in one variable: Basic
alge947 Factoring a difference of squares in one variable: Advanced
alge045 Finding the roots of a quadratic equation with leading coefficient 1
arith016 Square root of a perfect square
arith601 Square root of a rational perfect square
arith413 Finding all square roots of a number
arith760 Square roots of perfect squares with signs
arith763 Using a calculator to approximate a square root
arith602 Estimating a square root
alge567 Using numerical methods to approximate a square root to the nearest tenth
alge568 Using numerical methods to approximate a square root to the nearest hundredth
arith515 Approximating the location of irrational numbers on a number line
arith712 Ordering real numbers
arith514 Converting a repeating decimal to a fraction
arith432 Identifying true statements about rational and irrational numbers
alge082 Identifying numbers as rational or irrational
alge415 Introduction to simplifying a radical expression with an even exponent
alge264 Square root of a perfect square 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
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
alge862 Solving an equation of the form $x^2 = a$ using the square root property
geom564 Finding side lengths of squares given an area and a perimeter
alge040 Introduction to solving a radical equation
alge089 Solving a radical equation that simplifies to a linear equation: One radical, basic
alge542 Word problem involving radical equations: Basic
arith094 Cube root of an integer
alge698 Solving an equation of the form $x^3 = a$ using integers
alge093 Solving an equation using the odd-root property: Problem type 1
geom565 Finding the side length of a cube given its volume
alge560 Rational exponents: Unit fraction exponents and whole number bases
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alge250 Rational exponents: Non-unit fraction exponent with a whole number base
alge407 Introduction to the Pythagorean Theorem
geom044 Pythagorean Theorem
alge408 Word problem involving the Pythagorean Theorem
geom862 Using the Pythagorean Theorem repeatedly
alge675 Using the Pythagorean Theorem to find distance on a grid
alge132 Distance between two points in the plane

Angles, Lines, and Polygons

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
geom553 Finding the complement or supplement of an angle given a figure
geom552 Solving an equation involving complementary or supplementary angles
geom305 Identifying supplementary and vertical angles
geom553 Finding angle measures given two intersecting lines
geom530 Solving equations involving vertical angles
geom304 Identifying corresponding and alternate angles
geom349 Naming segments, rays, and lines
geom554 Finding angle measures given two parallel lines cut by a transversal
geom53 Solving equations involving angles and parallel lines
geom584 Establishing facts about the angles created when parallel lines are cut by a transversal
geom154 Constructing the perpendicular bisector of a line segment
geom158 Constructing an angle bisector
geom159 Constructing congruent angles
geom150 Constructing a pair of perpendicular lines
geom157 Constructing a pair of parallel lines
geom306 Acute, obtuse, and right triangles
geom307 Scalene, isosceles, and equilateral triangles
geom301 Finding an angle measure of a triangle given two angles
geom860 Special right triangles
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
geom623 Finding angle measures of a triangle given angles with variables
geom302 Finding angle measures of a right or isosceles triangle given angles with variables
geom309 Finding an angle measure for a triangle sharing a side with another triangle
geom586 Establishing facts about the interior angles of a triangle
geom587 Establishing facts about the interior and exterior angles of a triangle
geom543 Drawing a circle with a given radius or diameter
geom544 Creating triangles from given side lengths: Problem type 1
geom634 Creating triangles from given side lengths: Problem type 2
geom844 Triangle inequality: Problem type 1
geom548 Determining if a triangle is possible based on given angle measures
geom549 Determining if given measurements define a unique triangle, more than one triangle, or no triangle
geom546 Drawing triangles with given conditions: Angle measures
geom547 Drawing triangles with given conditions: Side lengths and angle measures
geom545 Drawing triangles with given side lengths using a compass
pcalc699 Sine, cosine, and tangent ratios: Numbers for side lengths
pcalc600 Sine, cosine, and tangent ratios: Variables for side lengths
pcalc616 Using a calculator to approximate sine, cosine, and tangent values
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 distances
pcalc608 Using a trigonometric ratio to find an angle measure in a right triangle
pcalc611 Using trigonometry to find angles of elevation or depression
geom361 Naming polygons
mstat042 Interpreting a Venn diagram of 2 sets
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geom336 Drawing and identifying a polygon in the coordinate plane
geom867 Identifying parallelograms, rectangles, and squares
geom310 Classifying quadrilaterals
geom532 Classifying parallelograms
geom818 Finding the coordinates of a point to make a parallelogram
geom870 Sum of the angle measures of a quadrilateral
geom852 The sum of interior angle measures in a convex polygon

Transformations

geom519 Identifying and naming congruent parts of congruent triangles
geom520 Identifying and naming congruent triangles
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arith702 Exponents and integers: Problem type 1
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arith735 Decimal subtraction: Basic
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arith737 Decimal addition and subtraction with 3 or more numbers
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arith082 Multiplication of a decimal by a power of ten
arith738 Multiplication of a decimal by a power of 0.1
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arith135 Word problem with multiplication of a decimal and a whole number
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arith745 Decimal division with rounding
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arith864 Solving a word problem on proportions using a unit rate
alge823 Solving a one-step word problem using the formula d = rt
arith452 Finding missing values in a table of equivalent ratios
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arith504 Writing an equation to represent a proportional relationship
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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
arith645 Word problem with powers of ten
arith500 Identifying proportional relationships in tables by calculating unit rates: Whole numbers
arith510 Identifying proportional relationships in tables by calculating unit rates: Fractions
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geom360 Identifying similar or congruent shapes on a grid
geom387 Similar polygons
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geom338 Indirect measurement
geom588 Finding lengths using scale models
geom539 Finding a scale factor: Same units
geom541 Using a scale drawing to find actual area
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mstat059 Choosing U.S. Customary measurement units
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mstat034 Measuring length to the nearest quarter or half inch
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mstat035 Conversions involving measurements in feet and inches
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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
mstat064 Measuring length to the nearest centimeter
mstat065 Measuring length to the nearest millimeter
unit001 Metric distance conversion with whole number values
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unit003 Metric distance conversion with decimal values
unit004 Metric conversion with decimal values: Two-step problem
unit010 Metric area unit conversion with decimal values
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mstat062 Reading a positive temperature from a thermometer
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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
arith894 Finding benchmark fractions and percentages for a figure
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
arith885 Estimating a tip without a calculator
arith869 Writing a ratio as a percentage without a calculator
arith850 Finding the rate of a tax or commission
arith849 Finding the total amount given the percentage of a partial amount
stat805 Making a reasonable inference based on proportion statistics
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
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
arith855 Finding the original amount given the result of a percentage increase or decrease
arith074 Finding the sale price without a calculator given the original 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
arith252 Finding simple interest without a calculator
arith853 Introduction to compound interest
arith915 Calculating income tax
arith918 Comparing discounts
arith909 Examining a savings plan for college
arith914 Calculations involving paying for college
arith920 Comparing total costs for attending different colleges
arith916 Computing percentages for categories of a budget
arith919 Computations involving cost of living and hourly wage
arith921 Comparing annual salaries of different occupations
arith911 Calculations involving purchases with debit and credit cards
arith950 Comparing costs of checking accounts
arith951 Balancing a check register
arith912 Reading a credit report
arith913 Understanding the impact of a credit score
arith917 Computing a person’s net worth
arith906 Calculating and comparing monthly payments using the ALEKS loan calculator
arith907 Calculating monthly payment, total payment, and interest using the ALEKS loan calculator
arith908 Calculating and comparing total loan payments using the ALEKS loan calculator
arith910 Calculating and comparing simple interest and compound interest

Equations and Inequalities

alge647 Identifying like terms
alge700 Combining like terms: Whole number coefficients
alge607 Combining like terms: Integer coefficients
arith655 Introduction to properties of addition
alge187 Properties of addition
alge666 Combining like terms: Fractional coefficients
alge665 Combining like terms: Decimal coefficients
alge510 Multiplying a constant and a linear monomial
alge606 Distributive property: Whole number coefficients
alge604 Distributive property: Integer coefficients
alge610 Distributive property: Fractional coefficients
alge605 Factoring a linear binomial
alge612 Identifying parts in an algebraic expression
alge613 Identifying properties used to simplify an algebraic expression
arith656 Introduction to properties of multiplication
alge188 Properties of real numbers
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
alge293 Combining like terms in a quadratic expression
APPENDIX B. PROGRAMS IN ALEKS

alge436 Adding rational expressions with different denominators and a single occurrence of a variable
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
alge611 Introduction to solving a linear equation with a variable on each 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
alge614 Clearing fractions in an equation
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 \((x+a)/b = c/d\)
alge271 Solving a proportion of the form \(a/(x+b) = c/x\)
alge658 Introduction to solving a rational equation
alge060 Solving a rational equation that simplifies to linear: Denominator 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
alge802 Solving a fraction word problem using a linear equation of the form \(Ax = B\)
alge016 Translating a sentence into a one-step equation
alge671 Choosing stories that can be represented by given one-step equations
alge841 Translating a sentence into a multi-step equation
alge628 Writing an equation of the form \(Ax + B = C\) to solve a word problem
alge618 Comparing arithmetic and algebraic solutions to a word problem
alge672 Choosing stories that can be represented by given two-step equations
alge173 Solving a decimal word problem using a linear equation of the form \(Ax + B = C\)
alge629 Writing an equation of the form \(A(x + B) = C\) to solve a word problem
alge014 Solving a word problem with two unknowns using a linear equation
alge673 Writing an equation to represent a real-world problem: Variable on both sides
alge674 Writing and solving a real-world problem given an equation with the variable on both sides
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
alge795 Solving a percent mixture problem using a linear equation
alge796 Solving a distance, rate, time problem using a linear equation
alge015 Translating a sentence by using an inequality symbol
alge845 Translating a sentence into a one-step inequality
alge653 Introduction to identifying solutions to an 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
alge652 Identifying solutions to a one-step linear inequality
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
alge809 Multiplicative property of inequality with whole numbers
alge854 Multiplicative property of inequality with integers
alge964 Multiplicative property of inequality with signed fractions
alge621 Solving a word problem using a one-step linear inequality
alge844 Identifying solutions to a two-step linear inequality in one variable
alge636 Solving a two-step linear inequality with whole numbers
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
alge846 Translating a sentence into a multi-step inequality
alge619 Solving a word problem using a two-step linear inequality and describing the solution
alge623 Solving a word problem using a two-step linear inequality
alge749 Solving a decimal word problem using a two-step linear inequality

Graphing, Functions, and Sequences

alge278 Reading a point in quadrant 1
alge279 Plotting a point in quadrant 1
alge064 Reading a point in the coordinate plane
alge067 Plotting a point in the coordinate plane
alge692 Plotting a point in quadrant 1: Mixed number coordinates
alge693 Plotting a point in the coordinate plane: Mixed number coordinates
arith404 Naming the quadrant or axis of a point given its graph
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
alge695 Finding distances between points that share a common coordinate: Problem type 1
alge696 Finding distances between points that share a common coordinate: Problem type 2
alge191 Midpoint of a line segment in the plane
alge282 Function tables with two-step rules
alge850 Table for a linear equation
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
alge873 Identifying solutions to a linear equation in two variables
alge066 Finding a solution to a linear equation in two variables
alge280 Graphing a line in quadrant 1
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
alge874 Identifying linear functions given ordered pairs
geom358 Identifying parallel and perpendicular lines
mstat007 Interpreting a line graph
arith454 Making a table and plotting points given a unit rate
arith501 Identifying proportional relationships in graphs: Basic
arith502 Identifying proportional relationships in graphs: Advanced
arith512 Finding outputs and rate of increase given the graph of a line that models a real-world situation
alge699 Comparing proportional relationships given in different forms
alge575 Finding slope given the graph of a line in quadrant 1 that models a real-world situation
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
alge814 Using right triangles to find the slope of a line
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
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
alge625 Identifying linear equations: Basic
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
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
alge632 Finding outputs of a one-step function that models a real-world situation: Two variable equation
alge633 Finding inputs and outputs of a two-step function that models a real-world situation: Two variable equation
alge655 Writing and evaluating a function that models a real-world situation: Basic
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
alge656 Writing an equation and drawing its graph to model a real-world situation: Basic
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
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
alge670 Identifying independent and dependent quantities from tables and graphs
mstat052 Identifying independent and dependent variables from equations or real-world situations
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
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
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
alge999 Finding where a function is increasing, decreasing, or constant given the graph
mstat018 Choosing a graph to fit a narrative: Basic
mstat051 Choosing a graph to fit a narrative: Advanced
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
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
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
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
alge906 Finding the next terms of an arithmetic sequence with integers
alge979 Identifying arithmetic sequences and finding the common difference
alge934 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
alge909 Writing an explicit rule for 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
pcalc713 Arithmetic and geometric sequences: Identifying and writing an explicit rule
alge914 Identifying solutions to a system of linear equations
alge725 Graphically solving a system of linear equations
alge815 Introduction to using substitution to solve a linear equation
alge816 Solving a system of linear equations of the form y = mx + b
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
alge634 Solving systems of linear equations with 0, 1, or infinitely many solutions
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
pcalc038 Addition or subtraction of matrices
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
Exponents, Polynomials, and Radicals

- alge686 Introduction to the product rule with positive exponents: Whole number base
- 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
- alge690 Introduction to the power of a power rule with positive exponents: Whole number base
- 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
- alge688 Introduction to the quotient rule with positive exponents: Whole number base
- alge827 Introduction to the quotient rule of exponents
- alge452 Simplifying a ratio of univariate monomials
- alge691 Introduction to the power of a power rule with negative exponents: Whole number base
- alge689 Introduction to the quotient rule with negative exponents: Whole number base
- alge755 Quotient rule with negative exponents: Problem type 1
- alge691 Introduction to the power of a power rule with negative exponents: Whole number base
- alge025 Power of a power rule with negative exponents
- scinot023 Introduction to scientific notation with positive exponents
- arith636 Scientific notation with positive exponent
- scinot024 Introduction to scientific notation with negative exponents
- arith637 Scientific notation with negative exponent
- scinot012 Converting between scientific notation and standard form in a real-world situation
- scinot025 Estimating numbers using scientific notation
- scinot020 Choosing metric units and converting to the base unit in scientific notation
- scinot021 Expressing calculator notation as scientific notation
- 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
- scinot015 Adding or subtracting numbers written in scientific notation: Same exponents, basic
- scinot022 Adding or subtracting numbers written in scientific notation: Same exponents, advanced
- scinot016 Adding or subtracting numbers written in scientific notation: Different exponents
- scinot017 Estimating the sum or difference of two numbers written in scientific notation
- 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
- alge735 Multiplying a univariate polynomial by a monomial with a positive coefficient
- 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
- alge032 Squaring a binomial: Univariate
- alge945 Multiplication involving binomials and trinomials in one variable
- alge180 Multiplication involving binomials and trinomials in two variables
- alge737 Introduction to the LCM of two monomials
Angles, Lines, and Polygons

geom151 Measuring an angle with the protractor
geom152 Drawing an angle with the protractor
geom303 Acute, obtuse, and right angles
geom639 Finding supplementary and complementary angles
geom551 Finding the complement or supplement of an angle given a figure
geom552 Solving an equation involving complementary or supplementary angles
geom305 Identifying supplementary and vertical angles
APPENDIX B. PROGRAMS IN ALEKS

geom533 Finding angle measures given two intersecting lines
geom530 Solving equations involving vertical angles
geom304 Identifying corresponding and alternate angles
geom349 Naming segments, rays, and lines
geom554 Finding angle measures given two parallel lines cut by a transversal
geom531 Solving equations involving angles and parallel lines
geom584 Establishing facts about the angles created when parallel lines are cut by a transversal
geom154 Constructing the perpendicular bisector of a line segment
geom158 Constructing an angle bisector
geom159 Constructing congruent angles
geom150 Constructing a pair of perpendicular lines
geom157 Constructing a pair of parallel lines
geom306 Acute, obtuse, and right triangles
geom307 Scalene, isosceles, and equilateral triangles
geom601 Finding an angle measure of a triangle given two angles
geom860 Special right triangles
geom812 Finding an angle measure given extended triangles
geom813 Finding an angle measure given a triangle and 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
geom309 Finding an angle measure for a triangle sharing a side with another triangle
geom587 Establishing facts about the interior and exterior angles of a triangle
geom543 Drawing a circle with a given radius or diameter
geom544 Creating triangles from given side lengths: Problem type 1
geom534 Creating triangles from given side lengths: Problem type 2
geom844 Triangle inequality: Problem type 1
geom548 Determining if a triangle is possible based on given angle measures
geom549 Determining if given measurements define a unique triangle, more than one triangle, or no triangle
geom546 Drawing triangles with given conditions: Angle measures
geom547 Drawing triangles with given conditions: Side lengths and angle measures
geom545 Drawing triangles with given side lengths using a compass
pcalc609 Sine, cosine, and tangent ratios: Numbers for side lengths
pcalc610 Using a trigonometric ratio to find an angle measure in a right triangle
pcalc607 Using a trigonometric ratio to find a side length in a 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
geom361 Naming polygons
mstat042 Interpreting a Venn diagram of 2 sets
geom536 Drawing and identifying a polygon in the coordinate plane
geom867 Identifying parallelograms, rectangles, and squares
geom310 Classifying quadrilaterals
geom532 Classifying parallelograms
geom818 Finding the coordinates of a point to make a parallelogram
geom870 Sum of the angle measures of a quadrilateral
geom852 The sum of interior angle measures in a convex polygon

Transformations

geom519 Identifying and naming congruent parts of congruent triangles
geom520 Identifying and naming congruent triangles
geom583 Finding angle measures of a triangle given two angles of a similar triangle
geom585 Finding angle measures and side ratios to determine if two triangles are similar
geom587 Identifying transformations
geom596 Translating a point and giving its coordinates: One step
geom909 Translating a point and giving its coordinates: Two steps
geom597 Properties of translated figures
geom598 Determining if figures are related by a translation
geom330 Translating a polygon
geom331 Using a translated point to find coordinates of other translated points
arith408 Reflecting a point across an axis
geom533 Reflecting a point across both coordinate axes
geom590 Reflecting a point across an axis and giving its coordinates
arith407 Coordinates of a point reflected across an axis
geom560 Coordinates of a point reflected across both axes
geom534 Reflecting a polygon across the x-axis or y-axis
geom591 Properties of reflected figures
geom592 Determining if figures are related by a reflection
geom332 Reflecting a polygon over a vertical or horizontal line
geom333 Finding the coordinates of three points reflected over an axis
geom334 Drawing lines of symmetry
geom602 Finding the coordinates of a point reflected across an axis and translated
geom815 Finding an angle of rotation
geom524 Identifying rotational symmetry and angles of rotation
geom593 Rotating a point and giving its coordinates
geom594 Properties of rotated figures
geom595 Determining if figures are related by a rotation
geom335 Rotating a figure about the origin
geom580 Determining if figures are congruent and related by a transformation
geom581 Determining if figures are congruent and related by two transformations
geom606 Dilating a segment and giving the coordinates of its endpoints
geom807 The effect of dilation on side length
geom608 Determining if figures are related by a dilation
geom636 The effect of dilation on area
geom336 Dilating a figure
geom582 Determining if figures are similar and related by two transformations

Perimeters, Areas, and Volumes

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
alge615 Writing algebraic expressions for the perimeter of a figure
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
geom561 Finding the dimensions of a rectangle given its perimeter and a relationship between sides
geom620 Area of a rectangle involving fractions
geom619 Area of a rectangle involving mixed numbers and fractions
geom350 Distinguishing between area and perimeter
geom351 Areas of rectangles with the same perimeter
geom869 Estimates and exact answers
alge616 Writing algebraic expressions for the area of a figure
geom410 Word problem involving the area of a square or a rectangle
geom143 Finding the perimeter or area of a rectangle given one of these values
geom340 Area of a piecewise rectangular figure
geom562 Area between two rectangles
geom142 Word problem involving the area between two rectangles
geom501 Finding the area of a right triangle on a grid
geom509 Finding the area of a right triangle or its corresponding rectangle
geom801 Area of a triangle
geom517 Finding the area of a trapezoid on a grid by using triangles and rectangles
geom344 Area involving rectangles and triangles
alge724 Finding an area in terms of variables
geom822 Area of a parallelogram
geom023 Area of a trapezoid
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geom537 Finding the perimeter or area of a rectangle in the coordinate plane
geom832 Area of quadrilaterals in the coordinate plane
geom603 Identifying side lengths that give right triangles
geom589 Demonstrating the converse of the Pythagorean Theorem
geom588 Informal proof of the Pythagorean Theorem
geom347 Introduction to a circle: Diameter, radius, and chord
geom343 Identifying central angles, inscribed angles, arcs, chords, and tangents of a circle
geom016 Finding the radius or the diameter of a circle given its circumference
geom383 Circumference ratios
geom301 Perimeter involving rectangles and circles
geom026 Area of a circle
geom082 Circumference and area of a circle
geom570 Distinguishing between the area and circumference of a circle
geom302 Area involving rectangles and circles
geom563 Area between two concentric circles
geom596 Word problem involving the area between two concentric circles
geom214 Area involving inscribed figures
geom126 Area of a sector of a circle
geom568 Classifying solids
geom348 Vertices, edges, and faces of a solid
geom830 Counting the cubes in a solid made of cubes
geom816 Side views of a solid made of cubes
geom550 Identifying horizontal and vertical cross sections of solids
geom518 Volume of a solid made of unit fraction edge lengths
geom535 Volume of a rectangular prism with fractional edge lengths
alg617 Writing equivalent expressions for the volume of a rectangular prism
geom571 Word problem involving the volume of a rectangular prism
geom058 Word problem involving the rate of filling or emptying a rectangular prism
geom055 Volume of a piecewise rectangular prism
geom990 Volume of a triangular prism
geom572 Word problem involving the volume of a triangular prism
geom533 Volume of a pyramid
geom537 Relating the volumes of a rectangular prism and a rectangular pyramid
geom583 Relating the volumes of a triangular prism and a triangular pyramid
geom595 Volume of a cylinder
geom573 Word problem involving the volume of a cylinder
geom592 Word problem involving the rate of filling or emptying a cylinder
geom622 Volume of a cone
geom586 Volume of a cone: Exact answers in terms of pi
geom539 Relating the volumes of a cylinder and a cone
geom575 Word problem involving the volume of a cone
geom841 Volume of a sphere
geom574 Word problem involving the volume of a sphere
geom133 Ratio of volumes
geom219 Nets of solids
geom831 Surface area of a cube or a rectangular prism
geom632 Surface area of a rectangular prism made of unit cubes
geom555 Distinguishing between surface area and volume
geom556 Using a net to find the surface area of a rectangular prism
geom576 Word problem involving the surface area of a rectangular prism
geom345 Surface area of a piecewise rectangular prism made of unit cubes
geom591 Surface area of a triangular prism
geom557 Using a net to find the surface area of a triangular prism
geom621 Surface area of a cylinder
geom834 Surface area of a cylinder: Exact answers in terms of pi
geom578 Word problem involving the surface area of a cylinder
geom842 Surface area of a sphere
geom538 Surface area involving prisms or cylinders
geom846 Similar solids: Problem type 1
geom847 Similar solids: Problem type 2
Data Analysis and Probability

- Identifying statistical questions
- Choosing an appropriate method for gathering data: Problem type 1
- Choosing an appropriate method for gathering data: Problem type 2
- Interpreting a tally table
- Constructing a two-way frequency table: Basic
- Constructing a two-way frequency table: Advanced
- Computing a percentage from a table of values
- Making an inference using a two-way frequency table
- Calculating relative frequencies in a contingency table
- Finding if a question can be answered by the data
- 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
- Angle measure in a circle graph
- Constructing a scatter plot
- Sketching the line of best fit
- Scatter plots and correlation
- Predictions from the line of best fit
- Approximating the equation of a line of best fit and making predictions
- Classifying linear and nonlinear relationships from scatter plots
- Linear relationship and the correlation coefficient
- Identifying outliers and clustering in scatter plots
- Mode of a data set
- Finding the mode and range of a data set
- Finding the mode and range from a line plot
- Mean of a data set
- Using a model to find the mean
- Understanding the mean graphically: Two bars
- Understanding the mean graphically: Four or more bars
- Finding the mean of a symmetric distribution
- Finding sample size and comparing samples for estimating the mean
- Computations involving the mean, sample size, and sum of a data set
- Finding the value for a new score that will yield a given mean
- Rejecting unreasonable claims based on average statistics
- Weighted mean
- Mean and median of a data set
- How changing a value affects the mean and median
- Finding outliers in a data set
- Choosing the best measure to describe data
- Comparing measures of center and variation
- Using back-to-back stem-and-leaf plots to compare data sets
- Five-number summary and interquartile range
- Constructing a box-and-whisker plot
- Using box-and-whisker plots to compare data sets
- Comparing sample means
- Computing mean absolute deviation from a list of numerical values
- Computing mean absolute deviation from a bar graph
- Assessing the degree of overlap of two distributions
- Interpreting a Venn diagram of 3 sets
- Interpreting a tree diagram
- Introduction to the counting principle
- Counting principle
- Determining a sample space and outcomes for a simple event
### APPENDIX B. PROGRAMS IN ALEKS

- mstat100 Determining a sample space and outcomes for a compound event
- pcalc082 Factorial expressions
- mstat017 Computing permutations and combinations
- mstat008 Word problem involving permutations
- mstat009 Word problem involving combinations
- mstat054 Classifying likelihood
- 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
- mstat085 Identifying outcomes in a random number table used to simulate a compound event
- mstat086 Using a random number table to simulate a compound event

### B.16 Pre-Algebra

#### Whole Numbers and Integers

- 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
- arith630 Addition with carry to the hundreds place
- arith012 Addition of large numbers
- 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
- mstat061 Describing an increasing or decreasing pattern from a table of values
- arith126 Multiplication as repeated addition
- arith004 Multiplication with carry
- arith614 Multiplication with carry
- arith615 Introduction to multiplication of large numbers
- arith675 Understanding multiplication of a one-digit number with a larger number
- arith014 Multiplication of large numbers
- arith641 Multiples: Problem type 1
- arith642 Multiples: Problem type 2
- arith614 Word problem with multiplication or division of whole numbers
- arith130 Word problem with multiplication and addition or subtraction of whole numbers
- arith451 Word problem on unit rates associated with ratios of whole numbers: Whole number answers
- arith243 Division of whole numbers given in fractional form
- arith711 Division involving zero
- arith005 Division with carry
- arith901 Whole number division: 2-digit by 2-digit, no remainder
- arith902 Whole number division: 3-digit by 2-digit, no remainder
- 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
- arith023 Word problem with division of whole numbers and rounding
- arith651 Introduction to inequalities
B.16. PRE-ALGEBRA

arith652 Comparing a numerical expression with a number
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
arith677 Estimating a product
arith678 Estimating a quotient
arith692 Writing expressions using exponents
arith233 Introduction to exponents
arith683 Power of 10: Positive exponent
arith645 Introduction to parentheses
arith865 Comparing numerical expressions with parentheses
arith681 Introduction to order of operations
arith650 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
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
arith516 Greatest common factor of 3 numbers
arith409 Introduction to the distributive property
arith657 Understanding the distributive property
arith410 Introduction to factoring with numbers
arith411 Factoring a sum or difference of whole numbers
arith700 Least common multiple of 2 numbers
arith804 Least common multiple of 3 numbers
arith418 Word problem involving the least common multiple of 2 numbers
arith240 Word problem with common multiples
alge286 Plotting integers on a number line
arith691 Ordering integers
arith445 Using a number line to compare integers
arith699 Writing a signed number for a real-world situation
arith400 Interpreting a table of signed numbers that relate to a real-world situation: Problem type 1
arith511 Interpreting a table of signed numbers that relate to a real-world situation: Problem type 2
arith416 Comparing signed numbers relating to a real-world situation
arith402 Plotting opposite integers on a number line
arith403 Finding opposites of integers
arith071 Absolute value of a number
arith412 Finding all numbers with a given absolute value
arith200 Integer addition: Problem type 1
arith108 Integer addition: Problem type 2
arith431 Identifying a sum as a point located a given distance from another point
arith430 Identifying relative change when combining two quantities
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
arith440 Operations with absolute value: Problem type 1
arith104 Operations with absolute value: Problem type 2
alge694 Computing the distance between two integers on a number line
arith433 Computing and understanding distances between integers on a number line
arith701 Word problem with addition or subtraction of integers
arith231 Integer multiplication and division
arith800 Multiplication of 3 or 4 integers
APPENDIX B. PROGRAMS IN ALEKS

arith952 Word problem with multiplication or division of 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
alge284 Evaluating an algebraic expression: Whole number addition or subtraction
alge663 Evaluating an algebraic expression: Whole number multiplication or division
alge285 Evaluating an algebraic expression: Whole numbers with two operations
alge649 Evaluating a formula
alge648 Evaluating an algebraic expression: Whole numbers with one operation and an exponent
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
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
geom339 Perimeter of a polygon
geom300 Perimeter of a square or a rectangle
geom019 Area of a square or a rectangle
geom866 Perimeter and area on a grid
geom311 Volume of a rectangular prism
alge650 Identifying solutions to a one-step linear equation: Problem type 1
alge651 Identifying solutions to a one-step linear equation: Problem type 2
alge009 Additive property of equality with whole numbers
alge010 Additive property of equality with integers
alge660 Identifying equivalent signed fractions
arith623 Introduction to fractions
arith665 Understanding equivalent fractions
arith212 Equivalent fractions
arith666 Introduction to simplifying a fraction
arith067 Simplifying a fraction
alge660 Identifying equivalent signed fractions
alge687 Fractional position on a number line
alge667 Fractional position on a number line
alge044 Ordering fractions with the same denominator
alge091 Ordering fractions with the same numerator
alge092 Using a common denominator to order fractions
alge079 Product of a unit fraction and a whole number
alge086 Product of a fraction and a whole number: Problem type 1
alge119 Introduction to fraction multiplication
arith653 Fraction multiplication
arith612 Product of a fraction and a whole number: Problem type 2
arith905 Determining if a quantity is increased or decreased when multiplied by a fraction
arith509 Modeling multiplication of proper fractions
arith813 Multiplication of 3 fractions
arith822 Signed fraction multiplication: Basic
arith105 Signed fraction multiplication: Advanced
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
arith507 Fact families for multiplication and division of fractions
arith508 Modeling division of a whole number by a fraction
arith814 Signed fraction division
arith819 Word problem involving fractions and division
B.16. PRE-ALGEBRA

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
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
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
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
arith968 Mixed number division
arith820 Word problem involving multiplication or division with mixed numbers
arith821 Exponents and fractions
alge790 Evaluating expressions with exponents of zero
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
arith865 Complex fraction without variables: Problem type 1
alge808 Evaluating a linear expression: Signed fraction multiplication with addition or subtraction
alge801 Additive property of equality with fractions and mixed numbers
alge836 Additive property of equality with signed fractions
alge646 Multiplicative property of equality with whole numbers: Fractional answers
alge820 Multiplicative property of equality with fractions
alge012 Multiplicative property of equality with signed fractions

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
arith688 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
arith738 Subtraction of aligned decimals
arith131 Estimating a decimal sum or difference
arith117 Signed decimal addition and subtraction
arith233 Signed decimal addition and subtraction with 3 numbers
geom525 Computing distances between decimals on the number line
arith132 Word problem with addition or subtraction of 2 decimals
arith113 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
arith399 Introduction to decimal multiplication
arith601 Multiplication of a decimal by a whole number
arith655 Decimal multiplication: Problem type 1
arith646 Decimal multiplication: Problem type 2
arith682 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
arith750 Signed decimal multiplication
arith136 Word problem with multiplication of a decimal and a whole number
arith137 Word problem with multiplication of two decimals
arith628 Word problem with multiple decimal operations: Problem type 1
arith744 Whole number division with decimal answers
arith681 Division of a decimal by a whole number
arith743 Division of a decimal by a 1-digit decimal
arith609 Division of a decimal by a 2-digit decimal
arith683 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
arith751 Signed decimal division
arith136 Word problem with division of a decimal and a whole number
arith138 Word problem with division of two decimals
arith629 Word problem with multiple decimal operations: Problem type 2
arith103 Average of two numbers
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
arith113 Converting a proper fraction with a denominator of 2, 4, or 5 to a decimal
arith114 Converting a mixed number with a denominator of 2, 4, or 5 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
B.16. PRE-ALGEBRA

arith748 Addition or subtraction with a decimal and a mixed number
arith749 Multiplication with a decimal and a fraction
alge302 Evaluating a linear expression: Signed decimal addition and subtraction
alge303 Evaluating a linear expression: Signed decimal multiplication with addition or subtraction
alge800 Additive property of equality with decimals
alge825 Multiplicative property of equality with decimals

Ratios, Proportions, and Measurement

arith823 Writing ratios using different notations
arith663 Writing ratios for real-world situations
arith450 Identifying statements that describe a ratio
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
arith228 Word problem on unit rates associated with ratios of whole numbers: Decimal answers
arith505 Word problem on unit rates associated with ratios of fractions
arith506 Word problem on unit rates associated with ratios of mixed numbers
arith664 Solving a word problem on proportions using a unit rate
alge823 Solving a one-step word problem using the formula d = rt
arith512 Finding missing values in a table of equivalent ratios
arith453 Using a table of equivalent ratios to find a missing quantity in a ratio
arith504 Writing an equation to represent a proportional relationship
alge819 Solving a proportion of the form x/a=b/c: Basic
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
arith455 Finding missing values in a table of equivalent ratios
arith456 Using a table of equivalent ratios to find a missing quantity in a ratio
alge359 Identifying congruent shapes on a grid
alge360 Identifying similar or congruent shapes on a grid
alge361 Similar polygons
alge362 Similar right triangles
alge363 Indirect measurement
alge364 Finding lengths using scale models
alge365 Finding a scale factor: Same units
alge366 Using a scale drawing to find actual area
alge367 Reproducing a scale drawing at a different scale
mstat058 Choosing a measuring tool
mstat059 Choosing U.S. Customary measurement units
mstat033 Measuring length to the nearest inch
mstat034 Measuring length to the nearest quarter or half inch
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
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
unit010 Metric area unit conversion with decimal values
unit012 Time unit conversion with whole number values
time009 Introduction to adding time
time006 Adding time
time011 Introduction to elapsed time
time007 Elapsed time
mstat062 Reading a positive temperature from a thermometer
mstat038 Reading the temperature from a thermometer
mstat065 Converting between temperatures in Fahrenheit and Celsius
alg218 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
unit036 Converting between compound units: Advanced

Percents

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
arith903 Representing benchmark percentages on a grid
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
arith9090 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
arith804 Finding benchmark fractions and percentages for a figure
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
arith869 Writing a ratio as a percentage without a calculator
arith850 Finding the rate of a tax or commission
arith849 Finding the total amount given the percentage of a partial amount
stat805 Making a reasonable inference based on proportion statistics
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
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
unit052 Finding the absolute error and percent error of a measurement
arith232 Finding simple interest without a calculator
arith853 Introduction to compound interest
arith915 Calculating income tax
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arith918 Comparing discounts
arith909 Examining a savings plan for college
arith914 Calculations involving paying for college
arith920 Comparing total costs for attending different colleges
arith922 Distinguishing between fixed and variable expenses
arith916 Computing percentages for categories of a budget
arith919 Computations involving cost of living and hourly wage
arith921 Comparing annual salaries of different occupations
arith911 Calculations involving purchases with debit and credit cards
arith950 Comparing costs of checking accounts
arith951 Balancing a check register
arith912 Reading a credit report
arith913 Understanding the impact of a credit score
arith917 Computing a person’s net worth
arith906 Calculating and comparing monthly payments using the ALEKS loan calculator
arith907 Calculating monthly payment, total payment, and interest using the ALEKS loan calculator
arith908 Calculating and comparing total loan payments using the ALEKS loan calculator
arith910 Calculating and comparing simple interest and compound interest

Equations and Inequalities

alge647 Identifying like terms
alge700 Combining like terms: Whole number coefficients
alge607 Combining like terms: Integer coefficients
arith655 Introduction to properties of addition
alge187 Properties of addition
alge666 Combining like terms: Fractional coefficients
alge665 Combining like terms: Decimal coefficients
alge310 Multiplying a constant and a linear monomial
alge606 Distributive property: Whole number coefficients
alge604 Distributive property: Integer coefficients
alge610 Distributive property: Fractional coefficients
alge605 Factoring a linear binomial
alge612 Identifying parts in an algebraic expression
alge613 Identifying equivalent algebraic expressions
arith656 Introduction to properties of multiplication
alge188 Properties of real numbers
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
alge293 Combining like terms in a quadratic expression
alge436 Adding rational expressions with different denominators and a single occurrence of a variable
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
alge611 Introduction to solving a linear equation with a variable on each 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
APPENDIX B. PROGRAMS IN ALEKS

- alge614 Clearing fractions in an equation
- 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 \((x+a)/b = c/d\)
- alge271 Solving a proportion of the form \(a/(x+b) = c/x\)
- alge658 Introduction to solving a rational equation
- alge603 Solving a rational equation that simplifies to linear: Denominator x
- 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
- alge802 Solving a fraction word problem using a linear equation of the form \(Ax = B\)
- alge016 Translating a sentence into a one-step equation
- alge671 Choosing stories that can be represented by given one-step equations
- alge841 Translating a sentence into a multi-step equation
- alge628 Writing an equation of the form \(Ax + B = C\) to solve a word problem
- alge618 Comparing arithmetic and algebraic solutions to a word problem
- alge672 Choosing stories that can be represented by given two-step equations
- alge173 Solving a decimal word problem using a linear equation of the form \(Ax + B = C\)
- alge629 Writing an equation of the form \(A(x + B) = C\) to solve a word problem
- alge014 Solving a word problem with two unknowns using a linear equation
- alge673 Writing an equation to represent a real-world problem: Variable on both sides
- alge674 Writing and solving a real-world problem given an equation with the variable on both sides
- 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
- alge795 Solving a percent mixture problem using a linear equation
- alge015 Translating a sentence by using an inequality symbol
- alge845 Translating a sentence into a one-step inequality
- alge653 Introduction to identifying solutions to an 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
- alge652 Identifying solutions to a one-step linear inequality
- 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
- alge809 Multiplicative property of inequality with whole numbers
- alge854 Multiplicative property of inequality with integers
- alge964 Multiplicative property of inequality with signed fractions
- alge621 Solving a word problem using a one-step linear inequality
- alge844 Identifying solutions to a two-step linear inequality in one variable
- alge636 Solving a two-step linear inequality with whole numbers
- 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
alge846 Translating a sentence into a multi-step inequality
alge619 Solving a word problem using a two-step linear inequality and describing the solution
alge623 Solving a word problem using a two-step linear inequality
alge749 Solving a decimal word problem using a two-step linear inequality

Graphing, Functions, and Sequences

alge278 Reading a point in quadrant 1
alge279 Plotting a point in quadrant 1
alge064 Reading a point in the coordinate plane
alge067 Plotting a point in the coordinate plane
alge692 Plotting a point in quadrant 1: Mixed number coordinates
alge693 Plotting a point in the coordinate plane: Mixed number coordinates
arith404 Naming the quadrant or axis of a point given its graph
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
alge695 Finding distances between points that share a common coordinate: Problem type 1
alge696 Finding distances between points that share a common coordinate: Problem type 2
alge191 Midpoint of a line segment in the plane
alge282 Function tables with two-step rules
alge850 Table for a linear equation
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
alge873 Identifying solutions to a linear equation in two variables
alge066 Finding a solution to a linear equation in two variables
alge280 Graphing a line in quadrant 1
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
alge874 Identifying linear functions given ordered pairs
geom258 Identifying parallel and perpendicular lines
mstat007 Interpreting a line graph
arith454 Making a table and plotting points given a unit rate
arith501 Identifying proportional relationships in graphs: Basic
arith502 Identifying proportional relationships in graphs: Advanced
arith512 Finding outputs and rate of increase given the graph of a line that models a real-world situation
alge699 Comparing proportional relationships given in different forms
alge575 Finding slope given the graph of a line in quadrant 1 that models a real-world situation
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
alge814 Using right triangles to find the slope of a line
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
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
APPENDIX B. PROGRAMS IN ALEKS

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
alge625 Identifying linear equations: Basic
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
alge630 Finding outputs of a one-step function that models a real-world situation: Two variable equation
alge632 Finding outputs of a two-step function with decimals that models a real-world situation: Two variable equation
alge633 Finding inputs and outputs of a two-step function that models a real-world situation: Two variable equation
alge655 Writing and evaluating a function that models a real-world situation: Basic
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
alge656 Writing an equation and drawing its graph to model a real-world situation: Basic
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
alge897 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
alge670 Identifying independent and dependent quantities from tables and graphs
mstat052 Identifying independent and dependent variables from equations or real-world situations
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
fun007 Domain and range from the graph of a discrete relation
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
alge999 Finding where a function is increasing, decreasing, or constant given the graph
mstat018 Choosing a graph to fit a narrative: Basic
mstat051 Choosing a graph to fit a narrative: Advanced
alge913 Graphing an absolute value equation of the form y = |x |
alge900 Graphing an absolute value equation in the plane: Basic
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alge168 Graphing an absolute value equation in the plane: Advanced
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 \( y = ax^3 \)
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
alge644 Finding the first terms of an arithmetic sequence using an explicit rule
alge906 Finding the next terms of an arithmetic sequence with integers
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
alge909 Writing an explicit rule for 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
pcalc713 Arithmetic and geometric sequences: Identifying and writing an explicit rule
alge914 Identifying solutions to a system of linear equations
alge725 Graphically solving a system of linear equations
alge815 Introduction to using substitution to solve a linear equation
alge816 Solving a system of linear equations of the form \( y = mx + b \)
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
alge634 Solving systems of linear equations with 0, 1, or infinitely many solutions
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
pcalc038 Addition or subtraction of matrices
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

Exponents, Polynomials, and Radicals

alge686 Introduction to the product rule with positive exponents: Whole number base
alge821 Understanding the product rule of exponents
alge624 Introduction to the product rule of exponents
alge311 Product rule with positive exponents: Univariate
alge630 Product rule with positive exponents: Multivariate
alge690 Introduction to the power of a power rule with positive exponents: Whole number base
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
alge688 Introduction to the quotient rule with positive exponents: Whole number base
alge827 Introduction to the quotient rule of exponents
alge452 Simplifying a ratio of univariate monomials
alge026 Quotient of expressions involving exponents
arith029 Ordering numbers with positive exponents
APPENDIX B. PROGRAMS IN ALEKS

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
alge687 Introduction to the product rule with negative exponents: Whole number base
alge961 Introduction to the product rule with negative exponents
alge689 Introduction to the quotient rule with negative exponents: Whole number base
alge755 Quotient rule with negative exponents: Problem type 1
alge691 Introduction to the power of a power rule with negative exponents: Whole number base
alge025 Power of a power rule with negative exponents
scinot023 Introduction to scientific notation with positive exponents
arith636 Scientific notation with positive exponent
arith024 Introduction to scientific notation with negative exponents
arith037 Scientific notation with negative exponent
scinot012 Converting between scientific notation and standard form in a real-world situation
scinot025 Estimating numbers using scientific notation
scinot020 Choosing metric units and converting to the base unit in scientific notation
scinot021 Expressing calculator notation as scientific notation
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
scinot015 Adding or subtracting numbers written in scientific notation: Same exponents, basic
scinot022 Adding or subtracting numbers written in scientific notation: Same exponents, advanced
scinot016 Adding or subtracting numbers written in scientific notation: Different exponents
scinot017 Estimating the sum or difference of two numbers written in scientific notation
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
alge735 Multiplying a univariate polynomial by a monomial with a positive coefficient
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
alge032 Squaring a binomial: Univariate
alge935 Multiplication involving binomials and trinomials in one variable
alge180 Multiplication involving binomials and trinomials in two variables
alge737 Introduction to the LCM of two monomials
alge035 Least common multiple of two monomials
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
alge039 Factoring a quadratic with leading coefficient 1
alge944 Factoring a perfect square trinomial with leading coefficient 1
alge290 Factoring a difference of squares in one variable: Basic
alge947 Factoring a difference of squares in one variable: Advanced
alge045 Finding the roots of a quadratic equation with leading coefficient 1
arith016 Square root of a perfect square
arith601 Square root of a rational perfect square
alge413 Finding all square roots of a number
arith760 Square roots of perfect squares with signs
arith763 Using a calculator to approximate a square root
arith602 Estimating a square root
alge567 Using numerical methods to approximate a square root to the nearest tenth
alge568 Using numerical methods to approximate a square root to the nearest hundredth
arith515 Approximating the location of irrational numbers on a number line
arith712 Ordering real numbers
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alg001 Identifying numbers as integers or non-integers
arith513 Identifying rational decimal numbers
arith514 Converting a repeating decimal to a fraction
arith432 Identifying true statements about rational and irrational numbers
alg002 Identifying numbers as rational or irrational
alg145 Introduction to simplifying a radical expression with an even exponent
alg264 Square root of a perfect square monomial
arith953 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
arith767 Introduction to square root addition or subtraction
arith763 Square root addition or subtraction
arith764 Introduction to square root multiplication
arith765 Square root multiplication: Basic
alg062 Solving an equation of the form \(x^2 = a\) using the square root property
geom564 Finding side lengths of squares given an area and a perimeter
alg080 Solving a radical equation that simplifies to a linear equation: One radical, basic
alg542 Word problem involving radical equations: Basic
arith994 Cube root of an integer
alg962 Solving an equation of the form \(x^3 = a\) using integers
alg093 Solving an equation using the odd-root property: Problem type I
geom565 Finding the side length of a cube given its volume
alg560 Rational exponents: Unit fraction exponents and whole number bases
alg250 Rational exponents: Non-unit fraction exponent with a whole number base
alg407 Introduction to the Pythagorean Theorem
geom44 Pythagorean Theorem
alg408 Word problem involving the Pythagorean Theorem
geom862 Using the Pythagorean Theorem repeatedly
alg675 Using the Pythagorean Theorem to find distance on a grid
alg132 Distance between two points in the plane

Angles, Lines, and Polygons

gem151 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
geom551 Finding the complement or supplement of an angle given a figure
geom552 Solving an equation involving complementary or supplementary angles
geom205 Identifying supplementary and vertical angles
geom553 Finding angle measures given two intersecting lines
geom530 Solving equations involving vertical angles
geom304 Identifying corresponding and alternate angles
geom349 Naming segments, rays, and lines
geom554 Finding angle measures given two parallel lines cut by a transversal
geom531 Solving equations involving angles and parallel lines
geom584 Establishing facts about the angles created when parallel lines are cut by a transversal
geom154 Constructing the perpendicular bisector of a line segment
geom158 Constructing an angle bisector
geom159 Constructing congruent angles
geom150 Constructing a pair of perpendicular lines
geom157 Constructing a pair of parallel lines
geom306 Acute, obtuse, and right triangles
geom307 Scalene, isosceles, and equilateral triangles
geom801 Finding an angle measure of a triangle given two angles
geom860 Special right triangles
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
APPENDIX B. PROGRAMS IN ALEKS

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
geom309 Finding an angle measure for a triangle sharing a side with another triangle
geom586 Establishing facts about the interior angles of a triangle
geom587 Establishing facts about the interior and exterior angles of a triangle
geom543 Drawing a circle with a given radius or diameter
geom544 Creating triangles from given side lengths: Problem type 1
geom564 Creating triangles from given side lengths: Problem type 2
geom584 Triangle inequality: Problem type 1
geom548 Determining if a triangle is possible based on given angle measures
geom549 Determining if given measurements define a unique triangle, more than one triangle, or no triangle
geom546 Drawing triangles with given conditions: Angle measures
geom547 Drawing triangles with given conditions: Side lengths and angle measures
geom545 Drawing triangles with given side lengths using a compass
pcalc699 Sine, cosine, and tangent ratios: Numbers for side lengths
pcalc600 Sine, cosine, and tangent ratios: Variables for side lengths
pcalc616 Using a calculator to approximate sine, cosine, and tangent values
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 distances
pcalc608 Using a trigonometric ratio to find an angle measure in a right triangle
pcalc611 Using trigonometry to find angles of elevation or depression
geom361 Naming polygons
mstat042 Interpreting a Venn diagram of 2 sets
geom536 Drawing and identifying a polygon in the coordinate plane
geom867 Identifying parallelograms, rectangles, and squares
geom301 Classifying quadrilaterals
geom532 Classifying parallelograms
geom818 Finding the coordinates of a point to make a parallelogram
geom870 Sum of the angle measures of a quadrilateral
geom852 The sum of interior angle measures in a convex polygon

Transformations

geom519 Identifying and naming congruent parts of congruent triangles
geom520 Identifying and naming congruent triangles
geom583 Finding angle measures of a triangle given two angles of a similar triangle
geom585 Finding angle measures and side ratios to determine if two triangles are similar
geom357 Identifying transformations
geom596 Translating a point and giving its coordinates: One step
geom399 Translating a point and giving its coordinates: Two steps
geom597 Properties of translated figures
geom598 Determining if figures are related by a translation
geom350 Translating a polygon
geom331 Using a translated point to find coordinates of other translated points
arith407 Coordinates of a point reflected across an axis
geom333 Reflecting a point across both coordinate axes
geom390 Reflecting a point across an axis and giving its coordinates
geom560 Coordinates of a point reflected across both axes
geom534 Reflecting a polygon across the x-axis or y-axis
geom591 Properties of reflected figures
geom592 Determining if figures are related by a reflection
geom332 Reflecting a polygon over a vertical or horizontal line
geom333 Finding the coordinates of three points reflected over an axis
geom334 Drawing lines of symmetry
geom602 Finding the coordinates of a point reflected across an axis and translated
geom815 Finding an angle of rotation
geom624 Identifying rotational symmetry and angles of rotation
geom593 Rotating a point and giving its coordinates
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geom594 Properties of rotated figures
geom595 Determining if figures are related by a rotation
geom335 Rotating a figure about the origin
geom580 Determining if figures are congruent and related by a transformation
geom581 Determining if figures are congruent and related by two transformations
geom606 Dilating a segment and giving the coordinates of its endpoints
geom607 The effect of dilation on side length
geom608 Determining if figures are related by a dilation
geom636 The effect of dilation on area
geom336 Dilating a figure
geom582 Determining if figures are similar and related by two transformations

Perimeters, Areas, and Volumes

geom618 Perimeter of a polygon involving mixed numbers and fractions
geom078 Sides of polygons having the same perimeter
geom353 Perimeter of a piecewise rectangular figure
alge615 Writing algebraic expressions for the perimeter of a figure
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
geom561 Finding the dimensions of a rectangle given its perimeter and a relationship between sides
geom620 Area of a rectangle involving fractions
geom619 Area of a rectangle involving mixed numbers and fractions
geom350 Distinguishing between area and perimeter
geom351 Areas of rectangles with the same perimeter
geom869 Estimates and exact answers
alge616 Writing algebraic expressions for the area of a figure
geom410 Word problem involving the area of a square or a rectangle
geom143 Finding the perimeter or area of a rectangle given one of these values
geom340 Area of a piecewise rectangular figure
geom562 Area between two rectangles
geom142 Word problem involving the area between two rectangles
geom501 Finding the area of a right triangle on a grid
geom509 Finding the area of a right triangle or its corresponding rectangle
geom801 Area of a triangle
geom517 Finding the area of a trapezoid on a grid by using triangles and rectangles
geom344 Area involving rectangles and triangles
alge724 Finding an area in terms of variables
geom022 Area of a parallelogram
geom223 Area of a trapezoid
geom537 Finding the perimeter or area of a rectangle in the coordinate plane
geom832 Area of quadrilaterals in the coordinate plane
geom603 Identifying side lengths that give right triangles
geom589 Demonstrating the converse of the Pythagorean Theorem
geom588 Informal proof of the Pythagorean Theorem
geom347 Introduction to a circle: Diameter, radius, and chord
geom343 Identifying central angles, inscribed angles, arcs, chords, and tangents of a circle
geom516 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
geom026 Area of a circle
geom802 Circumference and area of a circle
geom570 Distinguishing between the area and circumference of a circle
geom302 Area involving rectangles and circles
geom653 Area between two concentric circles
geom836 Word problem involving the area between two concentric circles
geom214 Area involving inscribed figures
geom126 Area of a sector of a circle
APPENDIX B. PROGRAMS IN ALEKS

geom868 Classifying solids
geom348 Vertices, edges, and faces of a solid
geom830 Counting the cubes in a solid made of cubes
geom816 Side views of a solid made of cubes
geom550 Identifying horizontal and vertical cross sections of solids
geom354 Volume of a rectangular prism made of unit cubes
geom518 Volume of a solid made of cubes with unit fraction edge lengths
geom535 Volume of a rectangular prism with fractional edge lengths
alge617 Writing equivalent expressions for the volume of a rectangular prism
geom571 Word problem involving the volume of a rectangular prism
geom558 Word problem involving the rate of filling or emptying a rectangular prism
geom605 Volume of a piecewise rectangular prism
geom090 Volume of a triangular prism
geom572 Word problem involving the volume of a triangular prism
geom633 Volume of a pyramid
geom637 Relating the volumes of a rectangular prism and a rectangular pyramid
geom638 Relating the volumes of a triangular prism and a triangular pyramid
geom535 Volume of a cylinder
geom573 Word problem involving the volume of a cylinder
geom6092 Word problem involving the rate of filling or emptying a cylinder
geom622 Volume of a cone
geom086 Volume of a cone: Exact answers in terms of pi
geom639 Relating the volumes of a cylinder and a cone
geom575 Word problem involving the volume of a cone
geom841 Volume of a sphere
geom574 Word problem involving the volume of a sphere
geom133 Ratio of volumes
geom219 Nets of solids
geom031 Surface area of a cube or a rectangular prism
geom632 Surface area of a rectangular prism made of unit cubes
geom555 Distinguishing between surface area and volume
geom556 Using a net to find the surface area of a rectangular prism
geom576 Word problem involving the surface area of a rectangular prism
geom345 Surface area of a piecewise rectangular prism made of unit cubes
geom591 Surface area of a triangular prism
geom557 Using a net to find the surface area of a triangular prism
geom621 Surface area of a cylinder
geom634 Surface area of a cylinder: Exact answers in terms of pi
geom578 Word problem involving the surface area of a cylinder
geom842 Surface area of a sphere
geom338 Surface area involving prisms or cylinders
geom846 Similar solids: Problem type 1
geom847 Similar solids: Problem type 2

Data Analysis and Probability

mstat088 Identifying statistical questions
mstat080 Choosing an appropriate method for gathering data: Problem type 1
mstat081 Choosing an appropriate method for gathering data: Problem type 2
mstat056 Interpreting a tally table
mstat097 Constructing a two-way frequency table: Basic
mstat098 Constructing a two-way frequency table: Advanced
mstat049 Computing a percentage from a table of values
mstat087 Making an inference using a two-way frequency table
stat020 Calculating relative frequencies in a contingency table
mstat025 Finding if a question can be answered by the data
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
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mstat044 Interpreting a double bar graph
mstat057 Interpreting a pictograph table
mstat031 Interpreting a stem-and-leaf plot
geom814 Angle measure in a circle graph
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
mstat093 Classifying linear and nonlinear relationships from scatter plots
mstat071 Linear relationship and the correlation coefficient
mstat096 Identifying outliers and clustering in scatter plots
mstat003 Mode of a data set
mstat055 Finding the mode and range of a data set
mstat092 Finding the mode and range from a line plot
mstat001 Mean of a data set
mstat072 Using a model to find the mean
mstat075 Understanding the mean graphically: Two bars
mstat076 Understanding the mean graphically: Four or more bars
mstat091 Finding the mean of a symmetric distribution
mstat079 Finding sample size and comparing samples for estimating the mean
mstat089 Computations involving the mean, sample size, and sum of a data set
stat803 Finding the value for a new score that will yield a given mean
stat802 Rejecting unreasonable claims based on average statistics
mstat066 Weighted mean
mstat028 Mean and median of a data set
mstat029 How changing a value affects the mean and median
mstat095 Finding outliers in a data set
mstat053 Choosing the best measure to describe data
mstat078 Comparing measures of center and variation
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
mstat096 Comparing sample means
mstat082 Computing mean absolute deviation from a list of numerical values
mstat083 Computing mean absolute deviation from a bar graph
mstat084 Assessing the degree of overlap of two distributions
mstat043 Interpreting a Venn diagram of 3 sets
mstat041 Interpreting a tree diagram
mstat040 Introduction to the counting principle
mstat015 Counting principle
mstat099 Determining a sample space and outcomes for a simple event
mstat100 Determining a sample space and outcomes for a compound event
pcalc082 Factorial expressions
mstat017 Computing permutations and combinations
mstat008 Word problem involving permutations
mstat009 Word problem involving combinations
mstat054 Classifying likelihood
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
mstat085 Identifying outcomes in a random number table used to simulate a compound event
mstat086 Using a random number table to simulate a compound event
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Whole Numbers

arith633 One-digit addition with carry
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
arith066 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
arith639 Using multiplication to find the number of squares
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
arith075 Division facts
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
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
arith124 Whole number place value: Problem type 1
arith078 Rounding to tens or hundreds
arith123 Rounding to hundreds or thousands
arith651 Introduction to inequalities
arith077 Ordering large 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
arith056 Factors
arith633 Greatest common factor of 2 numbers
arith641 Multiples: Problem type 1
arith642 Multiples: Problem type 2
arith070 Least common multiple of 2 numbers
arith634 Prime numbers
arith635 Prime factorization
Fractions and Mixed Numbers

- arith623 Introduction to fractions
- 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
- arith801 Finding the LCD of two fractions
- 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
- arith119 Introduction to fraction multiplication
- arith686 Product of a fraction and a whole number: Problem type 1
- arith653 Fraction multiplication
- arith688 The reciprocal of a number
- arith694 Division involving a whole number and a fraction
- arith622 Fraction division
- arith697 Mixed arithmetic operations with 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
- arith684 Addition of mixed numbers with the same denominator and carry
- arith216 Subtraction of mixed numbers with the same denominator and borrowing
- arith685 Addition or subtraction of mixed numbers with different denominators
- arith620 Mixed number multiplication: Problem type 1
- arith668 Mixed number division

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
- arith221 Rounding decimals
- arith129 Introduction to ordering decimals
- arith608 Ordering decimals
- arith670 Converting a decimal to a fraction: Basic
- arith671 Converting a fraction with a denominator of 10, 100, or 1000 to a decimal
- arith222 Converting a fraction to a terminating decimal
- arith624 Addition of aligned decimals
- arith613 Decimal addition with 3 numbers
- arith625 Subtraction of aligned decimals
- arith131 Estimating a decimal sum or difference
- arith626 Word problem with one decimal operation: Problem type 1
- arith627 Word problem with one decimal operation: Problem type 2
- arith682 Multiplication of a decimal by a power of ten
- arith617 Multiplication of a decimal by a whole number
- arith655 Decimal multiplication: Problem type 1
- 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
APPENDIX B. PROGRAMS IN ALEKS

arith019 Division of a decimal by a 2-digit decimal
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
arith30 Finding a percentage of a whole number without a calculator: Basic
arith866 Writing a ratio as a percentage
mstat049 Computing a percentage from a table of values
arith074 Finding the sale price without a calculator given the original price and percent discount
arith232 Finding simple interest without a calculator

Signed Numbers and Variable Expressions

mstat038 Reading the temperature from a thermometer
alge286 Plotting integers on a number line
arith699 Writing a signed number for a real-world situation
arith691 Ordering integers
arith71 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
arith231 Integer multiplication and division
arith800 Multiplication of 3 or 4 integers
arith118 Order of operations with integers
arith701 Word problem with addition or subtraction of integers
alge001 Identifying numbers as integers or non-integers
alge061 Identifying numbers as rational or irrational
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
arith822 Signed fraction multiplication: Basic
arith105 Signed fraction multiplication: Advanced
alge606 Distributive property: Whole number coefficients
alge604 Distributive property: Integer coefficients
alge700 Combining like terms: Whole number coefficients
alge607 Combining like terms: Integer coefficients
alge293 Combining like terms in a quadratic expression
alge798 Simplifying a sum or difference of two univariate polynomials
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
alge605 Evaluating a linear expression: Integer multiplication with addition or subtraction
arith232 Introduction to exponents
arith692 Writing expressions using exponents
arith693 Order of operations with whole numbers and exponents: Basic
arith683 Power of 10: Positive exponent
arith036 Scientific notation with positive exponent
arith684 Power of 10: Negative exponent
arith037 Scientific notation with negative exponent
arith702 Exponents and integers: Problem type 1
arith704 Exponents and integers: Problem type 2
arith704 Exponents and signed fractions
alge004 Evaluating a quadratic expression: Integers
alge021 Understanding the product rule of exponents
Equations, Inequalities, and Functions

arith065 Introduction to properties of addition
arith066 Introduction to properties of multiplication
arith067 Understanding the distributive property
alg009 Additive property of equality with whole numbers
alg010 Additive property of equality with integers
alg013 Solving simple equations with multiplication or division
alg008 Multiplicative property of equality with whole numbers
alg020 Multiplicative property of equality with fractions
alg025 Multiplicative property of equality with decimals
alg079 Multiplicative property of equality with integers
alg012 Multiplicative property of equality with signed fractions
alg010 Introduction to algebraic symbol manipulation
alg027 Solving a proportion of the form x/a = b/c
alg026 Additive property of equality with a negative coefficient
alg083 Using two steps to solve an equation with whole numbers
alg006 Solving a two-step equation with integers
alg024 Solving a two-step equation with signed decimals
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
alg062 Writing a one-step expression for a real-world situation
alg014 Writing a one-step variable expression for a real-world situation
alg016 Translating a sentence into a one-step equation
alg029 Translating a phrase into a two-step expression
alg082 Solving a fraction word problem using a linear equation of the form Ax = B
alg014 Solving a word problem with two unknowns using a linear equation
alg017 Solving a decimal word problem using a linear equation of the form Ax + B = C
arith064 Solving a word problem on proportions using a unit rate
arith010 Word problem on proportions: Problem type 1
alg083 Solving a one-step word problem using the formula d = rt
alg018 Solving a word problem involving rates and time conversion
alg015 Translating a sentence by using an inequality symbol
alg017 Graphing a linear inequality on the number line
alg022 Writing an inequality given a graph on the number line
alg019 Solving a linear inequality: Problem type 1
alg020 Solving a linear inequality: Problem type 2
alg021 Solving a linear inequality: Problem type 3
alg074 Solving a linear inequality: Problem type 5
alg087 Finding the next terms of a sequence with whole numbers
fun005 Writing a function rule given a table of ordered pairs: One-step rules
alg062 Function tables with two-step rules
fun001 Table for a linear function
alg0278 Reading a point in quadrant 1
alg004 Reading a point in the coordinate plane
alg0279 Plotting a point in quadrant 1
alge067 Plotting a point in the coordinate plane
alge280 Graphing a line in quadrant 1
alge194 Graphing a line given its equation in slope-intercept form
alge198 Graphing a vertical or horizontal line
alge263 Interpreting the graphs of two functions
alge684 Finding slope given the graph of a line on a grid
alge685 Finding slope given two points on the line
alge828 Interpreting direct variation from a graph

Geometry and Measurement

ggeom525 Computing distances between decimals on the number line
ggeom339 Perimeter of a polygon
ggeom300 Perimeter of a square or a rectangle
ggeom866 Perimeter and area on a grid
ggeom019 Area of a square or a rectangle
ggeom350 Distinguishing between area and perimeter
ggeom351 Areas of rectangles with the same perimeter
ggeom217 Finding the side length of a rectangle given its perimeter or area
ggeom221 Finding the missing length in a figure
ggeom353 Perimeter of a piecewise rectangular figure
ggeom340 Area of a piecewise rectangular figure
ggeom801 Area of a triangle
ggeom001 Finding an angle measure of a triangle given two angles
ggeom044 Pythagorean Theorem
ggeom016 Circumference of a circle
ggeom802 Circumference and area of a circle
ggeom302 Area involving rectangles and circles
ggeom219 Nets of solids
ggeom354 Volume of a rectangular prism made of unit cubes
ggeom311 Volume of a rectangular prism
ggeom305 Volume of a cylinder
ggeom303 Surface area of a cube or a rectangular prism
uunit005 U.S. Customary unit conversion with whole number values
uunit001 Metric distance conversion with whole number values
uunit034 Converting between metric and U.S. Customary unit systems
uunit012 Time unit conversion with whole number values
mstat005 Constructing a bar graph for non-numerical data
mstat024 Interpreting a bar graph
mstat044 Interpreting a double bar graph
mstat007 Interpreting a line graph
stat804 Interpreting a circle graph or pie chart
mstat003 Mode of a data set
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
mstat026 Introduction to the probability of an event
mstat010 Probability of an event

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Whole Numbers and Integers

arith124 Whole number place value: Problem type 1
arith125 Whole number place value: Problem type 2
<table>
<thead>
<tr>
<th>Code</th>
<th>Topic</th>
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<tbody>
<tr>
<td>arith066</td>
<td>Expanded form</td>
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<td>arith643</td>
<td>Expanded form with zeros</td>
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<td>arith028</td>
<td>Numeral translation: Problem type 1</td>
</tr>
<tr>
<td>arith060</td>
<td>Numeral translation: Problem type 2</td>
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<tr>
<td>arith630</td>
<td>Addition with carry to the hundreds place</td>
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<td>arith612</td>
<td>Addition of large numbers</td>
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<tr>
<td>arith006</td>
<td>Subtraction with borrowing</td>
</tr>
<tr>
<td>arith682</td>
<td>Subtraction with multiple regrouping steps</td>
</tr>
<tr>
<td>arith637</td>
<td>Subtraction and regrouping with zeros</td>
</tr>
<tr>
<td>arith613</td>
<td>Word problem with addition or subtraction of whole numbers</td>
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<tr>
<td>mstat061</td>
<td>Describing an increasing or decreasing pattern from a table of values</td>
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<td>arith126</td>
<td>Multiplication as repeated addition</td>
</tr>
<tr>
<td>arith004</td>
<td>Multiplication with carry</td>
</tr>
<tr>
<td>arith615</td>
<td>Introduction to multiplication of large numbers</td>
</tr>
<tr>
<td>arith675</td>
<td>Understanding multiplication of a one-digit number with a larger number</td>
</tr>
<tr>
<td>arith014</td>
<td>Multiplication of large numbers</td>
</tr>
<tr>
<td>arith641</td>
<td>Multiples: Problem type 1</td>
</tr>
<tr>
<td>arith642</td>
<td>Multiples: Problem type 2</td>
</tr>
<tr>
<td>arith614</td>
<td>Word problem with multiplication or division of whole numbers</td>
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<tr>
<td>arith130</td>
<td>Word problem with multiplication and addition or subtraction of whole numbers</td>
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<tr>
<td>arith451</td>
<td>Word problem on unit rates associated with ratios of whole numbers: Whole number answers</td>
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<td>arith243</td>
<td>Division of whole numbers given in fractional form</td>
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<td>arith711</td>
<td>Division involving zero</td>
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<td>arith005</td>
<td>Division with carry</td>
</tr>
<tr>
<td>arith901</td>
<td>Whole number division: 2-digit by 2-digit, no remainder</td>
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<tr>
<td>arith902</td>
<td>Whole number division: 3-digit by 2-digit, no remainder</td>
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<tr>
<td>arith616</td>
<td>Quotient and remainder: Problem type 1</td>
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<tr>
<td>arith617</td>
<td>Quotient and remainder: Problem type 2</td>
</tr>
<tr>
<td>arith631</td>
<td>Quotient and remainder: Problem type 3</td>
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<td>arith650</td>
<td>Division involving quotients with intermediate zeros</td>
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<td>arith023</td>
<td>Word problem with division of whole numbers and rounding</td>
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<tr>
<td>arith651</td>
<td>Introduction to inequalities</td>
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<tr>
<td>arith652</td>
<td>Comparing a numerical expression with a number</td>
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<tr>
<td>arith077</td>
<td>Ordering large numbers</td>
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<td>arith078</td>
<td>Rounding to tens or hundreds</td>
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<tr>
<td>arith123</td>
<td>Rounding to hundreds or thousands</td>
</tr>
<tr>
<td>arith061</td>
<td>Rounding to thousands, ten thousands, or hundred thousands</td>
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<td>arith101</td>
<td>Estimating a sum of whole numbers</td>
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<td>arith102</td>
<td>Estimating a difference of whole numbers</td>
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<td>arith677</td>
<td>Estimating a product</td>
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<td>arith678</td>
<td>Estimating a quotient</td>
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<td>arith692</td>
<td>Writing expressions using exponents</td>
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<td>arith233</td>
<td>Introduction to exponents</td>
</tr>
<tr>
<td>arith683</td>
<td>Power of 10: Positive exponent</td>
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<tr>
<td>arith645</td>
<td>Introduction to parentheses</td>
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<td>arith865</td>
<td>Comparing numerical expressions with parentheses</td>
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<td>arith681</td>
<td>Introduction to order of operations</td>
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<td>arith048</td>
<td>Order of operations with whole numbers</td>
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<td>arith051</td>
<td>Order of operations with whole numbers and grouping symbols</td>
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<td>arith693</td>
<td>Order of operations with whole numbers and exponents: Basic</td>
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<tr>
<td>arith713</td>
<td>Order of operations with whole numbers and exponents: Advanced</td>
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<td>arith646</td>
<td>Even and odd numbers</td>
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<td>arith647</td>
<td>Divisibility rules for 2, 5, and 10</td>
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<td>arith648</td>
<td>Divisibility rules for 3 and 9</td>
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<td>arith056</td>
<td>Factors</td>
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<td>arith034</td>
<td>Prime numbers</td>
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<td>arith035</td>
<td>Prime factorization</td>
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<td>arith033</td>
<td>Greatest common factor of 2 numbers</td>
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<tr>
<td>arith516</td>
<td>Greatest common factor of 3 numbers</td>
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<td>arith409</td>
<td>Introduction to the distributive property</td>
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<td>arith657</td>
<td>Understanding the distributive property</td>
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<tr>
<td>arith410</td>
<td>Introduction to factoring with numbers</td>
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</tbody>
</table>
APPENDIX B. PROGRAMS IN ALEKS

arith411 Factoring a sum or difference of whole numbers
arith070 Least common multiple of 2 numbers
arith804 Least common multiple of 3 numbers
arith418 Word problem involving the least common multiple of 2 numbers
arith240 Word problem with common multiples
alge286 Plotting integers on a number line
arith691 Ordering integers
arith415 Using a number line to compare integers
arith699 Writing a signed number for a real-world situation
arith400 Interpreting a table of signed numbers that relate to a real-world situation: Problem type 1
arith511 Interpreting a table of signed numbers that relate to a real-world situation: Problem type 2
arith416 Comparing signed numbers relating to a real-world situation
arith402 Plotting opposite integers on a number line
arith403 Finding opposites of integers
arith871 Absolute value of a number
arith412 Finding all numbers with a given absolute value
arith200 Integer addition: Problem type 1
arith108 Integer addition: Problem type 2
arith431 Identifying a sum as a point located a given distance from another point
arith430 Identifying relative change when combining two quantities
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
arith440 Operations with absolute value: Problem type 1
arith104 Operations with absolute value: Problem type 2
alge694 Computing the distance between two integers on a number line
arith433 Computing and understanding distances between integers on a number line
arith701 Word problem with addition or subtraction of integers
arith231 Integer multiplication and division
arith800 Multiplication of 3 or 4 integers
arith552 Word problem with multiplication or division of 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
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
alge649 Evaluating a formula
alge648 Evaluating an algebraic expression: Whole numbers with one operation and an exponent
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
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
geom339 Perimeter of a polygon
geom300 Perimeter of a square or a rectangle
geom019 Area of a square or a rectangle
geom866 Perimeter and area on a grid
geom311 Volume of a rectangular prism
alge650 Identifying solutions to a one-step linear equation: Problem type 1
alge651 Identifying solutions to a one-step linear equation: Problem type 2
alge009 Additive property of equality with whole numbers
alge010 Additive property of equality with integers
alge008 Multiplicative property of equality with whole numbers
alge797 Multiplicative property of equality with integers

Fractions
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arith623 Introduction to fractions
arith665 Understanding equivalent fractions
arith212 Equivalent fractions
arith666 Introduction to simplifying a fraction
arith067 Simplifying a fraction
alge660 Identifying equivalent signed fractions
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
arith086 Product of a unit fraction and a whole number
arith119 Introduction to fraction multiplication
arith053 Fraction multiplication
arith812 Product of a fraction and a whole number: Problem type 2
arith509 Determining if a quantity is increased or decreased when multiplied by a fraction
arith509 Modeling multiplication of proper fractions
arith813 Multiplication of 3 fractions
arith822 Signed fraction multiplication: Basic
arith105 Signed fraction multiplication: Advanced
arith818 Word problem involving fractions and multiplication
arith695 Multi-step word problem involving fractions and multiplication
arith888 The reciprocal of a number
arith694 Division involving a whole number and a fraction
arith522 Fraction division
arith507 Fact families for multiplication and division of fractions
arith508 Modeling division of a whole number by a fraction
arith814 Signed 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
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
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
arith019 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
arith884 Adding mixed numbers with the same denominator and carry
arith216 Subtraction of mixed numbers with the same denominator and borrowing
arith886 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
arith868 Mixed number division
arith820 Word problem involving multiplication or division with mixed numbers
arith821 Exponents and fractions
### APPENDIX B. PROGRAMS IN ALEKS

<table>
<thead>
<tr>
<th>Program Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>alg790</td>
<td>Evaluating expressions with exponents of zero</td>
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<tr>
<td>arith704</td>
<td>Exponents and signed fractions</td>
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<td>arith859</td>
<td>Order of operations with fractions: Problem type 1</td>
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<tr>
<td>arith860</td>
<td>Order of operations with fractions: Problem type 2</td>
</tr>
<tr>
<td>arith861</td>
<td>Order of operations with fractions: Problem type 3</td>
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<td>arith865</td>
<td>Complex fraction without variables: Problem type 1</td>
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<tr>
<td>alg808</td>
<td>Evaluating a linear expression: Signed fraction multiplication with addition or subtraction</td>
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<tr>
<td>alg801</td>
<td>Additive property of equality with fractions and mixed numbers</td>
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<tr>
<td>alg836</td>
<td>Additive property of equality with signed fractions</td>
</tr>
<tr>
<td>alg646</td>
<td>Multiplicative property of equality with whole numbers: Fractional answers</td>
</tr>
<tr>
<td>alg820</td>
<td>Multiplicative property of equality with fractions</td>
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<tr>
<td>alg012</td>
<td>Multiplicative property of equality with signed fractions</td>
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#### Decimals

<table>
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<th>Program Code</th>
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<tbody>
<tr>
<td>arith127</td>
<td>Writing a decimal and a fraction for a shaded region</td>
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<tr>
<td>arith110</td>
<td>Decimal place value: Tenths and hundredths</td>
</tr>
<tr>
<td>arith220</td>
<td>Decimal place value: Hundreds to ten thousandths</td>
</tr>
<tr>
<td>arith714</td>
<td>Writing a decimal number less than 1 given its name</td>
</tr>
<tr>
<td>arith715</td>
<td>Writing a decimal number greater than 1 given its name</td>
</tr>
<tr>
<td>arith716</td>
<td>Writing a decimal number given its name: Advanced</td>
</tr>
<tr>
<td>arith829</td>
<td>Reading decimal position on a number line: Tenths</td>
</tr>
<tr>
<td>arith830</td>
<td>Reading decimal position on a number line: Hundredths</td>
</tr>
<tr>
<td>arith831</td>
<td>Understanding decimal position on a number line using zoom: Hundredths</td>
</tr>
<tr>
<td>arith832</td>
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alge645 Finding the first terms of a geometric sequence using an explicit rule
alge906 Finding the next terms of an arithmetic sequence with integers
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
alge909 Writing an explicit rule for 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
pcalc713 Arithmetic and geometric sequences: Identifying and writing an explicit rule
alge914 Identifying solutions to a system of linear equations
alge725 Graphically solving a system of linear equations
alge815 Introduction to using substitution to solve a linear equation
alge816 Solving a system of linear equations of the form \( y = mx + b \)
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
alge624 Solving systems of linear equations with 0, 1, or infinitely many solutions
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 \( Ax + By = C \)
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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
pcalc038 Addition or subtraction of matrices
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
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alge821 Understanding the product rule of exponents
alge024 Introduction to the product rule of exponents
alge311 Product rule with positive exponents: Univariate
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alge690 Introduction to the power of a power rule with positive exponents: Whole number base
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
alge688 Introduction to the quotient rule with positive exponents: Whole number base
alge827 Introduction to the quotient rule of exponents
alge452 Simplifying a ratio of univariate monomials
alge026 Quotient of expressions involving exponents
arith029 Ordering numbers with positive exponents
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
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alge791 Rewriting an algebraic expression without a negative exponent
alge687 Introduction to the product rule with negative exponents: Whole number base
alge961 Introduction to the product rule with negative exponents
alge689 Introduction to the quotient rule with negative exponents: Whole number base
alge755 Quotient rule with negative exponents: Problem type 1
alge691 Introduction to the power of a power rule with negative exponents: Whole number base
alge025 Power of a power rule with negative exponents
scinot023 Introduction to scientific notation with positive 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
scinot025 Estimating numbers using scientific notation
scinot021 Expressing calculator notation as scientific notation
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
scinot015 Adding or subtracting numbers written in scientific notation: Same exponents, basic
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scinot017 Estimating the sum or difference of two numbers written in scientific notation
alge758 Degree and leading coefficient of a univariate polynomial
B.18. FOUNDATIONS OF H.S. MATH

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
alge735 Multiplying a univariate polynomial by a monomial with a positive coefficient
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
alge032 Squaring a binomial: Univariate
alge935 Multiplication involving binomials and trinomials in one variable
alge180 Multiplication involving binomials and trinomials in two variables
alge737 Introduction to the LCM of two monomials
alge055 Least common multiple of two monomials
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
alge039 Factoring a quadratic with leading coefficient 1
alge944 Factoring a perfect square trinomial with leading coefficient 1
alge290 Factoring a difference of squares in one variable: Basic
alge947 Factoring a difference of squares in one variable: Advanced
alge045 Finding the roots of a quadratic equation with leading coefficient 1
arith016 Square root of a perfect square
arith601 Square root of a rational perfect square
alge413 Finding all square roots of a number
arith760 Square roots of perfect squares with signs
arith763 Using a calculator to approximate a square root
arith02 Estimating a square root
alge567 Using numerical methods to approximate a square root to the nearest tenth
alge568 Using numerical methods to approximate a square root to the nearest hundredth
arith515 Approximating the location of irrational numbers on a number line
arith712 Ordering real numbers
alge001 Identifying numbers as integers or non-integers
arith513 Identifying rational decimal numbers
arith514 Converting a repeating decimal to a fraction
alge432 Identifying true statements about rational and irrational numbers
alge002 Identifying numbers as rational or irrational
alge415 Introduction to simplifying a radical expression with an even exponent
alge264 Square root of a perfect square 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
arith767 Introduction to square root addition or subtraction
arith532 Square root addition or subtraction
arith764 Introduction to square root multiplication
arith755 Square root multiplication: Basic
alge962 Solving an equation of the form x2 = a using the square root property
geom566 Finding side lengths of squares given an area and a perimeter
geom564 Finding side lengths of squares given an area and a perimeter
alge400 Introduction to solving a radical equation
alge089 Solving a radical equation that simplifies to a linear equation: One radical, basic
alge542 Word problem involving radical equations: Basic
arith694 Cube root of an integer
alge698 Solving an equation of the form x3 = a using integers
alge993 Solving an equation using the odd-root property: Problem type 1
geom565 Finding the side length of a cube given its volume
alge560 Rational exponents: Unit fraction exponents and whole number bases
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alge407 Introduction to the Pythagorean Theorem
geom044 Pythagorean Theorem
alge408 Word problem involving the Pythagorean Theorem
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alge675 Using the Pythagorean Theorem to find distance on a grid
alge132 Distance between two points in the plane
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- geom151 Measuring an angle with the protractor
- geom152 Drawing an angle with the protractor
- geom303 Acute, obtuse, and right angles
- geom39 Finding supplementary and complementary angles
- geom551 Finding the complement or supplement of an angle given a figure
- geom552 Solving an equation involving complementary or supplementary angles
- geom305 Identifying supplementary and vertical angles
- geom553 Finding angle measures given two intersecting lines
- geom530 Solving equations involving vertical angles
- geom349 Naming segments, rays, and lines
- geom554 Finding angle measures given two parallel lines cut by a transversal
- geom531 Solving equations involving angles and parallel lines
- geom584 Establishing facts about the angles created when parallel lines are cut by a transversal
- geom154 Constructing the perpendicular bisector of a line segment
- geom158 Constructing an angle bisector
- geom159 Constructing congruent angles
- geom150 Constructing a pair of perpendicular lines
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- geom306 Acute, obtuse, and right triangles
- geom307 Scalene, isosceles, and equilateral triangles
- 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
- geom623 Finding angle measures of a triangle given angles with variables
- geom532 Finding angle measures of a right or isosceles triangle given angles with variables
- geom309 Finding an angle measure for a triangle sharing a side with another triangle
- geom586 Establishing facts about the interior angles of a triangle
- geom587 Establishing facts about the interior and exterior angles of a triangle
- geom543 Drawing a circle with a given radius or diameter
- geom544 Creating triangles from given side lengths: Problem type 1
- geom563 Creating triangles from given side lengths: Problem type 2
- geom544 Triangle inequality: Problem type 1
- geom548 Determining if a triangle is possible based on given angle measures
- geom549 Determining if given measurements define a unique triangle, more than one triangle, or no triangle
- geom546 Drawing triangles with given conditions: Angle measures
- geom547 Drawing triangles with given conditions: Side lengths and angle measures
- geom545 Drawing triangles with given side lengths using a compass
- pcalc609 Sine, cosine, and tangent ratios: Numbers for side lengths
- pcalc600 Sine, cosine, and tangent ratios: Variables for side lengths
- pcalc616 Using a calculator to approximate sine, cosine, and tangent values
- pcalc606 Using the Pythagorean Theorem to find a trigonometric ratio
- pcalc607 Using a trigonometric ratio to find a side length in a right triangle
- pcalc608 Using trigonometry to find distances
- pcalc609 Using a trigonometric ratio to find an angle measure in a right triangle
- pcalc611 Using trigonometry to find angles of elevation or depression
- geom361 Naming polygons
- mstat042 Interpreting a Venn diagram of 2 sets
- geom536 Drawing and identifying a polygon in the coordinate plane
- geom306 Identifying parallelograms, rectangles, and squares
- geom310 Classifying quadrilaterals
- geom352 Classifying parallelograms
- geom818 Finding the coordinates of a point to make a parallelogram
- geom570 Sum of the angle measures of a quadrilateral
- geom852 The sum of interior angle measures in a convex polygon
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geom519 Identifying and naming congruent parts of congruent triangles
geom520 Identifying and naming congruent triangles
geom583 Finding angle measures of a triangle given two angles of a similar triangle
geom585 Finding angle measures and side ratios to determine if two triangles are similar
geom537 Identifying transformations
geom596 Translating a point and giving its coordinates: One step
geom597 Properties of translated figures
geom598 Determining if figures are related by a translation
geom330 Translating a polygon
geom331 Using a translated point to find coordinates of other translated points
arith408 Reflecting a point across an axis
geom533 Reflecting a point across both coordinate axes
geom590 Reflecting a point across an axis and giving its coordinates
arith407 Coordinates of a point reflected across an axis
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geom534 Reflecting a polygon across the x-axis or y-axis
geom591 Properties of reflected figures
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geom332 Reflecting a polygon over a vertical or horizontal line
geom333 Finding the coordinates of three points reflected over an axis
geom334 Drawing lines of symmetry
geom592 Finding the coordinates of a point reflected across an axis and translated
geom585 Finding an angle of rotation
geom593 Rotating a point and giving its coordinates
geom594 Properties of rotated figures
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geom580 Determining if figures are congruent and related by a transformation
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geom606 Dilating a segment and giving the coordinates of its endpoints
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geom608 Determining if figures are related by a dilation
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geom336 Dilating a figure
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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
alge615 Writing algebraic expressions for the perimeter of a figure
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
geom561 Finding the dimensions of a rectangle given its perimeter and a relationship between sides
geom620 Area of a rectangle involving fractions
geom619 Area of a rectangle involving mixed numbers and fractions
geom350 Distinguishing between area and perimeter
geom351 Areas of rectangles with the same perimeter
geom869 Estimates and exact answers
alge616 Writing algebraic expressions for the area of a figure
geom410 Word problem involving the area of a square or a rectangle
geom143 Finding the perimeter or area of a rectangle given one of these values
geom340 Area of a piecewise rectangular figure
### APPENDIX B. PROGRAMS IN ALEKS

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<th>Description</th>
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<td>geom501</td>
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<tr>
<td>geom509</td>
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<tr>
<td>alge724</td>
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<tr>
<td>geom022</td>
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<tr>
<td>geom023</td>
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<td>geom537</td>
<td>Finding the perimeter or area of a rectangle in the coordinate plane</td>
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<td>geom832</td>
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<td>geom589</td>
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<tr>
<td>geom588</td>
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<td>geom347</td>
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<td>geom343</td>
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<td>geom016</td>
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<td>geom218</td>
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<tr>
<td>geom838</td>
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<td>geom301</td>
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<td>geom026</td>
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<td>geom892</td>
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<td>geom570</td>
<td>Distinguishing between the area and circumference of a circle</td>
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<td>geom302</td>
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<td>geom563</td>
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<td>geom214</td>
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<td>geom126</td>
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<td>geom034</td>
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<td>geom830</td>
<td>Counting the cubes in a solid made of cubes</td>
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<td>geom816</td>
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<td>geom550</td>
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<td>geom525</td>
<td>Volume of a rectangular prism made of unit cubes</td>
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<td>geom518</td>
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<td>geom535</td>
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<td>alge617</td>
<td>Writing equivalent expressions for the volume of a rectangular prism</td>
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<td>geom571</td>
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<td>geom558</td>
<td>Word problem involving the rate of filling or emptying a rectangular prism</td>
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<td>geom505</td>
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<td>geom572</td>
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<td>geom637</td>
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<td>geom638</td>
<td>Relating the volumes of a triangular prism and a triangular pyramid</td>
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<td>geom035</td>
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<tr>
<td>geom573</td>
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<td>geom574</td>
<td>Word problem involving the volume of a sphere</td>
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<td>geom219</td>
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<td>geom631</td>
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<td>geom632</td>
<td>Surface area of a rectangular prism made of unit cubes</td>
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<tr>
<td>geom555</td>
<td>Distinguishing between surface area and volume</td>
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<tr>
<td>geom556</td>
<td>Using a net to find the surface area of a rectangular prism</td>
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<tr>
<td>geom576</td>
<td>Word problem involving the surface area of a rectangular prism</td>
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B.18. FOUNDATIONS OF H.S. MATH

geom345 Surface area of a piecewise rectangular prism made of unit cubes
geom091 Surface area of a triangular prism
geom557 Using a net to find the surface area of a triangular prism
geom621 Surface area of a cylinder
geom634 Surface area of a cylinder: Exact answers in terms of pi
geom578 Word problem involving the surface area of a cylinder
geom842 Surface area of a sphere
geom338 Surface area involving prisms or cylinders
geom846 Similar solids: Problem type 1
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mstat088 Identifying statistical questions
mstat080 Choosing an appropriate method for gathering data: Problem type 1
mstat081 Choosing an appropriate method for gathering data: Problem type 2
mstat056 Interpreting a tally table
mstat097 Constructing a two-way frequency table: Basic
mstat098 Constructing a two-way frequency table: Advanced
mstat049 Computing a percentage from a table of values
mstat087 Making an inference using a two-way frequency table
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mstat025 Finding if a question can be answered by the data
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
mstat031 Interpreting a stem-and-leaf plot
geom814 Angle measure in a circle graph
mstat094 Constructing a scatter plot
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
mstat093 Classifying linear and nonlinear relationships from scatter plots
mstat071 Linear relationship and the correlation coefficient
mstat096 Identifying outliers and clustering in scatter plots
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mstat092 Finding the mode and range from a line plot
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mstat091 Finding the mean of a symmetric distribution
mstat079 Finding sample size and comparing samples for estimating the mean
mstat089 Computations involving the mean, sample size, and sum of a data set
stat083 Finding the value for a new score that will yield a given mean
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mstat028 Mean and median of a data set
mstat029 How changing a value affects the mean and median
mstat095 Finding outliers in a data set
mstat053 Choosing the best measure to describe data
mstat078 Comparing measures of center and variation
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
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arith012 Addition of large numbers
arith006 Subtraction with borrowing
arith637 Subtraction and regrouping with zeros
arith613 Word problem with addition or subtraction of whole numbers
arith004 Multiplication with carry
arith615 Introduction to multiplication of large numbers
arith014 Multiplication of large numbers
arith005 Division with carry
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
arith066 Expanded form
arith028 Numeral translation: Problem type 1
arith060 Numeral translation: Problem type 2
arith077 Ordering large numbers
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
arith077 Estimating a product
arith078 Estimating a quotient
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arith681 Introduction to order of operations
arith048 Order of operations with whole numbers
arith051 Order of operations with whole numbers and grouping symbols
arith056 Factors
arith034 Prime numbers
arith035 Prime factorization
arith033 Greatest common factor of 2 numbers
arith070 Least common multiple of 2 numbers
arith240 Word problem with common multiples
arith647 Divisibility rules for 2, 5, and 10
arith648 Divisibility rules for 3 and 9
unit005 U.S. Customary unit conversion with whole number values
unit006 U.S. Customary unit conversion with whole 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
unit012 Time unit conversion with whole number values
mstat038 Reading the temperature from a thermometer
alge286 Plotting integers on a number line
arith071 Absolute value of a number
arith104 Operations with absolute value: Problem type 2
arith200 Integer addition: Problem type 1
arith108 Integer addition: Problem type 2
arith688 Integer subtraction: Problem type 1
arith690 Integer subtraction: Problem type 2
arith690 Integer subtraction: Problem type 3
arith231 Integer multiplication and division

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arith663 Writing ratios for real-world situations
arith655 Understanding equivalent fractions
arith212 Equivalent fractions
arith067 Simplifying a fraction
arith687 Fractional position on a number line
arith667 Plotting fractions on a number line
arith605 Plotting rational numbers 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
arith618 Addition or subtraction of fractions with the same denominator
arith230 Addition or subtraction of fractions with different denominators
arith100 Fractional part of a circle
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
arith106 Signed fraction addition or subtraction: Advanced
arith105 Signed fraction multiplication: Advanced
arith662 Writing a fraction and a whole number 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
APPENDIX B. PROGRAMS IN ALEKS

arith020 Mixed number multiplication: Problem type 1
arith076 Mixed number multiplication: Problem type 2
arith068 Mixed number division
arith220 Decimal place value: Hundreds to ten thousandths
arith221 Rounding decimals
arith608 Ordering decimals
arith609 Ordering fractions and decimals
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
arith234 Signed decimal addition and subtraction with 3 numbers
arith628 Word problem with powers of ten
arith629 Word problem with multiple decimal operations: Problem type 1
arith630 Division of a decimal by a power of ten
arith631 Division of a decimal by a whole number
arith655 Decimal multiplication: Problem type 1
arith645 Word problem with powers of ten
arith683 Division of a decimal by a whole number
arith684 Division of a decimal by a 2-digit decimal
arith687 Converting a decimal to a proper fraction in simplest form: Advanced
arith688 Converting a fraction to a terminating decimal
arith689 Converting a fraction to a repeating decimal
arith690 Converting a mixed number to a decimal
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
unit003 Metric distance conversion with decimal values
unit004 Metric conversion with decimal values: Two-step problem
unit010 Metric area unit conversion with decimal values

Proportion, Percent, Data and Probability

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
alge271 Solving a proportion of the form a/(x+b) = c/x
arith604 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
alge220 Word problem on inverse proportions
unit034 Converting between metric and U.S. Customary unit systems
unit035 Converting between compound units: Basic
unit036 Converting between compound units: Advanced
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
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
arith225 Finding the percentage increase or decrease: Advanced
arith232 Finding simple interest without a calculator
mstat049 Computing a percentage from a table of values
mstat037 Constructing a line plot
mstat004 Constructing a histogram for numerical data
mstat005 Constructing a bar graph for non-numerical data
mstat024 Interpreting a bar graph
mstat044 Interpreting a double bar graph
mstat007 Interpreting a line graph
B.19. ALGEBRA READINESS

stat804 Interpreting a circle graph or pie chart
geom814 Angle measure in a circle graph
mstat003 Mode 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
mstat031 Interpreting a stem-and-leaf plot
mstat027 Using back-to-back stem-and-leaf plots to compare data sets
mstat006 Constructing a box-and-whisker plot
mstat023 Scatter plots and correlation
mstat030 Sketching the line of best fit
mstat043 Interpreting a Venn diagram of 3 sets
mstat041 Interpreting a tree diagram
mstat040 Introduction to the counting principle
mstat015 Counting principle
mstat008 Word problem involving permutations
mstat009 Word problem involving combinations
mstat048 Odds of an event
stat106 Outcomes and event probability
mstat026 Introduction to the probability of an event
mstat010 Probability of an event
mstat011 Area as probability
mstat012 Probability of independent events
mstat013 Probability of dependent events
stat112 Probabilities involving two dice
mstat046 Experimental and theoretical probability
mstat047 Introduction to expectation

Variable Expressions and Equations

arith655 Introduction to properties of addition
arith656 Introduction to properties of multiplication
arith657 Understanding the distributive property
alge606 Distributive property: Whole number coefficients
alge604 Distributive property: Integer coefficients
alge607 Combining like terms: Integer coefficients
alge663 Combining like terms: Advanced
alge001 Identifying numbers as integers or non-integers
alge002 Identifying numbers as rational or irrational
alge731 Evaluating an algebraic expression: Whole numbers with two operations
alge005 Evaluating a linear expression: Integer multiplication with addition or subtraction
alge004 Evaluating a quadratic expression: Integers
alge602 Writing a one-step variable expression for a real-world situation
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
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
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
APPENDIX B. PROGRAMS IN ALEKS

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
alge810 Introduction to algebraic symbol manipulation
alge160 Algebraic symbol manipulation
alge015 Translating a sentence by using an inequality symbol
alge186 Translating a sentence into a compound inequality
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
alge017 Graphing a linear inequality on the number line
alge166 Graphing a compound inequality on the number line

Functions and Graphs

alge282 Function tables with two-step rules
fun001 Table for a linear function
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
alg064 Reading a point in the coordinate plane
alg067 Plotting a point in the coordinate plane
fun002 Graphing integer functions
fun010 Vertical line test
mstat051 Choosing a graph to fit a narrative: Advanced
alg263 Interpreting the graphs of two functions
alg087 Finding the next terms of a sequence with whole numbers
pcalc085 Finding a specified term of an arithmetic sequence given the common difference and first term
pcalc086 Finding a specified term of a geometric sequence given the common ratio and first term
pcalc713 Arithmetic and geometric sequences: Identifying and writing an explicit rule
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
alg191 Midpoint of a line segment in the plane
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
alg210 Finding x- and y-intercepts of a line given the equation: Advanced
alg694 Finding slope given the graph of a line on a grid
alg685 Finding slope given two points on the line
alg631 Finding the slope of a line given its equation
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
alg701 Writing an equation and drawing its graph to model a real-world situation: Advanced
alg725 Graphically solving a system of linear equations
alg018 Graphing a linear inequality in the plane: Standard form
alg225 Graphing a linear inequality in the plane: Vertical or horizontal line
alg720 Graphing a linear inequality in the plane: Slope-intercept form
alg252 Graphing a parabola of the form \( y = ax^2 \)
alge262 Graphing a cubic function of the form \( y = ax^3 \)
alge132 Distance between two points in the plane

Exponents and Polynomials
B.19. ALGEBRA READINESS

arith233 Introduction to exponents
arith047 Evaluating expressions with exponents: Problem type 1
arith049 Evaluating expressions with exponents: Problem type 2
arith060 Order of operations with integers and exponents
arith042 Evaluating an expression with a negative exponent: Positive fraction base
arith043 Evaluating an expression with a negative exponent: Negative integer base
arith049 Ordering numbers with positive exponents
arith054 Ordering numbers with negative exponents
arith056 Scientific notation with positive exponent
arith057 Scientific notation with negative exponent
arith002 Multiplying and dividing numbers written in scientific notation
alge024 Introduction to the product rule of exponents
alge030 Product rule with positive exponents: Multivariate
alge026 Quotient of expressions involving exponents
alge027 Power rules with positive exponents
alge030 Power of a power rule with negative exponents
arith016 Square root of a perfect square
arith017 Square root of a perfect square monomial
arith027 Square root of a rational perfect square
arith031 Estimating a square root
arith028 Cube root of an integer
alge029 Simplifying a sum or difference of three univariate polynomials
alge033 Multiplying binomials with leading coefficients of 1
alge032 Squaring a binomial: Univariate
alge130 Multiplication involving binomials and trinomials in two variables
alge037 Greatest common factor of two multivariate monomials
alge055 Least common multiple of two monomials
alge031 Degree of a multivariate polynomial

Geometry

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
gem0304 Identifying corresponding and alternate angles
gem0305 Identifying supplementary and vertical angles
gem0309 Solving equations involving vertical angles
gem031 Solving equations involving angles and parallel lines
gem159 Constructing congruent angles
gem158 Constructing an angle bisector
gem154 Constructing the perpendicular bisector of a line segment
gem150 Constructing a pair of perpendicular lines
gem157 Constructing a pair of parallel lines
gem036 Acute, obtuse, and right triangles
gem307 Scalene, isosceles, and equilateral triangles
gem844 Triangle inequality: Problem type 1
gem081 Area of a triangle
gem001 Finding an angle measure of a triangle given two angles
gem908 Finding an angle measure for a triangle with an extended side
gem044 Pythagorean Theorem
pcalc600 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 distances
pcalc608 Using a trigonometric ratio to find an angle measure in a right triangle
pcalc611 Using trigonometry to find angles of elevation or depression
geom310 Classifying quadrilaterals
geom532 Classifying parallelograms
geom300 Perimeter of a square or a rectangle
geom339 Perimeter of a polygon
geom078 Sides of polygons having the same perimeter
geom217 Finding the side length of a rectangle given its perimeter or area
geom350 Distinguishing between area and perimeter
geom351 Areas of rectangles with the same perimeter
geom353 Perimeter of a piecewise rectangular figure
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
geom142 Word problem involving the area between two rectangles
geom344 Area involving rectangles and triangles
geom143 Finding the perimeter or area of a rectangle given one of these values
geom832 Area of quadrilaterals in the coordinate plane
geom852 The sum of interior angle measures in a convex polygon
geom347 Introduction to a circle: Diameter, radius, and chord
geom016 Circumference of a circle
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
geom036 Word problem involving the area between two concentric circles
geom302 Area involving rectangles and circles
geom214 Area involving inscribed figures
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
geom086 Volume of a cone: Exact answers in terms of pi
geom41 Volume of a sphere
geom348 Vertices, edges, and faces of a solid
geom816 Side views of a solid made of cubes
geom30 Counting the cubes in a solid made of cubes
geom219 Nets of solids
geom345 Surface area of a piecewise rectangular prism made of unit cubes
geom331 Surface area of a cube or a rectangular prism
geom091 Surface area of a triangular prism
geom044 Surface area of a cylinder: Exact answers in terms of pi
geom338 Surface area involving prisms or cylinders
geom842 Surface area of a sphere
geom037 Similar polygons
geom038 Similar right triangles
geom337 Indirect measurement
geom04 Similar solids: Problem type 1
geom357 Identifying transformations
geom330 Translating a polygon
geom331 Using a translated point to find coordinates of other translated points
geom232 Reflecting a polygon over a vertical or horizontal line
geom333 Finding the coordinates of three points reflected over an axis
geom334 Drawing lines of symmetry
geom335 Rotating a figure about the origin
geom336 Dilating a figure
B.20 Algebra 1A

Arithmetic Readiness

- arith078 Rounding to tens or hundreds
- arith123 Rounding to hundreds or thousands
- arith101 Estimating a sum of whole numbers
- arith233 Introduction to exponents
- arith692 Writing expressions using exponents
- 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
- alge731 Evaluating an algebraic expression: Whole numbers with two operations
- alge832 Evaluating an algebraic expression: Whole number operations and exponents
- arith056 Factors
- arith034 Prime numbers
- arith035 Prime factorization
- arith033 Greatest common factor of 2 numbers
- arith070 Least common multiple of 2 numbers
- arith240 Word problem with common multiples
- arith212 Equivalent fractions
- arith618 Addition or subtraction of fractions with the same denominator
- 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
- 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
- arith088 The reciprocal of a number
- arith694 Division involving a whole number and a fraction
- arith022 Fraction division
- arith697 Mixed arithmetic operations with fractions
- arith695 Multi-step word problem involving fractions and multiplication
- arith015 Writing an improper fraction as a mixed number
- arith619 Writing a mixed number as an improper fraction
- arith84 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
- arith129 Introduction to ordering decimals
- arith608 Ordering decimals
- arith609 Ordering fractions and decimals
- arith222 Converting a fraction to a terminating decimal
- arith089 Converting a fraction to a repeating decimal
- arith087 Converting a decimal to a proper fraction in simplest form: Advanced
- arith624 Addition of aligned decimals
- arith625 Subtraction of aligned decimals
- arith131 Estimating a decimal sum or difference
- arith017 Multiplication of a decimal by a whole number
- arith082 Multiplication of a decimal by a power of ten
- arith055 Decimal multiplication: Problem type 1
- arith081 Division of a decimal by a whole number
- arith083 Division of a decimal by a power of ten
APPENDIX B. PROGRAMS IN ALEKS

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
arith628 Word problem with multiple decimal operations: Problem type 1
arith016 Square root of a perfect square
arith602 Estimating a square root
arith601 Square root of a rational perfect square
arith694 Cube root of an integer
arith683 Power of 10: Positive exponent
arith684 Power of 10: Negative exponent
arith036 Scientific notation with positive exponent
arith037 Scientific notation with negative exponent
geom339 Perimeter of a polygon
geom300 Perimeter of a square or a rectangle
geom019 Area of a square or a rectangle
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
geom838 Circumference ratios
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
geom031 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
geom842 Surface area of a sphere
geom311 Volume of a rectangular prism
geom990 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
geom846 Volume of a cone: Exact answers in terms of pi
geom841 Volume of a sphere
geom039 Finding supplementary and complementary angles

Real Numbers

alge001 Identifying numbers as integers or non-integers
alge002 Identifying numbers as rational or irrational
mstat038 Reading the temperature from a thermometer
arith699 Writing a signed number for a real-world situation
alge286 Plotting integers on a number line
arith687 Fractional position on a number line
arith605 Plotting rational numbers on a number line
arith691 Ordering integers
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
arith701 Word problem with addition or subtraction of integers
arith116 Signed fraction addition or subtraction: Basic
arith106 Signed fraction addition or subtraction: Advanced
B.20. ALGEBRA 1A

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
arith822 Signed fraction multiplication: Basic
arith105 Signed fraction multiplication: Advanced
alge984 Classifying sums and products as rational or irrational
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
geom525 Computing distances between decimals on the number line
alge187 Properties of addition
alge188 Properties of real numbers
arith657 Understanding the distributive property
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

Linear Equations

alge929 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
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
alge833 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 two distributions
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. PROGRAMS IN ALEKS

alge742 Solving equations with zero, one, or infinitely many solutions
alge986 Identifying properties used to solve a linear equation
alge810 Introduction to algebraic symbol manipulation
alge743 Algebraic symbol manipulation: Problem type 1
alge744 Algebraic symbol manipulation: Problem type 2
alge831 Translating a phrase into a one-step expression
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
alge841 Translating a sentence into a multi-step equation
alge730 Writing a multi-step equation for a real-world situation
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
alge794 Solving a value mixture problem using a linear equation
alge795 Solving a percent 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
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
geom337 Solving equations involving vertical angles
geom001 Finding an angle measure of a triangle given two angles
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
arith663 Writing ratios for real-world situations
alge272 Solving a proportion of the form x/a = b/c
alge840 Solving a proportion of the form (x+a)/b = c/d
alge271 Solving a proportion of the form a/(x+b) = c/x
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
geom337 Similar polygons
geom038 Similar right triangles
geom337 Indirect measurement
arith226 Converting between percentages and decimals
arith690 Converting a percentage to a fraction in simplest form
arith092 Converting a fraction to a percentage: Denominator of 20, 25, or 50
arith069 Writing a ratio as a percentage without a calculator
arith030 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
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
unit005 U.S. Customary unit 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
mstat065 Converting between temperatures in Fahrenheit and Celsius
unit052 Finding the absolute error and percent error of a measurement
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
B.20. ALGEBRA 1A

Linear Inequalities

- Translating a sentence by using an inequality symbol (alge015)
- Translating a sentence into a one-step inequality (alge845)
- Translating a sentence into a multi-step inequality (alge846)
- Writing an inequality for a real-world situation (alge748)
- Writing a multi-step inequality for a real-world situation (alge729)
- Graphing a linear inequality on the number line (alge017)
- Writing an inequality given a graph on the number line (alge822)
- Translating a sentence into a compound inequality (alge186)
- Graphing a compound inequality on the number line (alge166)
- Writing a compound inequality given a graph on the number line (alge847)
- Identifying solutions to a two-step linear inequality in one variable (alge844)
- Additive property of inequality with whole numbers (alge848)
- Additive property of inequality with integers (alge849)
- Additive property of inequality with signed fractions (alge852)
- Additive property of inequality with signed decimals (alge853)
- Multiplicative property of inequality with integers (alge854)
- 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 linear inequality with multiple occurrences of the variable: Problem type 1 (alge977)
- Solving a linear inequality with multiple occurrences of the variable: Problem type 2 (alge858)
- Solving a linear inequality with multiple occurrences of the variable: Problem type 3 (alge859)
- Solving inequalities with no solution or all real numbers as solutions (alge860)
- Solving a compound linear inequality: Problem type 1 (alge861)
- Solving a compound linear inequality: Problem type 2 (alge749)
- Solving a decimal word problem using a two-step linear inequality (alge750)
- Writing an absolute value inequality given a graph on the number line (alge943)
- Solving an absolute value inequality: Problem type 1 (alge868)
- Solving an absolute value inequality: Problem type 2 (alge869)
- Solving an absolute value inequality: Problem type 3 (alge870)
- Solving an absolute value inequality: Problem type 4 (alge871)
- Solving an absolute value inequality: Problem type 5 (alge872)

Functions and Lines

- Set builder notation (set001)
- Union and intersection of finite sets (set002)
- Table for a linear function (fun001)
- Evaluating functions: Linear and quadratic or cubic (pcalc760)
- Variable expressions as inputs of functions (fun033)
- Domain and range from ordered pairs (fun016)
- Graphing an integer function and finding its range for a given domain (alge896)
- Identifying functions from relations (fun032)
- Identifying functions from relations (fun010)
- Vertical line test (fun010)
- Finding inputs and outputs of a function from its graph (pcalc761)
- Finding where a function is increasing, decreasing, or constant given the graph (alg999)
- Finding local maxima and minima of a function given the graph (pcalc752)
- Writing a function rule given a table of ordered pairs: One-step rules (fun005)
- Writing a function rule given a table of ordered pairs: Two-step rules (fun006)
- Introduction to the composition of two functions (alg716)
- Inverse functions: Problem type 1 (fun012)
- Reading a point in the coordinate plane (alg064)
- Plotting a point in the coordinate plane (alg067)
APPENDIX B. PROGRAMS IN ALEKS

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
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
alge197 Graphing a line given its \( x \)- and \( y \)-intercepts
alge881 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
alge876 Identifying linear equations: Advanced
alge874 Identifying linear functions given ordered pairs
alge891 Rewriting a linear equation in the form \( Ax + By = C \)
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
alge888 Finding the coordinate that yields 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 \( Ax + By = C \)
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
alge701 Writing an equation and drawing its graph to model a real-world situation: Advanced
mstat052 Identifying independent and dependent variables from equations or real-world situations
alge990 Domain and range of a linear function that models a real-world situation
alge989 Interpreting the parameters of a linear function that models a real-world situation
alge992 Combining functions to write a new function that models a real-world situation
alge987 Comparing properties of linear functions given in different forms
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
alge895 Identifying parallel and perpendicular lines from equations
geom807 Finding slopes of lines parallel and perpendicular to a line given in the form \( Ax + By = C \)
geom988 Writing equations of lines parallel and perpendicular to a given line through a point
alge991 Solving a linear equation by graphing
mstat051 Choosing a graph to fit a narrative: Advanced
alge828 Interpreting direct variation from a graph
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
alge925 Finding the next terms of an arithmetic sequence with whole numbers
alge906 Finding the next terms of an arithmetic sequence with integers
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
alge909 Writing an explicit rule for an arithmetic sequence
alge908 Finding the first terms of a sequence using a recursive rule
alge910 Writing a recursive rule for an arithmetic sequence
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
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 \( y = A - x - \)
alge960 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
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 \( y = ax^3 \)
alge900 Graphing an absolute value equation in the plane: Basic
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 system of linear equations that is inconsistent or consistent dependent
alge753 Solving a system of 3 linear equations in 3 unknowns
alge988 Identifying the operations used to create equivalent systems of 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
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
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
pcalc037 Scalar multiplication of a matrix
pcalc038 Addition or subtraction of matrices
pcalc740 Linear combination of matrices
pcalc712 Gauss-Jordan elimination with a 2x2 matrix

**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
arith029 Ordering numbers with positive exponents
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arith024 Ordering numbers with negative exponents
alg0791 Rewriting an algebraic expression without a negative exponent
alg0821 Understanding the product rule of exponents
alg0024 Introduction to the product rule of exponents
alg0630 Product rule with positive exponents: Multivariate
alg0961 Introduction to the product rule with negative exponents
alg0028 Product rule with negative exponents
alg0827 Introduction to the quotient rule of exponents
alg0026 Quotient of expressions involving exponents
alg0755 Quotient rule with negative exponents: Problem type 1
alg0926 Quotient rule with negative exponents: Problem type 2
sci002 Multiplying and dividing numbers written in scientific notation
alg0826 Understanding the power rules of exponents
alg0754 Introduction to the power rules of exponents
alg0027 Power rules with positive exponents
alg0025 Power of a power rule with negative exponents
alg0799 Power rules with negative exponents
alg0756 Power and product rules with positive exponents
alg0927 Power and quotient rules with positive exponents
alg0928 Power and quotient rules with negative exponents: Problem type 1
alg0929 Power and quotient rules with negative exponents: Problem type 2
alg0757 Power, product, and quotient rules with negative exponents
alg0812 Converting between radical form and exponent form
alg0250 Rational exponents: Non-unit fraction exponent with a whole number base
alg0251 Rational exponents: Negative exponents and fractional bases
alg0773 Rational exponents: Products and quotients with negative exponents
alg0249 Rational exponents: Powers of powers with negative exponents
alg0971 Table for an exponential function
alg0830 Evaluating an exponential function that models a real-world situation
alg0966 Finding the initial amount and rate of change given an exponential function
alg0968 Writing an equation that models exponential growth or decay
alg0967 Writing an exponential function rule given a table of ordered pairs
alg0301 Solving an exponential equation by finding common bases: Linear exponents
alg0177 Finding a final amount in a word problem on exponential growth or decay
alg0741 Compound interest
alg0969 Graphing an exponential function: \( f(x) = ax \)
alg0970 Graphing an exponential function: \( f(x) = a(b)^x \)
alg0993 Comparing linear, polynomial, and exponential functions
alg0933 Finding the next terms of a geometric sequence with whole numbers
alg0907 Finding the next terms of a geometric sequence with signed numbers
alg0981 Identifying arithmetic and geometric sequences
alg0980 Identifying geometric sequences and finding the common ratio
alg094 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
pcalc713 Arithmetic and geometric sequences: Identifying and writing an explicit rule
alg0911 Writing recursive rules for arithmetic and geometric sequences

Polynomials and Factoring

alg0758 Degree and leading coefficient of a univariate polynomial
alg0031 Degree of a multivariate polynomial
alg0798 Simplifying a sum or difference of two univariate polynomials
alg0029 Simplifying a sum or difference of three univariate polynomials
alg0932 Simplifying a sum or difference of multivariate polynomials
alg0735 Multiplying a univariate polynomial by a monomial with a positive coefficient
alg0972 Multiplying a univariate polynomial by a monomial with a negative coefficient
alg0835 Multiplying a multivariate polynomial by a monomial
alg0033 Multiplying binomials with leading coefficients of 1
alg0983 Multiplying binomials with leading coefficients greater than 1
alg0765 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
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
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: 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 out a constant before factoring a quadratic
alge942 Factoring a quadratic with leading coefficient 1
alge936 Factoring out a constant before factoring a quadratic
alge949 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
alge041 Factoring a product of a quadratic trinomial and a monomial
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
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

Data Analysis and Probability

mstat037 Constructing a line plot
mstat004 Constructing a histogram for numerical data
mstat024 Interpreting a bar graph
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
geom814 Angle measure in a circle graph
mstat031 Interpreting a stem-and-leaf plot
mstat027 Using back-to-back stem-and-leaf plots to compare data sets
mstat006 Constructing a box-and-whisker plot
mstat073 Using box-and-whisker plots to compare data sets
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
mstat066 Weighted 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
mstat025 Finding if a question can be answered by the data
mstat049 Computing a percentage from a table of values
stat020 Calculating relative frequencies in a contingency table
stat805 Making a reasonable inference based on proportion statistics
stat009 Percentiles
mstat072 Five-number summary and interquartile range
stat021 Population standard deviation
mstat042 Interpreting a Venn diagram of 2 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
stat790 Permutations, combinations, and the multiplication principle for counting
mstat026 Introduction to the probability of an event
mstat010 Probability of an event
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

B.21 CA Algebra 1A

Arithmetic Readiness

arith078 Rounding to tens or hundreds
arith123 Rounding to hundreds or thousands
arith101 Estimating a sum of whole numbers
arith233 Introduction to exponents
arith692 Writing expressions using exponents
arith048 Order of operations with whole numbers
arith051 Order of operations with whole numbers and grouping symbols
arith093 Order of operations with whole numbers and exponents: Basic
arith713 Order of operations with whole numbers and exponents: Advanced
alge731 Evaluating an algebraic expression: Whole numbers with two operations
alge832 Evaluating an algebraic expression: Whole number operations and exponents
arith056 Factors
arith034 Prime numbers
arith035 Prime factorization
arith033 Greatest common factor of 2 numbers
arith070 Least common multiple of 2 numbers
arith240 Word problem with common multiples
arith212 Equivalent fractions
arith067 Simplifying a fraction
arith092 Using a common denominator to order fractions
arith018 Addition or subtraction of fractions with the same denominator
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
arith100 Fractional part of a circle
arith086 Product of a fraction and a whole number: Problem type 1
arith119 Introduction to fraction multiplication
arith053 Fraction multiplication
arith100 Fractional part of a circle
arith086 Product of a fraction and a whole number: Problem type 1
arith119 Introduction to fraction multiplication
arith088 The reciprocal of a number
arith694 Division involving a whole number and a fraction
arith022 Fraction division
arith697 Mixed arithmetic operations with fractions
arith095 Multi-step word problem involving fractions and multiplication
arith015 Writing an improper fraction as a mixed number
arith068 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
arith608 Mixed number division
arith084 Addition of mixed numbers with the same denominator and carry
arith085 Addition or subtraction of mixed numbers with different denominators
arith020 Mixed number multiplication: Problem type 1
arith608 Mixed number division
arith110 Decimal place value: Tenths and hundredths
arith221 Rounding decimals
arith129 Introduction to ordering decimals
arith608 Ordering decimals
arith609 Ordering fractions and decimals
arith222 Converting a fraction to a terminating decimal
arith687 Converting a decimal to a proper fraction in simplest form: Advanced
arith624 Addition of aligned decimals
arith625 Subtraction of aligned decimals
arith131 Estimating a decimal sum or difference
arith017 Multiplication of a decimal by a whole number
arith082 Multiplication of a decimal by a power of ten
arith055 Decimal multiplication: Problem type 1
arith081 Division of a decimal by a whole number
arith083 Division of a decimal by a power of ten
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
arith628 Word problem with multiple decimal operations: Problem type 1
arith016 Square root of a perfect square
arith602 Estimating a square root
arith601 Square root of a rational perfect square
arith094 Cube root of an integer
arith683 Power of 10: Positive exponent
arith684 Power of 10: Negative exponent
arith036 Scientific notation with positive exponent
arith037 Scientific notation with negative exponent
geom339 Perimeter of a polygon
geom300 Perimeter of a square or a rectangle
geom019 Area of a square or a rectangle
geom340 Area of a piecewise rectangular figure
geom121 Finding the missing length in a figure
geom340 Area of a piecewise rectangular figure
geom014 Word problem involving the area between two rectangles
APPENDIX B. PROGRAMS IN ALEKS

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
geom838 Circumference ratios
geom802 Circumference and area of a circle
geom302 Area involving rectangles and circles
geom936 Word problem involving the area between two concentric circles
geom214 Area involving inscribed figures
geom931 Surface area of a cube or a rectangular prism
geom991 Surface area of a triangular prism
geom934 Surface area of a cylinder: Exact answers in terms of pi
geom842 Surface area of a sphere
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
geom86 Volume of a cone: Exact answers in terms of pi
geom841 Volume of a sphere
geom939 Finding supplementary and complementary angles

Real Numbers

alge001 Identifying numbers as integers or non-integers
alge002 Identifying numbers as rational or irrational
mstat038 Reading the temperature from a thermometer
arith699 Writing a signed number for a real-world situation
alge286 Plotting integers on a number line
arith687 Fractional position on a number line
arith605 Plotting rational numbers on a number line
arith691 Ordering integers
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
arith701 Word problem with addition or subtraction of integers
arith116 Signed fraction addition or subtraction: Basic
arith110 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
arith822 Signed fraction multiplication: Basic
arith105 Signed fraction multiplication: Advanced
alge984 Classifying sums and products as rational or irrational
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
arith671 Absolute value of a number
arith104 Operations with absolute value: Problem type 2
geom925 Computing distances between decimals on the number line
alge187 Properties of addition
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
alge266 Additive property of equality with a negative coefficient
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
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 two distributions
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
alge810 Introduction to algebraic symbol manipulation
alge743 Algebraic symbol manipulation: Problem type 1
alge744 Algebraic symbol manipulation: Problem type 2
alge831 Translating a phrase into a one-step expression
alge743 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
alge841 Translating a sentence into a multi-step equation
alge730 Writing a multi-step equation for a real-world situation
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
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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
arith228 Solving a 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
geom817 Finding the area of a triangle given two angles
geom217 Finding the perimeter or area of a rectangle given its perimeter or area
geom143 Finding the perimeter or area of a rectangle given one of these values
geom530 Solving equations involving vertical angles
geom001 Finding an angle measure of a triangle given two angles
stat803 Finding the value for a new score that will yield a given mean
arith663 Writing ratios for real-world situations
alge272 Solving a proportion of the form \( x/a = b/c \)
alge840 Solving a proportion of the form \( (x+a)/b = c/d \)
alge271 Solving a proportion of the form \( a/(x+b) = c/x \)
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
geom037 Similar polygons
geom038 Similar right triangles
geom337 Indirect measurement
arith226 Converting between percentages and decimals
arith090 Converting a percentage to a fraction in simplest form
arith698 Writing a ratio as a percentage without a calculator
arith069 Finding a percentage of a whole number without a calculator: Basic
arith690 Converting a percentage to a fraction in simplest form
arith064 Solving an absolute value equation: Problem type 1
arith845 Translating a sentence by using an inequality symbol
arith846 Translating a sentence into a multi-step inequality
arith748 Writing an inequality for a real-world situation
arith729 Writing a multi-step inequality for a real-world situation
alge015 Translating a sentence by using an inequality symbol
alge846 Translating a sentence into a multi-step inequality
alge847 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
alge844 Identifying solutions to a two-step linear inequality in one variable
alge848 Additive property of inequality with whole numbers

Linear Inequalities

arith015 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
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
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
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
alge858 Solving a linear inequality with multiple occurrences of the variable: Problem type 1
alge859 Solving a linear inequality with multiple occurrences of the variable: Problem type 2
alge860 Solving inequalities with no solution or all real numbers as solutions
alge746 Solving a compound linear inequality: Problem type 1
alge861 Solving a compound linear inequality: Problem type 2
alge749 Solving a decimal word problem using a two-step linear inequality
alge943 Writing an absolute value inequality given a graph on the number line
alge868 Solving an absolute value inequality: Problem type 1
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

Functions and Lines

set001 Set builder notation
set002 Union and intersection of finite sets
fun001 Table for a linear function
pcalc760 Evaluating functions: Linear and quadratic or cubic
fun033 Variable expressions as inputs of functions
fun016 Domain and range from ordered pairs
alge896 Graphing an integer function and finding its range for a given domain
fun032 Identifying functions from relations
fun010 Vertical line test
pcalc761 Finding inputs and outputs of a function from its graph
alge999 Finding where a function is increasing, decreasing, or constant given the graph
pcalc752 Finding local maxima and minima of a function given the graph
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
alge716 Introduction to the composition of two functions
fun012 Inverse functions: Problem type 1
alge064 Reading a point in the coordinate plane
alge067 Plotting a point in the coordinate plane
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
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
alge197 Graphing a line given its x- and y-intercepts
alge881 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
alge876 Identifying linear equations: Advanced
alge874 Identifying linear functions given ordered pairs
alge891 Rewriting a linear equation in the form Ax + By = C
alge884 Finding x- and y-intercepts given the graph of a line on a grid
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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
alge888 Finding the coordinate that yields a given slope
alge889 Finding the slope and y-intercept of a line given its equation in the form y = mx + b
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
alge073 Writing an equation in point-slope 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
alge701 Writing an equation and drawing its graph to model a real-world situation: Advanced
mstat052 Identifying independent and dependent variables from equations or real-world situations
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alge026 Quotient of expressions involving exponents
alge755 Quotient rule with negative exponents: Problem type 1
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alge928 Power and quotient rules with negative exponents: Problem type 1
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alge757 Power, product, and quotient rules with negative exponents
alge812 Converting between radical form and exponent form
alge250 Rational exponents: Non-unit fraction exponent with a whole number base
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pcalc086 Finding a specified term of a geometric sequence given the common ratio and first term
pcalc713 Arithmetic and geometric sequences: Identifying and writing an explicit rule
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alge758 Degree and leading coefficient of a univariate polynomial
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alge765 Multiplying binomials in two variables
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alge761 Polynomial long division: Problem type 1
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alge985 Closure properties of integers and polynomials
alge736 Introduction to the GCF of two monomials
alge937 Greatest common factor of two multivariate monomials
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alge923 Factoring a univariate polynomial by grouping: Problem type 1
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alge265 Factoring a quadratic in two variables with leading coefficient greater than 1
alge937 Factoring a quadratic with a negative leading coefficient
alge041 Factoring a product of a quadratic trinomial and a monomial
alge944 Factoring a perfect square trinomial with leading coefficient 1
alge945 Factoring a perfect square trinomial with leading coefficient greater than 1
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alge956 Finding the roots of a quadratic equation of the form ax^2 + bx = 0
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alge211 Solving a quadratic equation needing simplification
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mstat004 Constructing a histogram for numerical data
mstat024 Interpreting a bar graph
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geom814 Angle measure in a circle graph
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mstat006 Constructing a box-and-whisker plot
mstat073 Using box-and-whisker plots to compare data sets
mstat003 Mode of a data set
mstat055 Finding the mode and range of a data set
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mstat028 Mean and median of a data set
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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
mstat025 Finding if a question can be answered by the data
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stat020 Calculating relative frequencies in a contingency table
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mstat040 Introduction to the counting principle
mstat015 Counting principle
pcalc082 Factorial expressions
mstat017 Computing permutations and combinations
mstat009 Word problem involving permutations
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stat790 Permutations, combinations, and the multiplication principle for counting
mstat026 Introduction to the probability of an event
mstat010 Probability of an event
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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

B.22 Traditional Algebra 1A

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arith123 Rounding to hundreds or thousands
arith101 Estimating a sum of whole numbers
arith233 Introduction to exponents
arith692 Writing expressions using exponents
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
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alge731 Evaluating an algebraic expression: Whole numbers with two operations
alge832 Evaluating an algebraic expression: Whole number operations and exponents
arith056 Factors
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arith035 Prime factorization
arith033 Greatest common factor of 2 numbers
arith070 Least common multiple of 2 numbers
arith240 Word problem with common multiples
arith212 Equivalent fractions
arith067 Simplifying a fraction
arith092 Using a common denominator to order fractions
arith618 Addition or subtraction of fractions with the same denominator
arith081 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
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
arith088 The reciprocal of a number
arith694 Division involving a whole number and a fraction
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<th>Code</th>
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<td>arith097</td>
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<td>arith095</td>
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<td>arith015</td>
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<td>arith019</td>
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<td>arith084</td>
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<td>arith131</td>
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<td>arith601</td>
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geom086 Volume of a cone: Exact answers in terms of pi
geom841 Volume of a sphere
geom039 Finding supplementary and complementary angles

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alge001 Identifying numbers as integers or non-integers
alge002 Identifying numbers as rational or irrational
mstat038 Reading the temperature from a thermometer
arith699 Writing a signed number for a real-world situation
alge286 Plotting integers on a number line
arith687 Fractional position on a number line
arith605 Plotting rational numbers on a number line
arith691 Ordering integers
arith712 Ordering real numbers
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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
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
arith822 Signed fraction multiplication: Basic
arith105 Signed fraction multiplication: Advanced
alge984 Classifying sums and products as rational or irrational
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
arith690 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
geom525 Computing distances between decimals on the number line
alge187 Properties of addition
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arith657 Understanding the distributive property
alge006 Distributive property: Whole number coefficients
alge004 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

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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
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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 two distributions
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
alge986 Identifying properties used to solve a linear equation
alge810 Introduction to algebraic symbol manipulation
alge743 Algebraic symbol manipulation: Problem type 1
alge744 Algebraic symbol manipulation: Problem type 2
alge831 Translating a phrase into a one-step expression
alge733 Writing a one-step expression for a real-world situation
alge211 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
alge730 Writing a multi-step equation for a real-world situation
alge802 Solving a fraction word problem using a linear equation of the form Ax = B
alge14 Solving a word problem with two unknowns using a linear equation
alge17 Deciding what 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
alge42 Solving a word problem with three unknowns using a linear equation
alge844 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
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
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
geom530 Solving equations involving vertical angles
geom1001 Finding an angle measure of a triangle given two angles
geom52 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
arith663 Writing ratios for real-world situations
alge272 Solving a proportion of the form x/a = b/c
alge840 Solving a proportion of the form (x-a)/b = c/d
alge271 Solving a proportion of the form a/(x+b) = c/x
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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
geom037 Similar polygons
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g geom37 Indirect measurement
arith226 Converting between percentages and decimals
arith690 Converting a percentage to a fraction in simplest form
arith092 Converting a fraction to a percentage: Denominator of 20, 25, or 50
arith069 Writing 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
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
mstat065 Converting between temperatures in Fahrenheit and Celsius
unit052 Finding the absolute error and percent error of a measurement
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
alge868 Solving an absolute value equation: Problem type 5
alge869 Solving an absolute value equation: Problem type 6
alge870 Solving an absolute value equation: Problem type 7

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
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
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
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: Problem type 1
alge861 Solving a compound linear inequality: Problem type 2
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
alge943 Writing an absolute value inequality given a graph on the number line
alge868 Solving an absolute value inequality: Problem type 1
Functions and Lines

set001 Set builder notation
set002 Union and intersection of finite sets
fun001 Table for a linear function
pcalc760 Evaluating functions: Linear and quadratic or cubic
fun033 Variable expressions as inputs of functions
fun016 Domain and range from ordered pairs
alge886 Graphing an integer function and finding its range for a given domain
fun032 Identifying functions from relations
fun010 Vertical line test
pcalc761 Finding inputs and outputs of a function from its graph
alge999 Finding where a function is increasing, decreasing, or constant given the graph
pcalc752 Finding local maxima and minima of a function given the graph
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
alge716 Introduction to the composition of two functions
fun012 Inverse functions: Problem type 1
alg0064 Reading a point in the coordinate plane
alg0067 Plotting a point in the coordinate plane
alge873 Identifying solutions to a linear equation in two variables
alge850 Table for a linear equation
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
alge197 Graphing a line given its x- and y-intercepts
alge881 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
alge876 Identifying linear equations: Advanced
alge874 Identifying linear functions given ordered pairs
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
alge888 Finding the coordinate that yields 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 \( Ax + By = C \)
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
alge074 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
mstat052 Identifying independent and dependent variables from equations or real-world situations
Appendix B: Programs in Aleks

- **alge990** Domain and range of a linear function that models a real-world situation
- **alge989** Interpreting the parameters of a linear function that models a real-world situation
- **alge992** Combining functions to write a new function that models a real-world situation
- **alge987** Comparing properties of linear functions given in different forms
- **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
- **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
- **alge991** Solving a linear equation by graphing
- **mstat051** Choosing a graph to fit a narrative: Advanced
- **alge828** Interpreting direct variation from a graph
- **alge982** Identifying direct variation
- **alge904** Writing a direct variation equation
- **alge175** Word problem on direct variation
- **alge925** Finding the next terms of an arithmetic sequence with whole numbers
- **alge906** Finding the next terms of an arithmetic sequence with integers
- **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
- **alge909** Writing an explicit rule for an arithmetic sequence
- **alge908** Finding the first terms of a sequence given the recursive rule
- **alge910** Writing a recursive rule for an arithmetic sequence
- **mstat023** Scatter plots and correlation
- **mstat030** Sketching the line of best fit
- **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 $y = A - |x - B|$
- **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
- **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 $y = ax^3$
- **fun030** Evaluating a piecewise-defined function
- **fun031** Graphing a piecewise-defined function

### 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 system of linear equations that is inconsistent or consistent dependent
- **alge753** Solving a system of 3 linear equations in 3 unknowns
- **alge988** Identifying the operations used to create equivalent systems of 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 $Ax + By = C$
B.22. TRADITIONAL ALGEBRA 1A

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
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
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
pcalc037 Scalar multiplication of a matrix
pcalc038 Addition or subtraction of matrices
pcalc740 Linear combination of matrices
pcalc712 Gauss-Jordan elimination with a 2x2 matrix

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
arith029 Ordering numbers with positive exponents
arith024 Ordering numbers with negative exponents
alge791 Rewriting an algebraic expression without a negative exponent
alge821 Understanding the product rule of exponents
alge024 Introduction to the product rule of exponents
alge030 Product rule with positive exponents: Multivariate
alge961 Introduction to the product rule with negative exponents
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
alge926 Quotient rule with negative exponents: Problem type 2
scinot002 Multiplying and dividing numbers written in scientific notation
alge826 Understanding the power rules of exponents
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
alge927 Power and quotient rules with positive 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
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
alge971 Table for an exponential function
alge830 Evaluating an exponential function that models a real-world situation
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
alge301 Solving an exponential equation by finding common bases: Linear exponents
alge177 Finding a final amount in a word problem on exponential growth or decay
alge741 Compound interest
APPENDIX B. PROGRAMS IN ALEKS

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
alge933 Finding the next terms of a geometric sequence with whole 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
pcalc713 Arithmetic and geometric sequences: Identifying and writing an explicit rule
alge911 Writing recursive rules for arithmetic and geometric sequences

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
alge475 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
alge736 Introduction to the GCF of two monomials
alge037 Greatest common factor of two multivariate monomials
alge939 Greatest common factor of three univariate monomials
alge748 Factoring out a monomial from a polynomial: Univariate
alge749 Factoring out a monomial from a polynomial: Multivariate
alge949 Factoring out a binomial from a polynomial: 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
alge941 Factoring a product of a quadratic trinomial and a monomial
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
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
alge042 Factoring with repeated use of the difference of squares formula
alge044 Factoring a sum or difference of two cubes
alge881 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

Data Analysis and Probability

mstat037 Constructing a line plot
mstat004 Constructing a histogram for numerical data
mstat024 Interpreting a bar graph
mstat044 Interpreting a double bar graph
mstat007 Interpreting a line graph
stat804 Interpreting a circle graph or pie chart
mstat013 Computing from a circle graph
geom814 Angle measure in a circle graph
mstat031 Interpreting a stem-and-leaf plot
mstat027 Using back-to-back stem-and-leaf plots to compare data sets
mstat006 Constructing a box-and-whisker plot
mstat073 Using box-and-whisker plots to compare data sets
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
mstat066 Weighted 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
mstat025 Finding if a question can be answered by the data
mstat049 Computing a percentage from a table of values
stat022 Calculating relative frequencies in a contingency table
stat805 Making a reasonable inference based on proportion statistics
stat009 Percentiles
mstat072 Five-number summary and interquartile range
stat021 Population standard deviation
mstat042 Interpreting a Venn diagram of 2 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
stat790 Permutations, combinations, and the multiplication principle for counting
mstat026 Introduction to the probability of an event
mstat010 Probability of an event
mstat048 Odds of an event
stat106 Outcomes and event probability
stat112 Probabilities involving two dice
mstat011 Area as probability
APPENDIX B. PROGRAMS IN ALEKS

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

B.23 Algebra 1B

Arithmetic Readiness

arith078 Rounding to tens or hundreds
arith123 Rounding to hundreds or thousands
arith101 Estimating a sum of whole numbers
arith233 Introduction to exponents
arith692 Writing expressions using exponents
arith683 Power of 10: Positive exponent
arith048 Order of operations with whole numbers
arith851 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
alge741 Evaluating an algebraic expression: Whole numbers with two operations
alge832 Evaluating an algebraic expression: Whole number operations and exponents
arith056 Factors
arith034 Prime numbers
arith035 Prime factorization
arith033 Greatest common factor of 2 numbers
arith070 Least common multiple of 2 numbers
arith240 Word problem with common multiples
arith212 Equivalent fractions
arith067 Simplifying a fraction
arith092 Using a common denominator to order fractions
arith618 Addition or subtraction of fractions with the same denominator
arith801 Finding the LCD of two fractions
arith644 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
arith119 Introduction to fraction multiplication
arith053 Fraction multiplication
arith088 The reciprocal of a number
arith694 Division involving a whole number and a fraction
arith022 Fraction division
arith697 Mixed arithmetic operations with fractions
arith095 Multi-step word problem involving fractions and multiplication
arith015 Writing an improper fraction as a mixed number
arith619 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
arith222 Rounding decimals
arith129 Introduction to ordering decimals
arith098 Ordering decimals
arith608 Ordering fractions and decimals
arith222 Converting a fraction to a terminating decimal
Real Numbers

alge001 Identifying numbers as integers or non-integers
alge002 Identifying numbers as rational or irrational
mstat038 Reading the temperature from a thermometer
arith699 Writing a signed number for a real-world situation
alge286 Plotting integers on a number line
arith687 Fractional position on a number line
arith605 Plotting rational numbers on a number line
arith691 Ordering integers
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
arith701 Word problem with addition or subtraction of integers
APPENDIX B. PROGRAMS IN ALEKS

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
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
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
arith671 Absolute value of a number
arith104 Operations with absolute value: Problem type 2
geom525 Computing distances between decimals on the number line
alge187 Properties of addition
alge188 Properties of real numbers
arith657 Understanding the distributive property
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

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
alge266 Additive property of equality with a negative coefficient
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
alge806 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 two distributions
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
alge810 Introduction to algebraic symbol manipulation
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
alge831 Translating a phrase into a one-step expression
alge816 Translating a sentence into a one-step equation
alge841 Translating a sentence into a multi-step equation
alge730 Writing a one-step expression for a real-world situation
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
alge794 Solving a value mixture problem using a linear equation
alge795 Solving a percent 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
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
geom530 Solving equations involving vertical angles
geom001 Finding an angle measure of a triangle given two angles
geom032 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
arith663 Writing ratios for real-world situations
alge272 Solving a proportion of the form \( x/a = b/c \)
alge840 Solving a proportion of the form \( (x+a)/b = c/d \)
alge271 Solving a proportion of the form \( a/(x+b) = c/x \)
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
geom037 Similar polygons
geom038 Similar right triangles
geom030 Finding a percentage of a whole number without a calculator
arith226 Converting between percentages and decimals
arith090 Converting a fraction to a percentage: Denominator of 20, 25, or 50
arith069 Writing a ratio as a percentage without a calculator
arith031 Finding a percentage of a whole number without a calculator: Basic
arith225 Finding the percentage increase or decrease: Advanced
arith074 Finding the sale price without a calculator given the original price and percent discount
arith033 Finding the original price given the sale price and percent discount
arith229 Finding the absolute error and percent error of a measurement
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
mstat065 Converting between temperatures in Fahrenheit and Celsius
unit002 Finding the absolute error and percent error of a measurement
alge864 Solving an absolute value equation: Problem type 1
APPENDIX B. PROGRAMS IN ALEKS

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

Linear Inequalities

alge015 Translating a sentence by using an inequality symbol
alge845 Translating a sentence into a one-step inequality
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alge729 Writing a multi-step inequality for a real-world situation
alge017 Graphing a linear inequality on the number line
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alge166 Graphing a compound inequality on the number line
alge847 Writing a compound inequality given a graph on the number line
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alge852 Additive property of inequality with signed fractions
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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: Problem type 1
alge861 Solving a compound linear inequality: Problem type 2
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
alge943 Writing an absolute value inequality given a graph on the number line
alge868 Solving an absolute value inequality: Problem type 1
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

Functions and Lines

set001 Set builder notation
set002 Union and intersection of finite sets
fun001 Table for a linear function
pcalc760 Evaluating functions: Linear and quadratic or cubic
fun033 Variable expressions as inputs of functions
fun016 Domain and range from ordered pairs
alge896 Graphing an integer function and finding its range for a given domain
fun032 Identifying functions from relations
fun010 Vertical line test
pcalc761 Finding inputs and outputs of a function from its graph
alge999 Finding where a function is increasing, decreasing, or constant given the graph
pcalc752 Finding local maxima and minima of a function given the graph
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
alge716 Introduction to the composition of two functions
fun012 Inverse functions: Problem type 1
alge064 Reading a point in the coordinate plane
alge067 Plotting a point in the coordinate plane
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
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
alge197 Graphing a line given its x- and y-intercepts
alge881 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
alge876 Identifying linear equations: Advanced
alge874 Identifying linear functions given ordered pairs
alge891 Rewriting a linear equation in the form $Ax + By = C$
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
alge888 Finding the coordinate that yields 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 $Ax + By = C$
alge892 Writing an equation and graphing a line given its slope and y-intercept
alge970 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
alge872 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
alge701 Writing an equation and drawing its graph to model a real-world situation: Advanced
mstat052 Identifying independent and dependent variables from equations or real-world situations
alge990 Domain and range of a linear function that models a real-world situation
alge989 Interpreting the parameters of a linear function that models a real-world situation
alge992 Combining functions to write a new function that models a real-world situation
alge987 Comparing properties of linear functions given in different forms
alge805 Application problem with a linear function: Finding a coordinate given the slope and a point
alge808 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 line given through a point
alge991 Solving a linear equation by graphing
mstat051 Choosing a graph to fit a narrative: Advanced
alge828 Interpreting direct variation from a graph
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
alge925 Finding the next terms of an arithmetic sequence with whole numbers
alge906 Finding the next terms of an arithmetic sequence with integers
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
alge909 Writing an explicit rule for an arithmetic sequence
alge988 Finding the first terms of a sequence using a recursive rule
alge910 Writing a recursive rule for an arithmetic sequence
APPENDIX B. PROGRAMS IN ALEKS

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
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
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 $y = ax^3$
fun030 Evaluating a piecewise-defined function
fun031 Graphing a piecewise-defined function

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 system of linear equations that is inconsistent or consistent dependent
alge753 Solving a system of 3 linear equations in 3 unknowns
alge988 Identifying the operations used to create equivalent systems of 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
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
alge703 Solving a word problem using a 3x3 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
pcalc037 Scalar multiplication of a matrix
pcalc038 Addition or subtraction of matrices
pcalc740 Linear combination of matrices
pcalc712 Gauss-Jordan elimination with a 2x2 matrix

Exponents

alge790 Evaluating expressions with exponents of zero
arith684 Power of 10: Negative exponent
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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
alge821 Understanding the product rule of exponents
alge024 Introduction to the product rule of exponents
alge030 Product rule with positive exponents: Multivariate
alge961 Introduction to the product rule with negative exponents
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
alge926 Quotient rule with negative exponents: Problem type 2
alge826 Understanding the power rules of exponents
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
alge927 Power and quotient rules with positive 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
science002 Multiplying and dividing numbers written in scientific notation
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
alge971 Table for an exponential function
alge830 Evaluating an exponential function that models a real-world situation
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
alge301 Solving an exponential equation by finding common bases: Linear exponents
alge177 Finding a final amount in a word problem on exponential growth or decay
alge741 Compound interest
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
alge933 Finding the next terms of a geometric sequence with whole numbers
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
pcalc713 Arithmetic and geometric sequences: Identifying and writing an explicit rule
alge911 Writing recursive rules for arithmetic and geometric sequences

Polynomials and Factoring

alge758 Degree and leading coefficient of a univariate polynomial
alge01 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
alge735 Multiplying a univariate polynomial by a monomial with a positive coefficient
APPENDIX B. PROGRAMS IN ALEKS

Quadratic Functions and Equations

alg974 Finding the vertex, x-intercepts, and axis of symmetry from the graph of a parabola
alg277 Finding the x-intercept(s) and the vertex of a parabola
pcalc774 Rewriting a quadratic function to find the vertex of its graph
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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
ALGE976 Range of a quadratic function
ALGE996 Comparing properties of quadratic functions given in different forms
ALGE953 Translating the graph of a parabola: One step
ALGE253 Graphing a parabola of the form \( y = (x-a)^2 + c \)
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
ALGE702 Classifying the graph of a function
ALGE965 Identifying linear, quadratic, and exponential functions given ordered pairs
ALGE723 How the leading coefficient affects the shape of a parabola
ALGE185 Writing an equation for a function after a vertical translation
FUN020 Writing an equation for a function after a vertical and horizontal translation
PCALC748 Graphing a quadratic inequality: Problem type 1
PCALC749 Graphing a quadratic inequality: Problem type 2
ALGE957 Solving a quadratic equation by graphing
ALGE962 Solving an equation of the form \( x^2 = a \) using the square root property
ALGE958 Solving a quadratic equation using the square root property: Problem type 1
ALGE959 Solving a quadratic equation using the square root property: Problem type 2
ALGE994 Graphically solving a system of linear and quadratic equations
ALGE995 Solving a system of linear and quadratic equations
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

**Radicals**

ALGE213 Domain of a square root function
PCALC781 Graphing a square root function
ARITH016 Square root of a perfect square
ARITH02 Square root function
ARITH061 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
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
GEOM044 Pythagorean Theorem
ALGE132 Distance between two points in the plane
ALGE191 Midpoint of a line segment in the plane
PCALC609 Sine, cosine, and tangent ratios: Numbers for side lengths
APPENDIX B. PROGRAMS IN ALEKS

pcalc606 Using the Pythagorean Theorem to find a trigonometric ratio
pcalc616 Using a calculator to approximate sine, cosine, and tangent values
pcalc607 Using a trigonometric ratio to find a side length in a right triangle
pcalc610 Using trigonometry to find distances
pcalc608 Using a trigonometric ratio to find an angle measure in a right triangle
pcalc611 Using trigonometry to find angles of elevation or depression
pcalc642 Solving a right triangle

Rational Expressions

alge049 Restriction on a variable in a denominator: Linear
alge715 Domain of a rational function
alge682 Simplifying a ratio of polynomials: Problem type 2
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
alge767 Complex fraction: GCF and quadratic factoring
alge768 Complex fraction made of sums involving rational expressions
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
alge902 Identifying direct and inverse variation from ordered pairs and writing equations
alge903 Identifying direct and inverse variation equations
alge905 Writing an inverse variation equation
alge176 Word problem on inverse variation
alge220 Word problem on inverse proportions
pcalc789 Finding the asymptotes of a rational function: Basic
pcalc108 Graphing a rational function: Problem type 1

Data Analysis and Probability

mstat037 Constructing a line plot
mstat004 Constructing a histogram for numerical data
mstat024 Interpreting a bar graph
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
geom814 Angle measure in a circle graph
mstat031 Interpreting a stem-and-leaf plot
mstat027 Using back-to-back stem-and-leaf plots to compare data sets
mstat006 Constructing a box-and-whisker plot
mstat073 Using box-and-whisker plots to compare data sets
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
mstat066 Weighted 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
mstat025 Finding if a question can be answered by the data
mstat049 Computing a percentage from a table of values
stat020 Calculating relative frequencies in a contingency table
stat805 Making a reasonable inference based on proportion statistics
stat009 Percentiles
mstat072 Five-number summary and interquartile range
stat021 Population standard deviation
mstat042 Interpreting a Venn diagram of 2 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
stat790 Permutations, combinations, and the multiplication principle for counting
mstat026 Introduction to the probability of an event
mstat010 Probability of an event
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

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Arithmetic Readiness

arith078 Rounding to tens or hundreds
arith123 Rounding to hundreds or thousands
arith101 Estimating a sum of whole numbers
arith233 Introduction to exponents
arith692 Writing expressions using exponents
arith683 Power of 10: Positive exponent
arith048 Order of operations with whole numbers
arith051 Order of operations with whole numbers and grouping symbols
arith093 Order of operations with whole numbers and exponents: Basic
arith713 Order of operations with whole numbers and exponents: Advanced
alge832 Evaluating an algebraic expression: Whole number operations and exponents
arith056 Factors
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arith034 Prime numbers
arith035 Prime factorization
arith033 Greatest common factor of 2 numbers
arith070 Least common multiple of 2 numbers
arith240 Word problem with common multiples
arith212 Equivalent fractions
arith067 Simplifying a fraction
arith092 Using a common denominator to order fractions
arith018 Addition or subtraction of fractions with the same denominator
arith081 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
arith100 Fractional part of a circle
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
arith022 Fraction division
arith097 Mixed arithmetic operations with fractions
arith095 Multi-step word problem involving fractions and multiplication
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
arith129 Introduction to ordering decimals
arith068 Ordering decimals
arith069 Ordering fractions and decimals
arith222 Converting a fraction to a terminating decimal
arith089 Converting a fraction to a repeating decimal
arith087 Converting a decimal to a proper fraction in simplest form: Advanced
arith064 Addition of aligned decimals
arith025 Subtraction of aligned decimals
arith131 Estimating a decimal sum or difference
arith017 Multiplication of a decimal by a whole number
arith082 Multiplication of a decimal by a power of ten
arith055 Decimal multiplication: Problem type 1
arith081 Division of a decimal by a whole number
arith083 Division of a decimal by a power of ten
arith019 Division of a decimal by a 2-digit decimal
arith026 Word problem with one decimal operation: Problem type 1
arith027 Word problem with one decimal operation: Problem type 2
arith028 Word problem with multiple decimal operations: Problem type 1
geom339 Perimeter of a polygon
geom300 Perimeter of a square or a rectangle
geom019 Area of a square or a rectangle
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
geom034 Perimeter involving rectangles and circles
geom0838 Circumference ratios
geom0802 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
geom031 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
geom842 Surface area of a sphere
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
geom086 Volume of a cone: Exact answers in terms of pi
geom841 Volume of a sphere
geom039 Finding supplementary and complementary angles

Real Numbers

alge001 Identifying numbers as integers or non-integers
alge002 Identifying numbers as rational or irrational
mstat038 Reading the temperature from a thermometer
arith699 Writing a signed number for a real-world situation
alge286 Plotting integers on a number line
arith687 Fractional position on a number line
arith605 Plotting rational numbers on a number line
arith691 Ordering integers
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
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
arith231 Integer multiplication and division
arith800 Multiplication of 3 or 4 integers
arith822 Signed fraction multiplication: Basic
arith105 Signed fraction multiplication: Advanced
alge984 Classifying sums and products as rational or irrational
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
arith701 Absolute value of a number
arith104 Operations with absolute value: Problem type 2
gem025 Computing distances between decimals on the number line
alge187 Properties of addition
alge188 Properties of real numbers
arith657 Understanding the distributive property
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
APPENDIX B. PROGRAMS IN ALEKS

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
alge266 Additive property of equality with a negative coefficient
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
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 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
alge061 Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
alge831 Translating a phrase into a one-step expression
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
alge619 Writing a multi-step equation for a real-world situation
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
alge794 Solving a value mixture problem using a linear equation
alge795 Solving a percent mixture problem using a linear equation
arithmetic 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
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
geom530 Solving equations involving vertical angles
geom901 Finding an angle measure of a triangle given two angles
geom302 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
arith663 Writing ratios for real-world situations
alge272 Solving a proportion of the form \( x/a = b/c \)
alge840 Solving a proportion of the form \( (x-a)/b = c/d \)
alge271 Solving a proportion of the form \( a/(x+b) = c/x \)
arith664 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
geom837 Similar polygons
geom838 Similar right triangles
geom837 Indirect measurement
arith226 Converting between percentages and decimals
arith609 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: Basic
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
arith225 Finding the percentage increase or decrease: Advanced
arith232 Finding simple interest without a calculator
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
mstat065 Converting between temperatures in Fahrenheit and Celsius
unit032 Finding the absolute error and percent error of a measurement
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

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
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
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
alge864 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
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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: Problem type 1
alge861 Solving a compound linear inequality: Problem type 2
alge749 Solving a decimal word problem using a two-step linear inequality
alge862 Solving a decimal word problem using a linear inequality with the variable on both sides
alge943 Writing an absolute value inequality given a graph on the number line
alge868 Solving an absolute value inequality: Problem type 1
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

Functions and Lines

set001 Set builder notation
set002 Union and intersection of finite sets
fun001 Table for a linear function
pcalc760 Evaluating functions: Linear and quadratic or cubic
fun033 Variable expressions as inputs of functions
fun016 Domain and range from ordered pairs
alge896 Graphing an integer function and finding its range for a given domain
fun032 Identifying functions from relations
fun010 Vertical line test
pcalc761 Finding inputs and outputs of a function from its graph
alge999 Finding where a function is increasing, decreasing, or constant given the graph
pcalc752 Finding local maxima and minima of a function given the graph
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
alge716 Introduction to the composition of two functions
fun012 Inverse functions: Problem type 1
alge064 Reading a point in the coordinate plane
alge067 Plotting a point in the coordinate plane
alge873 Identifying solutions to a linear equation in two variables
alge850 Table for a linear equation
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
alge197 Graphing a line given its x- and y-intercepts
alge881 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
alge876 Identifying linear equations: Advanced
alge874 Identifying linear functions given ordered pairs
alge891 Rewriting a linear equation in the form Ax + By = C
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
alge888 Finding the coordinate that yields 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 \( Ax + By = C \)
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
alge701 Writing an equation and drawing its graph to model a real-world situation: Advanced
mstat052 Identifying independent and dependent variables from equations or real-world situations
alge990 Domain and range of a linear function that models a real-world situation
alge989 Interpreting the parameters of a linear function that models a real-world situation
alge992 Combining functions to write a new function that models a real-world situation
alge987 Comparing properties of linear functions given in different forms
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
alge805 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
alge991 Solving a linear equation by graphing
mstat051 Choosing a graph to fit a narrative: Advanced
alge828 Interpreting direct variation from a graph
alge982 Identifying direct variation from a graph
alge938 Identifying direct variation from ordered pairs and writing equations
alge904 Writing a direct variation equation
alge175 Word problem on direct variation
alge925 Finding the next terms of an arithmetic sequence with whole numbers
alge906 Finding the next terms of an arithmetic sequence with integers
alge979 Identifying arithmetic sequences and finding the common difference
alge931 Finding a specified term of an arithmetic sequence given the first terms
pcal085 Finding a specified term of an arithmetic sequence given the common difference and first term
alge969 Writing an explicit rule for an arithmetic sequence
alge908 Finding the first terms of a sequence using a recursive rule
alge910 Writing a recursive rule for an arithmetic sequence
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
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
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 \( y = ax^3 \)
fun030 Evaluating a piecewise-defined function
fun031 Graphing a piecewise-defined function

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
Appendix B. Programs in ALEKS

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 system of linear equations that is inconsistent or consistent dependent
alge753 Solving a system of 3 linear equations in 3 unknowns
alge988 Identifying the operations used to create equivalent systems of 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
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
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
pcalc93 Solving a word problem using a system of linear inequalities
pcalc37 Scalar multiplication of a matrix
pcalc38 Addition or subtraction of matrices
pcalc740 Linear combination of matrices
pcalc712 Gauss-Jordan elimination with a 2x2 matrix

Exponents

alge790 Evaluating expressions with exponents of zero
arith684 Power of 10: Negative exponent
arith642 Evaluating an expression with a negative exponent: Positive fraction base
arith643 Evaluating an expression with a negative exponent: Negative integer base
arith529 Ordering numbers with positive exponents
arith624 Ordering numbers with negative exponents
alge791 Rewriting an algebraic expression without a negative exponent
alge821 Understanding the product rule of exponents
alge624 Introduction to the product rule of exponents
alge630 Product rule with positive exponents: Multivariate
alge961 Introduction to the product rule with negative exponents
alge628 Product rule with negative exponents
alge827 Introduction to the quotient rule of exponents
alge626 Quotient of expressions involving exponents
alge755 Quotient rule with negative exponents: Problem type 1
alge926 Quotient rule with negative exponents: Problem type 2
alge826 Understanding the power rules of exponents
alge754 Introduction to the power rules of exponents
alge627 Power rules with positive exponents
alge625 Power of a power rule with negative exponents
alge799 Power rules with negative exponents
alge756 Power and product rules with positive exponents
alge927 Power and quotient rules with positive 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
scinot002 Multiplying and dividing numbers written in scientific notation
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
alge971 Table for an exponential function
alge830 Evaluating an exponential function that models a real-world situation
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
alge301 Solving an exponential equation by finding common bases: Linear exponents
alge177 Finding a final amount in a word problem on exponential growth or decay
alge741 Compound interest
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
alge933 Finding the next terms of a geometric sequence with whole numbers
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
pcalc713 Arithmetic and geometric sequences: Identifying and writing an explicit rule
alge911 Writing recursive rules for arithmetic and geometric sequences

Polynomials and Factoring

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
alge603 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
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
alge736 Introduction to the GCF of two monomials
alge603 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: Basic
alge923 Factoring a univariate polynomial by grouping: Problem type 1
alge950 Factoring a univariate polynomial by grouping: Problem type 2
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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 by the ac-method
alge978 Factoring a quadratic in two variables with leading coefficient greater than 1
alge937 Factoring a quadratic with a negative leading coefficient
alge041 Factoring a product of a quadratic trinomial and a monomial
alge944 Factoring a perfect square trinomial with leading coefficient greater than 1
alge945 Factoring a perfect square trinomial in two variables
alge946 Factoring a difference of squares in one variable: Basic
alge947 Factoring a difference of squares in one variable: Advanced
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
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

Quadratic Functions and Equations

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
alge976 Domain and range from the graph of a parabola
alge977 Range of a quadratic function
alge996 Comparing properties of quadratic functions given in different forms
alge953 Translating the graph of a parabola: One step
alge954 Graphing a parabola of the form y = (x-a)^2 + 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
alge702 Classifying the graph of a function
alge965 Identifying linear, quadratic, and exponential functions given ordered pairs
alge723 How the leading coefficient affects the shape of a parabola
alge185 Writing an equation for a function after a vertical translation
fun020 Writing an equation for a function after a vertical and horizontal translation
pcalc748 Graphing a quadratic inequality: Problem type 1
pcalc749 Graphing a quadratic inequality: Problem type 2
alge957 Solving a quadratic equation by graphing
alge962 Solving an equation of the form x^2 = a using the square root property
alge958 Solving a quadratic equation using the square root property: Problem type 1
alge959 Solving a quadratic equation using the square root property: Problem type 2
alge094 Completing the square
alge960 Solving a quadratic equation by completing the square
alge963 Applying the quadratic formula: Decimal answers
alge095 Applying the quadratic formula: Exact answers
alge214 Discriminant of a quadratic equation
alge624 Solving a word problem using a quadratic equation with irrational roots
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alge994 Graphically solving a system of linear and quadratic equations
alge995 Solving a system of linear and quadratic equations
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

Radicals

alge213 Domain of a square root function
pcalc781 Graphing a square root function
arith016 Square root of a perfect square
arith061 Estimating a square root
arith061 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
arith062 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
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
geom044 Pythagorean Theorem
alge132 Distance between two points in the plane
alge191 Midpoint of a line segment in the plane
pcalc699 Sine, cosine, and tangent ratios: Numbers for side lengths
pcalc606 Using the Pythagorean Theorem to find a trigonometric ratio
pcalc616 Using a calculator to approximate sine, cosine, and tangent values
pcalc607 Using a trigonometric ratio to find a side length in a right triangle
pcalc610 Using trigometry to find distances
pcalc611 Using trigometry to find angles of elevation or depression
pcalc612 Solving a right triangle

Rational Expressions

alge049 Restriction on a variable in a denominator: Linear
alge715 Domain of a rational function
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
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
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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
alge767 Complex fraction: GCF and quadratic factoring
alge768 Complex fraction made of sums involving rational expressions
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
alge902 Identifying direct and inverse variation from ordered pairs and writing equations
alge903 Identifying direct and inverse variation equations
alge905 Writing an inverse variation equation
alge176 Word problem on inverse variation
alge220 Word problem on inverse proportions
pcalc789 Finding the asymptotes of a rational function: Basic
pcalc108 Graphing a rational function: Problem type 1

Data Analysis and Probability

mstat037 Constructing a line plot
mstat004 Constructing a histogram for numerical data
mstat024 Interpreting a bar graph
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
geom814 Angle measure in a circle graph
mstat031 Interpreting a stem-and-leaf plot
mstat027 Using back-to-back stem-and-leaf plots to compare data sets
mstat006 Constructing a box-and-whisker plot
mstat073 Using box-and-whisker plots to compare data sets
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
mstat066 Weighted 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
mstat025 Finding if a question can be answered by the data
mstat049 Computing a percentage from a table of values
stat020 Calculating relative frequencies in a contingency table
stat805 Making a reasonable inference based on proportion statistics
stat009 Percentiles
mstat072 Five-number summary and interquartile range
stat021 Population standard deviation
mstat042 Interpreting a Venn diagram of 2 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
stat790 Permutations, combinations, and the multiplication principle for counting
mstat026 Introduction to the probability of an event
mstat010 Probability of an event
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

B.25  Traditional Algebra 1B

Arithmetic Readiness

arith078 Rounding to tens or hundreds
arith123 Rounding to hundreds or thousands
arith101 Estimating a sum of whole numbers
arith233 Introduction to exponents
arith692 Writing expressions using exponents
arith683 Power of 10: Positive exponent
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
alge731 Evaluating an algebraic expression: Whole numbers with two operations
alge832 Evaluating an algebraic expression: Whole number operations and exponents
arith056 Factors
arith034 Prime numbers
arith035 Prime factorization
arith033 Greatest common factor of 2 numbers
arith070 Least common multiple of 2 numbers
arith240 Word problem with common multiples
arith212 Equivalent fractions
arith067 Simplifying a fraction
arith092 Using a common denominator to order fractions
arith015 Writing an improper fraction as a mixed number
arith619 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
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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
arith129 Introduction to ordering decimals
arith608 Ordering decimals
arith609 Ordering fractions and decimals
arith222 Converting a fraction to a terminating decimal
arith089 Converting a fraction to a repeating decimal
arith687 Converting a decimal to a proper fraction in simplest form: Advanced
arith624 Addition of aligned decimals
arith625 Subtraction of aligned decimals
arith131 Estimating a decimal sum or difference
arith017 Multiplication of a decimal by a whole number
arith082 Multiplication of a decimal by a power of ten
arith055 Decimal multiplication: Problem type 1
arith081 Division of a decimal by a whole number
arith083 Division of a decimal by a power of ten
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
arith628 Word problem with multiple decimal operations: Problem type 1
geom339 Perimeter of a polygon
geom300 Perimeter of a square or a rectangle
geom019 Area of a square or a rectangle
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
geom802 Area of a parallelogram
geom023 Area of a trapezoid
geom016 Circumference of a circle
geom301 Perimeter involving rectangles and circles
geom388 Circumference ratios
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
geom31 Surface area of a cube or a rectangular prism
geom891 Surface area of a triangular 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
geom890 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
geom039 Finding supplementary and complementary angles

Real Numbers

alge001 Identifying numbers as integers or non-integers
alge002 Identifying numbers as rational or irrational
mstat038 Reading the temperature from a thermometer
arith699 Writing a signed number for a real-world situation
alge286 Plotting integers on a number line
arith687 Fractional position on a number line
B.25. TRADITIONAL ALGEBRA 1B

arith605 Plotting rational numbers on a number line
arith691 Ordering integers
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
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
arith231 Integer multiplication and division
arith800 Multiplication of 3 or 4 integers
arith622 Signed fraction multiplication: Basic
arith105 Signed fraction multiplication: Advanced
alge984 Classifying sums and products as rational or irrational
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
arith707 Absolute value of a number
arith104 Operations with absolute value: Problem type 2
geom525 Computing distances between decimals on the number line
alge187 Properties of addition
alge188 Properties of real numbers
arith657 Understanding the distributive property
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

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
alge266 Additive property of equality with a negative coefficient
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
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
APPENDIX B. PROGRAMS IN ALEKS

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
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
alge810 Introduction to algebraic symbol manipulation
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
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
alge730 Writing a multi-step equation for a real-world situation
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
alge794 Solving a value mixture problem using a linear equation
alge795 Solving a percent 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
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
geom530 Solving equations involving vertical angles
geom001 Finding an angle measure of a triangle given two angles
geom302 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
arith663 Writing ratios for real-world situations
alge272 Solving a proportion of the form x/a = b/c
alge271 Solving a proportion of the form (x+a)/b = c/d
alrith86 Solving a word problem on proportions using a unit rate
arith610 Problem on proportions: Problem type 1
arith611 Word problem on proportions: Problem type 2
geom837 Similar polygons
geom838 Similar right triangles
geom337 Indirect measurement
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
arith609 Writing a ratio as a percentage without a calculator
arith830 Finding a percentage of a whole number without a calculator: Basic
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
arith225 Finding the percentage increase or decrease: Advanced
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
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
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
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: Problem type 1
alge861 Solving a compound linear inequality: Problem type 2
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
alge943 Writing an absolute value inequality given a graph on the number line
alge868 Solving an absolute value inequality: Problem type 1
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

Functions and Lines

set001 Set builder notation
set002 Union and intersection of finite sets
fun001 Table for a linear function
pcalc760 Evaluating functions: Linear and quadratic or cubic
fun033 Variable expressions as inputs of functions
fun016 Domain and range from ordered pairs
APPENDIX B. PROGRAMS IN ALEKS

alge896 Graphing an integer function and finding its range for a given domain
fun032 Identifying functions from relations
fun010 Vertical line test
pcalc761 Finding inputs and outputs of a function from its graph
alge999 Finding where a function is increasing, decreasing, or constant given the graph
pcalc752 Finding local maxima and minima of a function given the graph
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
alge716 Introduction to the composition of two functions
fun012 Inverse functions: Problem type 1
alge064 Reading a point in the coordinate plane
alge067 Plotting a point in the coordinate plane
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
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
alge197 Graphing a line given its x- and y-intercepts
alge881 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
alge876 Identifying linear equations: Advanced
alge874 Identifying linear functions given ordered pairs
alge891 Rewriting a linear equation in the form Ax + By = C
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
alge888 Finding the coordinate that yields 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
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
alge701 Writing an equation and drawing its graph to model a real-world situation: Advanced
mstat052 Identifying independent and dependent variables from equations or real-world situations
alge990 Domain and range of a linear function that models a real-world situation
alge989 Interpreting the parameters of a linear function that models a real-world situation
alge992 Combining functions to write a new function that models a real-world situation
alge987 Comparing properties of linear functions given in different forms
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
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
alge991 Solving a linear equation by graphing
mstat051 Choosing a graph to fit a narrative: Advanced
alge828 Interpreting direct variation from a graph
alge882 Identifying direct variation equations
alge038 Identifying direct variation from ordered pairs and writing equations
alge904 Writing a direct variation equation
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alge175 Word problem on direct variation
alge925 Finding the next terms of an arithmetic sequence with whole numbers
alge906 Finding the next terms of an arithmetic sequence with integers
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
alge909 Writing an explicit rule for an arithmetic sequence
alge908 Finding the first terms of a sequence using a recursive rule
alge910 Writing a recursive rule for an arithmetic sequence
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
mstat069 Computing residuals
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
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 \( y = ax^3 \)
fund030 Evaluating a piecewise-defined function
fund031 Graphing a piecewise-defined function

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 system of linear equations that is inconsistent or consistent dependent
alge753 Solving a system of 3 linear equations in 3 unknowns
alge988 Identifying the operations used to create equivalent systems of 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
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
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
pcalc037 Scalar multiplication of a matrix
pcalc038 Addition or subtraction of matrices
pcalc740 Linear combination of matrices
pcalc712 Gauss-Jordan elimination with a 2x2 matrix

Exponents

alge790 Evaluating expressions with exponents of zero
arith064 Power of 10: Negative exponent
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
alge821 Understanding the product rule of exponents
alge024 Introduction to the product rule of exponents
alge030 Product rule with positive exponents: Multivariate
alge961 Introduction to the product rule with negative exponents
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
alge926 Quotient rule with negative exponents: Problem type 2
alge826 Understanding the power rules of exponents
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
alge927 Power and quotient rules with positive 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
scinot002 Multiplying and dividing numbers written in scientific notation
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
alge971 Table for an exponential function
alge830 Evaluating an exponential function that models a real-world situation
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
alge301 Solving an exponential equation by finding common bases: Linear exponents
alge177 Finding a final amount in a word problem on exponential growth or decay
alge741 Compound interest
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
alge933 Finding the next terms of a geometric sequence with whole numbers
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
pcalc213 Arithmetic and geometric sequences: Identifying and writing an explicit rule
alge911 Writing recursive rules for arithmetic and geometric sequences
Polynomials and Factoring

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
alge629 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
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
alge938 Squaring a binomial: Univariate
alge998 Squaring a binomial: Multivariate
alge762 Multiplying a univariate polynomial by a monomial with a negative coefficient
alge972 Multiplying a univariate polynomial by a monomial with a negative coefficient
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
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: 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
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
alge041 Factoring a product of a quadratic trinomial and a monomial
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
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
APPENDIX B. PROGRAMS IN ALEKS

Quadratic Functions and Equations

- 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
- alge975 Domain and range from the graph of a parabola
- alge976 Range of a quadratic function
- alge996 Comparing properties of quadratic functions given in different forms
- alge953 Translating the graph of a parabola: One step
- alge253 Graphing a parabola of the form $y = (x-a)^2 + c$
- 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
- alge702 Classifying the graph of a function
- alge965 Identifying linear, quadratic, and exponential functions given ordered pairs
- alge723 How the leading coefficient affects the shape of a parabola
- alge185 Writing an equation for a function after a vertical translation
- fun020 Writing an equation for a function after a vertical and horizontal translation
- pcalc748 Graphing a quadratic inequality: Problem type 1
- pcalc749 Graphing a quadratic inequality: Problem type 2
- alge957 Solving a quadratic equation by graphing
- alge962 Solving an equation of the form $x^2 = a$ using the square root property
- alge958 Solving a quadratic equation using the square root property: Problem type 1
- alge959 Solving a quadratic equation using the square root property: Problem type 2
- alge994 Graphically solving a system of linear and quadratic equations
- alge995 Solving a system of linear and quadratic equations
- 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

Radicals

- alge213 Domain of a square root function
- pcalc781 Graphing a square root function
- arith016 Square root of a perfect square
- arith602 Estimating a square root
- 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
- arith032 Square root addition or subtraction
- alge084 Simplifying a sum or difference of radical expressions: Multivariate
- arith039 Square root multiplication: Advanced
- alge610 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. TRADITIONAL ALGEBRA 1B

alge088 Rationalizing the denominator of a radical expression using conjugates
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
gem044 Pythagorean Theorem
alge132 Distance between two points in the plane
alge191 Midpoint of a line segment in the plane
pcalc609 Sine, cosine, and tangent ratios: Numbers for side lengths
pcalc606 Using the Pythagorean Theorem to find a trigonometric ratio
pcalc616 Using a calculator to approximate sine, cosine, and tangent values
pcalc607 Using a trigonometric ratio to find a side length in a right triangle
pcalc610 Using trigonometry to find distances
pcalc608 Using a trigonometric ratio to find an angle measure in a right triangle
pcalc611 Using trigonometry to find angles of elevation or depression
pcalc642 Solving a right triangle

Rational Expressions

alge049 Restriction on a variable in a denominator: Linear
alge715 Domain of a rational function
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
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
alge767 Complex fraction: GCF and quadratic factoring
alge768 Complex fraction made of sums involving rational expressions
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
alge862 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
alge902 Identifying direct and inverse variation from ordered pairs and writing equations
alge903 Identifying direct and inverse variation equations
alge905 Writing an inverse variation equation
alge176 Word problem on inverse variation
alge220 Word problem on inverse proportions
pcalc189 Finding the asymptotes of a rational function: Basic
pcalc108 Graphing a rational function: Problem type 1

Data Analysis and Probability
APPENDIX B. PROGRAMS IN ALEKS

mstat037 Constructing a line plot
mstat004 Constructing a histogram for numerical data
mstat024 Interpreting a bar graph
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
geom814 Angle measure in a circle graph
mstat031 Interpreting a stem-and-leaf plot
mstat027 Using back-to-back stem-and-leaf plots to compare data sets
mstat006 Constructing a box-and-whisker plot
mstat073 Using box-and-whisker plots to compare data sets
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
mstat066 Weighted 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
mstat025 Finding if a question can be answered by the data
mstat049 Computing a percentage from a table of values
stat020 Calculating relative frequencies in a contingency table
stat805 Making a reasonable inference based on proportion statistics
stat009 Percentiles
mstat072 Five-number summary and interquartile range
stat021 Population standard deviation
mstat042 Interpreting a Venn diagram of 2 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
stat790 Permutations, combinations, and the multiplication principle for counting
mstat026 Introduction to the probability of an event
mstat010 Probability of an event
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

B.26  Algebra 1

Arithmetic Readiness

arith078 Rounding to tens or hundreds
arith123 Rounding to hundreds or thousands
arith101 Estimating a sum of whole numbers
arith233 Introduction to exponents
arith692 Writing expressions using 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
alge731 Evaluating an algebraic expression: Whole numbers with two operations
alge832 Evaluating an algebraic expression: Whole number operations and exponents
arith656 Factors
arith634 Prime numbers
arith035 Prime factorization
arith033 Greatest common factor of 2 numbers
arith070 Least common multiple of 2 numbers
arith212 Word problem with common multiples
arith212 Equivalent fractions
arith067 Simplifying a fraction
arith092 Using a common denominator to order fractions
arith618 Addition or subtraction of fractions with the same denominator
arith501 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
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
arith088 The reciprocal of a number
arith694 Division involving a whole number and a fraction
arith022 Fraction division
arith697 Mixed arithmetic operations with fractions
arith095 Multi-step word problem involving fractions and multiplication
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
arith129 Introduction to ordering decimals
arith608 Ordering decimals
arith609 Ordering fractions and decimals
arith222 Converting a fraction to a terminating decimal
arith889 Converting a fraction to a repeating decimal
arith087 Converting a decimal to a proper fraction in simplest form: Advanced
arith624 Addition of aligned decimals
arith625 Subtraction of aligned decimals
arith131 Estimating a decimal sum or difference
arith017 Multiplication of a decimal by a whole number
arith082 Multiplication of a decimal by a power of ten
arith055 Decimal multiplication: Problem type 1
arith081 Division of a decimal by a whole number
arith083 Division of a decimal by a power of ten
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
arith628 Word problem with multiple decimal operations: Problem type 1
gem339 Perimeter of a polygon
gem339 Perimeter of a square or a rectangle
gem019 Area of a square or a rectangle
gem221 Finding the missing length in a figure
gem340 Area of a piecewise rectangular figure
APPENDIX B. PROGRAMS IN ALEKS

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
geom838 Circumference ratios
geom802 Circumference and area of a circle
geom032 Area involving rectangles and circles
geom036 Word problem involving the area between two concentric circles
geom214 Area involving inscribed figures
geom031 Surface area of a cube or a rectangular prism
geom034 Surface area of a cylinder: Exact answers in terms of pi
geom842 Surface area of a sphere
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
geom086 Volume of a cone: Exact answers in terms of pi
geom841 Volume of a sphere
geom039 Finding supplementary and complementary angles

Real Numbers

alge001 Identifying numbers as integers or non-integers
alge002 Identifying numbers as rational or irrational
mstat038 Reading the temperature from a thermometer
arith699 Writing a signed number for a real-world situation
alge286 Plotting integers on a number line
arith687 Fractional position on a number line
arith605 Plotting rational numbers on a number line
arith691 Ordering integers
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
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
arith231 Integer multiplication and division
arith800 Multiplication of 3 or 4 integers
arith822 Signed fraction multiplication: Basic
arith105 Signed fraction multiplication: Advanced
alge984 Classifying sums and products as rational or irrational
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
geom525 Computing distances between decimals on the number line
B.26. ALGEBRA 1

Properties of addition
Properties of real numbers
Understanding the distributive property
Distributive property: Whole number coefficients
Distributive property: Integer coefficients
Combining like terms: Whole number coefficients
Combining like terms: Integer coefficients
Combining like terms: Advanced
Combining like terms in a quadratic expression

Linear Equations

Additive property of equality with whole numbers
Additive property of equality with fractions and mixed numbers
Additive property of equality with decimals
Additive property of equality with integers
Additive property of equality with a negative coefficient
Additive property of equality with signed fractions
Multiplicative property of equality with whole numbers
Multiplicative property of equality with fractions
Multiplicative property of equality with decimals
Multiplicative property of equality with integers
Multiplicative property of equality with signed fractions
Identifying solutions to a linear equation in one variable: Two-step equations
Using two steps to solve an equation with whole numbers
Solving a two-step equation with integers
Solving a multi-step equation given in fractional form
Solving a two-step equation with signed fractions
Solving a two-step equation with signed decimals
Solving an equation to find the value of an expression
Introduction to solving an equation with parentheses
Solving an equation with variables on the same side
Solving a linear equation with several occurrences of the variable: Variables on the same side
Solving a linear equation with several occurrences of the variable: Variables on both sides
Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions
Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators
Solving equations with zero, one, or infinitely many solutions
Identifying properties used to solve a linear equation
Introduction to algebraic symbol manipulation
Algebraic symbol manipulation: Problem type 1
Algebraic symbol manipulation: Problem type 2
Writing a one-step expression for a real-world situation
Translating a phrase into a one-step expression
Translating a phrase into a two-step expression
Translating a sentence into a one-step equation
Translating a sentence into a multi-step equation
Writing a multi-step equation for a real-world situation
Solving a fraction word problem using a linear equation of the form $Ax = B$
Solving a word problem with two unknowns using a linear equation
Solving a decimal word problem using a linear equation of the form $Ax + B = C$
Solving a decimal word problem using a linear equation with the variable on both sides
Solving a fraction word problem using a linear equation with the variable on both sides
APPENDIX B. PROGRAMS IN ALEKS

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
alge795 Solving a percent 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
geom143 Finding the perimeter or area of a rectangle given one of these values
geom530 Solving equations involving vertical angles
geom001 Finding an angle measure of a triangle given two angles
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
arith063 Writing ratios for real-world situations
alge272 Solving a proportion of the form \( x/a = b/c \)
alge840 Solving a proportion of the form \( (x+a)/b = c/d \)
alge271 Solving a proportion of the form \( a/(x+b) = c/x \)
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
geom037 Similar polygons
geom038 Similar right triangles
geom337 Indirect measurement
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
arith030 Finding a percentage of a whole number without a calculator: Basic
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
arith225 Finding the percentage increase or decrease: Advanced
arith232 Finding simple interest without a calculator
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
mstat065 Converting between temperatures in Fahrenheit and Celsius
unit052 Finding the absolute error and percent error of a measurement
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

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
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
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
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: Problem type 1
alge861 Solving a compound linear inequality: Problem type 2
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
alge973 Writing an absolute value inequality given a graph on the number line
alge868 Solving an absolute value inequality: Problem type 1
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

Functions and Lines

set001 Set builder notation
set002 Union and intersection of finite sets
fun001 Table for a linear function
pcalc760 Evaluating functions: Linear and quadratic or cubic
fun033 Variable expressions as inputs of functions
fun016 Domain and range from ordered pairs
alge896 Graphing an integer function and finding its range for a given domain
fun032 Identifying functions from relations
fun010 Vertical line test
pcalc761 Finding inputs and outputs of a function from its graph
alge999 Finding where a function is increasing, decreasing, or constant given the graph
pcalc752 Finding local maxima and minima of a function given the graph
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
alge716 Introduction to the composition of two functions
fun012 Inverse functions: Problem type 1
alg064 Reading a point in the coordinate plane
alg067 Plotting a point in the coordinate plane
alg0873 Identifying solutions to a linear equation in two variables
alg0850 Table for a linear equation
alg066 Finding a solution to a linear equation in two variables
alg0877 Graphing a linear equation of the form y = mx
alg0878 Graphing a line given its equation in slope-intercept form: Integer slope
alg0879 Graphing a line given its equation in slope-intercept form: Fractional slope
alg0880 Graphing a line given its equation in standard form
alg197 Graphing a line given its x- and y-intercepts
alg0881 Graphing a line by first finding its x- and y-intercepts
alg196 Graphing a line through a given point with a given slope
alg0882 Graphing a line by first finding its slope and y-intercept
alg0883 Graphing a line given its equation in point-slope form
alg198 Graphing a vertical or horizontal line
alg0876 Identifying linear equations: Advanced
alg0874 Identifying linear functions given ordered pairs
alg0891 Rewriting a linear equation in the form Ax + By = C
APPENDIX B. PROGRAMS IN ALEKS

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
alge888 Finding the coordinate that yields a given slope
alge890 Finding the slope and y-intercept of a line given its equation in the form $y = mx + b$
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
alge701 Writing an equation and drawing its graph to model a real-world situation: Advanced
mstat052 Identifying independent and dependent variables from equations or real-world situations
alge990 Domain and range of a linear function that models a real-world situation
alge989 Interpreting the parameters of a linear function that models a real-world situation
alge992 Combining functions to write a new function that models a real-world situation
alge987 Comparing properties of linear functions given in different forms
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
alge885 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
alge991 Solving a linear equation by graphing
mstat051 Choosing a graph to fit a narrative: Advanced
alge828 Interpreting direct variation from a graph
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
alge925 Finding the next terms of an arithmetic sequence with whole numbers
alge906 Finding the next terms of an arithmetic sequence with integers
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
alge909 Writing an explicit rule for an arithmetic sequence
alge908 Finding the first terms of a sequence using a recursive rule
alge910 Writing a recursive rule for an arithmetic sequence
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
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
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 $y = ax^3$
fun030 Evaluating a piecewise-defined function
fun031 Graphing a piecewise-defined function
Systems

alge074 Identifying solutions to a system of linear equations
alge075 Classifying systems of linear equations from graphs
alge076 Graphically solving a system of linear equations
alge077 Solving a system of linear equations using substitution
alge078 Solving a system of linear equations using elimination with addition
alge079 Solving a system of linear equations using elimination with multiplication and addition
alge080 Solving a system of linear equations with fractional coefficients
alge081 Solving a system of linear equations with decimal coefficients
alge082 Solving a system of linear equations that is inconsistent or consistent dependent
alge083 Solving a system of 3 linear equations in 3 unknowns
alge084 Identifying the operations used to create equivalent systems of equations
alge085 Interpreting the graphs of two functions
alge086 Solving a word problem involving a sum and another basic relationship using a system of linear equations
alge087 Solving a word problem using a system of linear equations of the form $Ax + By = C$
alge088 Solving a word problem using a system of linear equations of the form $y = mx + b$
alge089 Solving a value mixture problem using a system of linear equations
alge090 Solving a distance, rate, time problem using a system of linear equations
alge091 Solving a percent mixture problem using a system of linear equations
alge092 Solving a tax rate or interest rate problem using a system of linear equations
alge093 Solving a word problem using a 3x3 system of linear equations
alge094 Identifying solutions to a linear inequality in two variables
alge095 Graphing a linear inequality in the plane: Slope-intercept form
alge096 Graphing a linear inequality in the plane: Standard form
alge097 Graphing a linear inequality in the plane: Vertical or horizontal line
alge098 Graphing a system of two linear inequalities: Basic
alge099 Graphing a system of two linear inequalities: Advanced
alge100 Graphing a system of three linear inequalities
pcalc090 Solving a word problem using a system of linear inequalities
pcalc091 Scalar multiplication of a matrix
pcalc092 Addition or subtraction of matrices
pcalc093 Linear combination of matrices
pcalc094 Gauss-Jordan elimination with a 2x2 matrix

Exponents

alge789 Evaluating expressions with exponents of zero
arith080 Power of 10: Negative exponent
arith081 Evaluating an expression with a negative exponent: Positive fraction base
arith082 Evaluating an expression with a negative exponent: Negative integer base
arith083 Ordering numbers with positive exponents
arith084 Ordering numbers with negative exponents
arith085 Rewriting an algebraic expression without a negative exponent
alge871 Understanding the product rule of exponents
alge872 Introduction to the product rule of exponents
alge873 Product rule with positive exponents: Multivariate
alge874 Introduction to the product rule with negative exponents
alge875 Product rule with negative exponents
alge876 Introduction to the quotient rule of exponents
alge877 Introduction to the quotient rule of exponents
alge878 Quotient of expressions involving exponents
alge879 Quotient rule with negative exponents: Problem type 1
alge880 Quotient rule with negative exponents: Problem type 2
alge881 Understanding the power rules of exponents
alge882 Introduction to the power rules of exponents
alge883 Power rules with positive exponents
alge884 Power of a power rule with negative exponents
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alge799 Power rules with negative exponents
alge756 Power and product rules with positive exponents
alge927 Power and quotient rules with positive exponents
alge928 Power and quotient rules with negative exponents: Problem type 1
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
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
alge249 Rational exponents: Products of powers with negative exponents
alge971 Table for an exponential function
alge830 Evaluating an exponential function that models a real-world situation
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
alge301 Solving an exponential equation by finding common bases: Linear exponents
alge177 Finding a final amount in a word problem on exponential growth or decay
alge741 Compound interest
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
alge933 Finding the next terms of a geometric sequence with whole numbers
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 common ratio and first term
pcalc086 Finding a specified term of a geometric sequence given the common ratio and first term
pcalc713 Arithmetic and geometric sequences: Identifying and writing an explicit rule
alge911 Writing recursive rules for arithmetic and geometric sequences

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
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
Introduction to the GCF of two monomials
Greatest common factor of two multivariate monomials
Greatest common factor of three univariate monomials
Factoring out a monomial from a polynomial: Univariate
Factoring out a monomial from a polynomial: Multivariate
Factoring a univariate polynomial by grouping: Problem type 1
Factoring a univariate polynomial by grouping: Problem type 2
Factoring a multivariate polynomial by grouping: Problem type 1
Factoring a multivariate polynomial by grouping: Problem type 2
Factoring out a binomial from a polynomial: Basic
Factoring out a binomial from a polynomial: Advanced
Factoring a trinomial
Factoring a trinomial with leading coefficient greater than 1
Factoring a trinomial with leading coefficient greater than 1
Factoring a trinomial with leading coefficient greater than 1
Factoring a trinomial with a negative leading coefficient
Factoring a product of a quadratic trinomial and a monomial
Factoring a perfect square trinomial with leading coefficient 1
Factoring a perfect square trinomial with leading coefficient greater than 1
Factoring a perfect square trinomial with leading coefficient greater than 1
Factoring a perfect square trinomial in two variables
Factoring a difference of squares in one variable: Basic
Factoring a difference of squares in one variable: Advanced
Factoring a difference of squares in two variables
Factoring a polynomial involving a GCF and a difference of squares: Univariate
Factoring a polynomial involving a GCF and a difference of squares: Multivariate
Factoring with repeated use of the difference of squares formula
Factoring a sum or difference of two cubes
Solving an equation written in factored form
Finding the roots of a quadratic equation of the form $ax^2 + bx = 0$
Finding the roots of a quadratic equation with leading coefficient 1
Finding the roots of a quadratic equation with leading coefficient greater than 1
Solving a quadratic equation needing simplification
Solving a word problem using a quadratic equation with rational roots

Quadratic Functions and Equations

Finding the vertex, x-intercepts, and axis of symmetry from the graph of a parabola
Finding the x-intercept(s) and the vertex of a parabola
Rewriting a quadratic function to find the vertex of 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 parabola
Range of a quadratic function
Comparing properties of quadratic functions given in different forms
Translating the graph of a parabola: One step
Graphing a parabola of the form $y = (x-a)^2 + c$
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
Classifying the graph of a function
Identifying linear, quadratic, and exponential functions given ordered pairs
How the leading coefficient affects the shape of a parabola
Writing an equation for a function after a vertical translation
Writing an equation for a function after a vertical and horizontal translation
Graphing a quadratic inequality: Problem type 1
Graphing a quadratic inequality: Problem type 2
Solving a quadratic equation by graphing
Solving an equation of the form $x^2 = a$ using the square root property
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alge958 Solving a quadratic equation using the square root property: Problem type 1
alge959 Solving a quadratic equation using the square root property: Problem type 2
alge994 Completing the square
alge960 Solving a quadratic equation by completing the square
alge963 Applying the quadratic formula: Decimal answers
alge995 Applying the quadratic formula: Exact answers
alge214 Discriminant of a quadratic equation
alge524 Solving a word problem using a quadratic equation with irrational roots
alge994 Graphically solving a system of linear and quadratic equations
alge995 Solving a system of linear and quadratic equations
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

Radicals

alge213 Domain of a square root function
pcalc781 Graphing a square root function
arith016 Square root of a perfect square
arith002 Estimating a square root
arith001 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
arith039 Square root addition or subtraction
alge094 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
alge058 Rationalizing the denominator of a radical expression using conjugates
alge099 Solving a radical equation that simplifies to one linear equation: One radical, basic
alge090 Solving a radical equation that simplifies to one linear equation: Two radicals
alge091 Solving a radical equation that simplifies to a quadratic equation: One radical
geom044 Pythagorean Theorem
alge132 Distance between two points in the plane
alge191 Midpoint of a line segment in the plane
pcalc699 Sine, cosine, and tangent ratios: Numbers for side lengths
pcalc606 Using the Pythagorean Theorem to find a trigonometric ratio
pcalc616 Using a calculator to approximate sine, cosine, and tangent values
pcalc607 Using a trigonometric ratio to find a side length in a right triangle
pcalc610 Using trigonometry to find distances
pcalc608 Using a trigonometric ratio to find an angle measure in a right triangle
pcalc611 Using trigonometry to find angles of elevation or depression
pcalc642 Solving a right triangle

Rational Expressions

alge049 Restriction on a variable in a denominator: Linear
alge715 Domain of a rational function
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
alge053 Multiplying rational expressions involving multivariate monomials
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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
alge767 Complex fraction: GCF and quadratic factoring
alge768 Complex fraction made of sums involving rational expressions
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
alge902 Identifying direct and inverse variation from ordered pairs and writing equations
alge903 Identifying direct and inverse variation equations
alge905 Writing an inverse variation equation
alge176 Word problem on inverse variation
alge220 Word problem on inverse proportions
pcalc789 Finding the asymptotes of a rational function: Basic
pcalc108 Graphing a rational function: Problem type 1

Data Analysis and Probability

mstat037 Constructing a line plot
mstat004 Constructing a histogram for numerical data
mstat024 Interpreting a bar graph
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
geom814 Angle measure in a circle graph
mstat031 Interpreting a stem-and-leaf plot
mstat027 Using back-to-back stem-and-leaf plots to compare data sets
mstat006 Constructing a box-and-whisker plot
mstat073 Using box-and-whisker plots to compare data sets
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
mstat066 Weighted 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
mstat025 Finding if a question can be answered by the data
mstat049 Computing a percentage from a table of values
stat020 Calculating relative frequencies in a contingency table
stat805 Making a reasonable inference based on proportion statistics
stat009 Percentiles
mstat072 Five-number summary and interquartile range
stat021 Population standard deviation
mstat042 Interpreting a Venn diagram of 2 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
mstat009 Word problem involving permutations
mstat009 Word problem involving combinations
stat790 Permutations, combinations, and the multiplication principle for counting
mstat026 Introduction to the probability of an event
mstat010 Probability of an event
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

B.27 CA Algebra 1

Arithmetic Readiness

arith078 Rounding to tens or hundreds
arith123 Rounding to hundreds or thousands
arith101 Estimating a sum of whole numbers
arith233 Introduction to exponents
arith692 Writing expressions using 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
alge731 Evaluating an algebraic expression: Whole numbers with two operations
alge832 Evaluating an algebraic expression: Whole number operations and exponents
arith056 Factors
arith034 Prime numbers
arith035 Prime factorization
arith033 Greatest common factor of 2 numbers
arith070 Least common multiple of 2 numbers
arith240 Word problem with common multiples
arith122 Equivalent fractions
arith067 Simplifying a fraction
arith092 Using a common denominator to order fractions
arith618 Addition or subtraction of fractions with the same denominator
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
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
arith088 The reciprocal of a number
arith022 Fraction division
arith069 Mixed arithmetic operations with fractions
arith095 Multi-step word problem involving fractions and multiplication
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
arith068 Ordering decimals
arith09 Ordering fractions and decimals
arith222 Converting a fraction to a terminating decimal
arith089 Converting a fraction to a repeating decimal
arith087 Converting a decimal to a proper fraction in simplest form: Advanced
arith624 Addition of aligned decimals
arith625 Subtraction of aligned decimals
arith131 Estimating a decimal sum or difference
arith017 Multiplication of a decimal by a whole number
arith082 Multiplication of a decimal by a power of ten
arith055 Decimal multiplication: Problem type 1
arith081 Division of a decimal by a whole number
arith083 Division of a decimal by a power of ten
arith019 Division of a decimal by a 2-digit decimal
arith026 Word problem with one decimal operation: Problem type 1
arith027 Word problem with one decimal operation: Problem type 2
arith028 Word problem with multiple decimal operations: Problem type 1
geom339 Perimeter of a polygon
geom030 Perimeter of a square or a rectangle
geom019 Area of a square or a rectangle
geom221 Finding the missing length in a figure
geom340 Area of a piecewise rectangular figure
geom142 Word problem involving the area between two rectangles
geom081 Area of a triangle
geom02 Area of a parallelogram
geom023 Area of a trapezoid
geom016 Circumference of a circle
geom301 Perimeter involving rectangles and circles
geom038 Circumference ratios
geom002 Circumference and area of a circle
geom002 Area involving rectangles and circles
geom036 Word problem involving the area between two concentric circles
geom014 Area involving inscribed figures
geom031 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
geom042 Surface area of a sphere
geom031 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
geom086 Volume of a cone: Exact answers in terms of pi
geom081 Volume of a sphere
geom039 Finding supplementary and complementary angles

Real Numbers
APPENDIX B. PROGRAMS IN ALEKS

alge001 Identifying numbers as integers or non-integers
alge002 Identifying numbers as rational or irrational
mstat038 Reading the temperature from a thermometer
arith699 Writing a signed number for a real-world situation
alge286 Plotting integers on a number line
arith687 Fractional position on a number line
arith605 Plotting rational numbers on a number line
arith691 Ordering integers
arith712 Ordering real numbers
arith200 Integer addition: Problem type 1
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
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
arith600 Multiplication of 3 or 4 integers
arith822 Signed fraction multiplication: Basic
arith105 Signed fraction multiplication: Advanced
alge984 Classifying sums and products as rational or irrational
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
arith71 Absolute value of a number
arith104 Operations with absolute value: Problem type 2
geom525 Computing distances between decimals on the number line
arith187 Properties of addition
alge188 Properties of real numbers
arith657 Understanding the distributive property
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

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
alge266 Additive property of equality with a negative coefficient
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
alge912 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 two distributions
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
alge810 Introduction to algebraic symbol manipulation
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
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
alge730 Writing a multi-step equation for a real-world situation
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
alge794 Solving a value mixture problem using a linear equation
alge795 Solving a percent 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
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
geom137 Finding the perimeter or area of a rectangle given one of these values
geom337 Indirect measurement
geom001 Finding an angle measure of a triangle given two angles
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
arith663 Writing ratios for real-world situations
alge272 Solving a proportion of the form $\frac{x}{a} = \frac{b}{c}$
alge840 Solving a proportion of the form $(x+a)/b = c/d$
alge271 Solving a proportion of the form $a/(x+b) = c/x$
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
geom037 Similar polygons
geom038 Similar right triangles
geom337 Indirect measurement
arith226 Converting between percentages and decimals
arith690 Converting a percentage to a fraction in simplest form
arith002 Converting a fraction to a percentage: Denominator of 20, 25, or 50
APPENDIX B. PROGRAMS IN ALEKS

arith069 Writing a ratio as a percentage without a calculator
arith030 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
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
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
mstat065 Converting between temperatures in Fahrenheit and Celsius
unit052 Finding the absolute error and percent error of a measurement
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

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
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
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
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: Problem type 1
alge861 Solving a compound linear inequality: Problem type 2
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
alge943 Writing an absolute value inequality given a graph on the number line
alge868 Solving an absolute value inequality: Problem type 1
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

Functions and Lines
set001 Set builder notation
set002 Union and intersection of finite sets
fun001 Table for a linear function
calc760 Evaluating functions: Linear and quadratic or cubic
fun033 Variable expressions as inputs of functions
fun016 Domain and range from ordered pairs
alge896 Graphing an integer function and finding its range for a given domain
fun032 Identifying functions from relations
fun010 Vertical line test
calc761 Finding inputs and outputs of a function from its graph
alge999 Finding where a function is increasing, decreasing, or constant given the graph
calc752 Finding local maxima and minima of a function given the graph
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
alge716 Introduction to the composition of two functions
fun012 Inverse functions: Problem type 1
alge064 Reading a point in the coordinate plane
alge067 Plotting a point in the coordinate plane
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
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
alge197 Graphing a line given its \( x \)- and \( y \)-intercepts
alge881 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
alge876 Identifying linear equations: Advanced
alge874 Identifying linear functions given ordered pairs
alge891 Rewriting a linear equation in the form \( Ax + By = C \)
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
alge888 Finding the coordinate that yields a given slope
alge889 Finding the slope and \( y \)-intercept of a line given its equation in the form \( y = mx + b \)
alge880 Finding the slope and \( y \)-intercept of a line given its equation in the form \( Ax + By = C \)
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
alge701 Writing an equation and drawing its graph to model a real-world situation: Advanced
mstat052 Identifying independent and dependent variables from equations or real-world situations
alge990 Domain and range of a linear function that models a real-world situation
alge989 Interpreting the parameters of a linear function that models a real-world situation
alge992 Combining functions to write a new function that models a real-world situation
alge987 Comparing properties of linear functions given in different forms
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
alge895 Identifying parallel and perpendicular lines from equations
geom007 Finding slopes of lines parallel and perpendicular to a line given in the form \( Ax + By = C \)
geom008 Writing equations of lines parallel and perpendicular to a given line through a point
APPENDIX B. PROGRAMS IN ALEKS

alge991 Solving a linear equation by graphing
mstat051 Choosing a graph to fit a narrative: Advanced
alge828 Interpreting direct variation from a graph
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
alge925 Finding the next terms of an arithmetic sequence with whole numbers
alge906 Finding the next terms of an arithmetic sequence with integers
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
alge909 Writing an explicit rule for an arithmetic sequence
alge908 Finding the first terms of a sequence using a recursive rule
alge910 Writing a recursive rule for an arithmetic sequence
mstat023 Scatter plots and correlation
mstat030 Sketching the line of best fit
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
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 \( y = ax^3 \)
fund030 Evaluating a piecewise-defined function
fund031 Graphing a piecewise-defined function

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 system of linear equations that is inconsistent or consistent dependent
alge753 Solving a system of 3 linear equations in 3 unknowns
alge988 Identifying the operations used to create equivalent systems of 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
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
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
Exponents

alge790 Evaluating expressions with exponents of zero
arith684 Power of 10: Negative exponent
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
alge821 Understanding the product rule of exponents
alge024 Introduction to the product rule of exponents
alge961 Introduction to the product rule with negative exponents
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
alge926 Quotient rule with negative exponents: Problem type 2
alge826 Understanding the power rules of exponents
alge754 Introduction to the power rules of exponents
alge627 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
alge927 Power and quotient rules with positive 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
scinot002 Multiplying and dividing numbers written in scientific notation
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
alge971 Table for an exponential function
alge830 Evaluating an exponential function that models a real-world situation
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
alge301 Solving an exponential equation by finding common bases: Linear exponents
alge177 Finding a final amount in a word problem on exponential growth or decay
alge741 Compound interest
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
alge933 Finding the next terms of a geometric sequence with whole numbers
alge907 Finding the next terms of a geometric sequence with signed numbers
alge981 Identifying arithmetic and geometric sequences
APPENDIX B. PROGRAMS IN ALEKS

alge980 Identifying geometric sequences and finding the common ratio
alge904 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
pcalc713 Arithmetic and geometric sequences: Identifying and writing an explicit rule
alge911 Writing recursive rules for arithmetic and geometric sequences

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
alge855 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
alge632 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
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: 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
alge041 Factoring a product of a quadratic trinomial and a monomial
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
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

Quadratic Functions and Equations

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
alge975 Domain and range from the graph of a parabola
alge976 Range of a quadratic function
alge996 Comparing properties of quadratic functions given in different forms
alge953 Translating the graph of a parabola: One step
alge253 Graphing a parabola of the form $y = (x-a)^2 + c$
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
alge792 Classifying the graph of a function
alge965 Identifying linear, quadratic, and exponential functions given ordered pairs
alge723 How the leading coefficient affects the shape of a parabola
alge185 Writing an equation for a function after a vertical translation
fun020 Writing an equation for a function after a vertical and horizontal translation
pcalc748 Graphing a quadratic inequality: Problem type 1
pcalc749 Graphing a quadratic inequality: Problem type 2
alge957 Solving a quadratic equation by graphing
alge962 Solving an equation of the form $x^2 = a$ using the square root property
alge958 Solving a quadratic equation using the square root property: Problem type 1
alge959 Solving a quadratic equation using the square root property: Problem type 2
alge964 Completing the square
alge960 Solving a quadratic equation by completing the square
alge963 Applying the quadratic formula: Decimal answers
alge995 Applying the quadratic formula: Exact answers
alge214 Discriminant of a quadratic equation
alge524 Solving a word problem using a quadratic equation with irrational roots
alge994 Graphically solving a system of linear and quadratic equations
alge995 Solving a system of linear and quadratic equations
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

Radicals

alge213 Domain of a square root function
pcalc781 Graphing a square root function
arith016 Square root of a perfect square
arith602 Estimating a square root
arith601 Square root of a rational perfect square
arith994 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
alge980 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
APPENDIX B. PROGRAMS IN ALEKS

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
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
geom044 Pythagorean Theorem
alge132 Distance between two points in the plane
alge191 Midpoint of a line segment in the plane
pcalc609 Sine, cosine, and tangent ratios: Numbers for sidelengths
pcalc606 Using the Pythagorean Theorem to find a trigonometric ratio
pcalc616 Using a calculator to approximate sine, cosine, and tangent values
pcalc607 Using a trigonometric ratio to find a side length in a right triangle
pcalc610 Using trigonometry to find distances
pcalc608 Using a trigonometric ratio to find an angle measure in a right triangle
pcalc611 Using trigonometry to find angles of elevation or depression
pcalc642 Solving a right triangle

Rational Expressions

alge049 Restriction on a variable in a denominator: Linear
alge715 Domain of a rational function
alge710 Simplifying a ratio of polynomials: Problem type 1
alge682 Simplifying a ratio of polynomials: Problem type 2
alge634 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
alge662 Adding rational expressions with different denominators: x+a, x+b
alge661 Adding rational expressions involving different quadratic denominators
arith095 Complex fraction without variables: Problem type 1
arith096 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
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
arith12 Word problem involving multiple rates
alge770 Solving a work problem using a rational equation
alge902 Identifying direct and inverse variation from ordered pairs and writing equations
alge903 Identifying direct and inverse variation equations
alge905 Writing an inverse variation equation
alge176 Word problem on inverse variation
Data Analysis and Probability

mstat037 Constructing a line plot
mstat004 Constructing a histogram for numerical data
mstat024 Interpreting a bar graph
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
ggeom814 Angle measure in a circle graph
mstat031 Interpreting a stem-and-leaf plot
mstat027 Using back-to-back stem-and-leaf plots to compare data sets
mstat006 Constructing a box-and-whisker plot
mstat073 Using box-and-whisker plots to compare data sets
mstat003 Mode of a data set
mstat055 Finding the mode and range of a data set
mstat001 Mean of a data set
mstat066 Weighted 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
mstat025 Finding if a question can be answered by the data
mstat049 Computing a percentage from a table of values
stat020 Calculating relative frequencies in a contingency table
stat805 Making a reasonable inference based on proportion statistics
stat009 Percentiles
mstat072 Five-number summary and interquartile range
stat021 Population standard deviation
mstat042 Interpreting a Venn diagram of 2 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
stat790 Permutations, combinations, and the multiplication principle for counting
mstat026 Introduction to the probability of an event
mstat010 Probability of an event
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
APPENDIX B. PROGRAMS IN ALEKS

B.28 Traditional Algebra 1

Arithmetic Readiness

- arith078 Rounding to tens or hundreds
- arith123 Rounding to hundreds or thousands
- arith101 Estimating a sum of whole numbers
- arith233 Introduction to exponents
- arith692 Writing expressions using 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
- alge731 Evaluating an algebraic expression: Whole numbers with two operations
- alge832 Evaluating an algebraic expression: Whole number operations and exponents
- arith056 Factors
- arith034 Prime numbers
- arith035 Prime factorization
- arith033 Greatest common factor of 2 numbers
- arith070 Least common multiple of 2 numbers
- arith240 Word problem with common multiples
- arith212 Equivalent fractions
- arith067 Simplifying a fraction
- arith092 Using a common denominator to order fractions
- arith618 Addition or subtraction of fractions with the same denominator
- 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
- 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
- arith088 The reciprocal of a number
- arith694 Division involving a whole number and a fraction
- arith022 Fraction division
- arith697 Mixed arithmetic operations with fractions
- arith095 Multi-step word problem involving fractions and multiplication
- 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
- arith008 Mixed number division
- arith110 Decimal place value: Tenths and hundredths
- arith221 Rounding decimals
- arith129 Introduction to ordering decimals
- arith608 Ordering decimals
- arith009 Ordering fractions and decimals
- arith222 Converting a fraction to a terminating decimal
- arith089 Converting a fraction to a repeating decimal
- arith087 Converting a decimal to a proper fraction in simplest form: Advanced
- arith624 Addition of aligned decimals
- arith625 Subtraction of aligned decimals
- arith131 Estimating a decimal sum or difference
- arith017 Multiplication of a decimal by a whole number
- arith082 Multiplication of a decimal by a power of ten
- arith055 Decimal multiplication: Problem type 1
- arith081 Division of a decimal by a whole number
arithmetic Division of a decimal by a power of ten
arithmetic Division of a decimal by a 2-digit decimal
arithmetic Word problem with one decimal operation: Problem type 1
arithmetic Word problem with one decimal operation: Problem type 2
arithmetic Word problem with multiple decimal operations: Problem type 1
geometry Perimeter of a polygon
geometry Perimeter of a square or a rectangle
geometry Area of a square or a rectangle
geometry Finding the missing length in a figure
geometry Area of a piecewise rectangular figure
geometry Word problem involving the area between two rectangles
geometry Area of a triangle
geometry Area of a parallelogram
geometry Area of a trapezoid
geometry Circumference of a circle
geometry Perimeter involving rectangles and circles
geometry Circumference and area of a circle
geometry Area involving rectangles and circles
geometry Word problem involving the area between two concentric circles
geometry Area involving inscribed figures
geometry Surface area of a cube or a rectangular prism
geometry Surface area of a triangular prism
geometry Surface area of a cylinder: Exact answers in terms of pi
geometry Surface area of a sphere
geometry Volume of a rectangular prism
geometry Volume of a triangular prism
geometry Volume of a pyramid
geometry Volume of a cylinder
geometry Word problem involving the rate of filling or emptying a cylinder
geometry Volume of a cone: Exact answers in terms of pi
geometry Volume of a sphere
geometry Finding supplementary and complementary angles

Real Numbers

algebra Identifying numbers as integers or non-integers
algebra Identifying numbers as rational or irrational
measurement Reading the temperature from a thermometer
arithmetic Writing a signed number for a real-world situation
algebra Plotting integers on a number line
arithmetic Fractional position on a number line
arithmetic Plotting rational numbers on a number line
arithmetic Ordering integers
arithmetic Ordering real numbers
arithmetic Integer addition: Problem type 1
arithmetic Integer addition: Problem type 2
arithmetic Integer subtraction: Problem type 1
arithmetic Integer subtraction: Problem type 2
arithmetic Integer subtraction: Problem type 3
arithmetic Word problem with addition or subtraction of integers
arithmetic Signed fraction addition or subtraction: Basic
arithmetic Signed fraction addition or subtraction: Advanced
arithmetic Signed decimal addition and subtraction
arithmetic Signed decimal addition and subtraction with 3 numbers
arithmetic Integer multiplication and division
arithmetic Multiplication of 3 or 4 integers
arithmetic Signed fraction multiplication: Basic
arithmetic Signed fraction multiplication: Advanced
algebra Classifying sums and products as rational or irrational
APPENDIX B. PROGRAMS IN ALEKS

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
arith671 Absolute value of a number
arith104 Operations with absolute value: Problem type 2
geom525 Computing distances between decimals on the number line
alge187 Properties of addition
alge188 Properties of real numbers
arith657 Understanding the distributive property
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

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
alge266 Additive property of equality with a negative coefficient
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
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 two distributions
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
alge810 Introduction to algebraic symbol manipulation
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
B.28. TRADITIONAL ALGEBRA 1

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
alge730 Writing a multi-step equation for a real-world situation
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 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
alge795 Solving a percent 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
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
geom530 Solving equations involving vertical angles
geom901 Finding an angle measure of a triangle given two angles
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
arith663 Writing ratios for real-world situations
alge272 Solving a proportion of the form x/a = b/c
alge840 Solving a proportion of the form (x+a)/b = c/d
alge271 Solving a proportion of the form a/(x+b) = c/x
arith64 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
geom805 Similar polygons
geom538 Similar right triangles
geom337 Indirect measurement
arith226 Converting between percentages and decimals
arith090 Converting a percentage to a fraction in simplest form
arith02 Converting a fraction to a percentage: Denominator of 20, 25, or 50
arith069 Writing a ratio as a percentage without a calculator
arith30 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
arith322 Finding simple interest without a calculator
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
mstat065 Converting between temperatures in Fahrenheit and Celsius
unit052 Finding the absolute error and percent error of a measurement
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

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
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
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
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: Problem type 1
alge861 Solving a compound linear inequality: Problem type 2
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
alge943 Writing an absolute value inequality given a graph on the number line
alge868 Solving an absolute value inequality: Problem type 1
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

Functions and Lines

set001 Set builder notation
set002 Union and intersection of finite sets
fun001 Table for a linear function
pcalc760 Evaluating functions: Linear and quadratic or cubic
fun033 Variable expressions as inputs of functions
fun016 Domain and range from ordered pairs
alge896 Graphing an integer function and finding its range for a given domain
fun032 Identifying functions from relations
fun010 Vertical line test
pcalc761 Finding inputs and outputs of a function from its graph
alge999 Finding where a function is increasing, decreasing, or constant given the graph
pcalc752 Finding local maxima and minima of a function given the graph
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
alge716 Introduction to the composition of two functions
fun012 Inverse functions: Problem type 1
alg064 Reading a point in the coordinate plane
alg067 Plotting a point in the coordinate plane
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
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
alge197 Graphing a line given its x- and y-intercepts
alge881 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
alge876 Identifying linear equations: Advanced
alge874 Identifying linear functions given ordered pairs
alge891 Rewriting a linear equation in the form Ax + By = C
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
alge888 Finding the coordinate that yields 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
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
alge701 Writing an equation and drawing its graph to model a real-world situation: Advanced
mstat052 Identifying independent and dependent variables from equations or real-world situations
alge990 Domain and range of a linear function that models a real-world situation
alge992 Combining functions to write a new function that models a real-world situation
alge987 Comparing properties of linear functions given in different forms
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
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
alge991 Solving a linear equation by graphing
mstat051 Choosing a graph to fit a narrative: Advanced
alge828 Interpreting direct variation from a graph
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
alge925 Finding the next terms of an arithmetic sequence with whole numbers
alge906 Finding the next terms of an arithmetic sequence with integers
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
alge969 Writing an explicit rule for an arithmetic sequence
alge908 Finding the first terms of a sequence using a recursive rule
alge910 Writing a recursive rule for an arithmetic sequence
mstat024 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
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
APPENDIX B. PROGRAMS IN ALEKS

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
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
fun030 Evaluating a piecewise-defined function
fun031 Graphing a piecewise-defined function

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 system of linear equations that is inconsistent or consistent dependent
alge753 Solving a system of 3 linear equations in 3 unknowns
alge988 Identifying the operations used to create equivalent systems of 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
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
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
pcalc037 Scalar multiplication of a matrix
pcalc038 Addition or subtraction of matrices
pcalc740 Linear combination of matrices
pcalc712 Gauss-Jordan elimination with a 2x2 matrix

Exponents

alge790 Evaluating expressions with exponents of zero
arith684 Power of 10: Negative exponent
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
alge821 Understanding the product rule of exponents
alge024 Introduction to the product rule of exponents
alge030 Product rule with positive exponents: Multivariate
alge961 Introduction to the product rule with negative exponents
Exercise 28. TRADITIONAL ALGEBRA 1

* 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
* alge926 Quotient rule with negative exponents: Problem type 2
* alge826 Understanding the power rules of exponents
* alge754 Introduction to the power rules of exponents
* alge627 Power rules with positive exponents
* alge925 Power of a power rule with negative exponents
* alge799 Power rules with negative exponents
* alge756 Power and product rules with positive exponents
* alge927 Power and quotient rules with positive 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
* scinot002 Multiplying and dividing numbers written in scientific notation
* 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
* alge971 Table for an exponential function
* alge830 Evaluating an exponential function that models a real-world situation
* 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
* alge301 Solving an exponential equation by finding common bases: Linear exponents
* alge177 Finding a final amount in a word problem on exponential growth or decay
* alge741 Compound interest
* 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
* alge967 Finding the next terms of a geometric sequence with whole numbers
* alge907 Finding the next terms of a geometric sequence given the first terms
* pcalf086 Finding a specified term of a geometric sequence given the first terms
* pcalf713 Arithmetic and geometric sequences: Identifying and writing an explicit rule
* alge911 Writing recursive rules for arithmetic and geometric sequences

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
* alge633 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
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
alge765 Introduction to the GCF of two monomials
alge037 Greatest common factor of two multivariate monomials
alge930 Greatest common factor of three univariate monomials
alge736 Introduction to the GCF of two monomials
alge949 Factoring out a binomial from a polynomial: 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
alge041 Factoring a product of a quadratic trinomial and a monomial
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 polynomial involving a GCF and a difference of squares: Univariate
alge833 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
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

**Quadratic Functions and Equations**

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
alge975 Domain and range from the graph of a parabola
alge976 Range of a quadratic function
alge996 Comparing properties of quadratic functions given in different forms
alge953 Translating the graph of a parabola: One step
alge253 Graphing a parabola of the form y = (x-a)^2 + 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
B.28. TRADITIONAL ALGEBRA 1

alge702 Classifying the graph of a function
alge965 Identifying linear, quadratic, and exponential functions given ordered pairs
alge723 How the leading coefficient affects the shape of a parabola
alge185 Writing an equation for a function after a vertical translation
fun020 Writing an equation for a function after a vertical and horizontal translation
pcalc748 Graphing a quadratic inequality: Problem type 1
pcalc749 Graphing a quadratic inequality: Problem type 2
alge957 Solving a quadratic equation by graphing
alge962 Solving an equation of the form \(x^2 = a\) using the square root property
alge958 Solving a quadratic equation using the square root property: Problem type 1
alge959 Solving a quadratic equation using the square root property: Problem type 2
alge994 Completing the square
alge960 Solving a quadratic equation by completing the square
alge963 Applying the quadratic formula: Decimal answers
alge995 Applying the quadratic formula: Exact answers
alge213 Discriminant of a quadratic equation
alge954 Graphically solving a system of linear and quadratic equations
alge995 Solving a system of linear and quadratic equations
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

Radicals

alge213 Domain of a square root function
pcalc781 Graphing a square root function
arith016 Square root of a perfect square
arith062 Estimating a square root
arith061 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
arith094 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
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
geom044 Pythagorean Theorem
alge132 Distance between two points in the plane
alge191 Midpoint of a line segment in the plane
pcalc609 Sine, cosine, and tangent ratios: Numbers for side lengths
pcalc606 Using the Pythagorean Theorem to find a trigonometric ratio
pcalc616 Using a calculator to approximate sine, cosine, and tangent values
pcalc607 Using a trigonometric ratio to find a side length in a right triangle
pcalc610 Using trigonometry to find distances
pcalc608 Using a trigonometric ratio to find an angle measure in a right triangle
pcalc611 Using trigonometry to find angles of elevation or depression
pcalc642 Solving a right triangle

Rational Expressions
APPENDIX B. PROGRAMS IN ALEKS

alge049 Restriction on a variable in a denominator: Linear
alge715 Domain of a rational function
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
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
alge747 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
alge767 Complex fraction: GCF and quadratic factoring
alge768 Complex fraction made of sums involving rational expressions
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
alge902 Identifying direct and inverse variation from ordered pairs and writing equations
alge903 Identifying direct and inverse variation equations
alge905 Writing an inverse variation equation
alge176 Word problem on inverse variation
alge177 Word problem on inverse proportions
pcalc789 Finding the asymptotes of a rational function: Basic
pcalc108 Graphing a rational function: Problem type 1

Data Analysis and Probability

mstat037 Constructing a line plot
mstat004 Constructing a histogram for numerical data
mstat024 Interpreting a bar graph
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
geomb814 Angle measure in a circle graph
mstat031 Interpreting a stem-and-leaf plot
mstat027 Using back-to-back stem-and-leaf plots to compare data sets
mstat006 Constructing a box-and-whisker plot
mstat073 Using box-and-whisker plots to compare data sets
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
mstat066 Weighted 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
B.29. H.S. GEOMETRY

mstat025 Finding if a question can be answered by the data
mstat049 Computing a percentage from a table of values
stat020 Calculating relative frequencies in a contingency table
stat805 Making a reasonable inference based on proportion statistics
stat009 Percentiles
mstat072 Five-number summary and interquartile range
stat021 Population standard deviation
mstat042 Interpreting a Venn diagram of 2 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
stat790 Permutations, combinations, and the multiplication principle for counting
mstat026 Introduction to the probability of an event
mstat010 Probability of an event
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

B.29 H.S. Geometry

Algebra and Deductive Reasoning

arith048 Order of operations with whole numbers
arith051 Order of operations with whole numbers and grouping symbols
arith056 Factors
arith070 Least common multiple of 2 numbers
alge807 Finding the next terms of a sequence with whole numbers
arith212 Equivalent fractions
arith067 Simplifying a fraction
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
arith663 Writing ratios for real-world situations
arith015 Writing an improper fraction as a mixed number
arith220 Decimal place value: Hundreds to ten thousandths
arith221 Rounding decimals
arith030 Finding a percentage of a whole number without a calculator: Basic
arith200 Integer addition: Problem type 1
arith108 Integer addition: Problem type 2
arith107 Integer subtraction
arith231 Integer multiplication and division
arith071 Absolute value of a number
alge005 Evaluating a linear expression: Integer multiplication with addition or subtraction
alge004 Evaluating a quadratic expression: Integers
alge016 Translating a sentence into a one-step equation
alge606 Distributive property: Whole number coefficients
alge607 Combining like terms: Integer coefficients
alge007 Additive property of equality: Problem type 3
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
alge011 Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
alge019 Solving a linear inequality: Problem type 1
alge017 Graphing a linear inequality on the number line
alge166 Graphing a compound inequality on the number line
alge060 Solving a rational equation that simplifies to linear: Denominator x
alge272 Solving a proportion of the form x/a = b/c
alge271 Solving a proportion of the form a/(x+b) = c/x
arith047 Evaluating expressions with exponents: Problem type 1
arith016 Square root of a perfect square
arith093 Simplifying the square root of a whole number less than 100
alge086 Rationalizing the denominator of a radical expression
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

Lines and Angles

geom349 Naming segments, rays, and lines
mstat034 Measuring length to the nearest quarter or half inch
geom25 Computing distances between decimals on the number line
geom26 Midpoint of a number line segment
geom21 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
geom39 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 Angles and parallel lines
geom159 Constructing congruent angles
geom158 Constructing an angle bisector
geom850 Introduction to angle addition
geom851 Angle addition and angle bisectors
geom611 Proofs involving angle congruence

Triangles

geom306 Acute, obtuse, and right triangles
geom307 Scalene, isosceles, and equilateral triangles
geom801 Area of a triangle
B.29. H.S. GEOMETRY

gem001 Finding an angle measure of a triangle given two angles
gem081 Finding an angle measure given extended triangles
gem083 Finding an angle measure given a triangle and parallel lines
gem052 Finding angle measures of a right or isosceles triangle given angles with variables
gem088 Finding an angle measure for a triangle with an extended side
gem099 Finding an angle measure for a triangle sharing a side with another triangle
gem444 Triangle inequality: Problem type 1
gem445 Triangle inequality: Problem type 2
gem854 Relationship between angle measures and side lengths in a triangle: Problem type 1
gem855 Relationship between angle measures and side lengths in a triangle: Problem type 2
gem450 Indirect proof (proof by contradiction)
gem520 Identifying and naming congruent triangles
gem467 Proofs involving congruent triangles: Problem type 1
gem487 Proofs involving congruent triangles: Problem type 2
gem484 Proofs involving congruent triangles: Problem type 3
gem489 Proofs involving congruent triangles: Problem type 4
gem494 Proofs involving congruent triangles: Problem type 5
gem444 Pythagorean Theorem
gem468 Computing an area using the Pythagorean Theorem
gem406 Special right triangles
gem212 Circles inscribed in and circumscribed about regular polygons
pcalc600 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 distances
pcalc608 Using a trigonometric ratio to find an angle measure in a right triangle
pcalc611 Using trigonometry to find angles of elevation or depression
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

Polgons and Circles

gem310 Classifying quadrilaterals
gem523 Classifying quadrilaterals: Advanced problem
gem532 Classifying parallelograms
gem528 Properties of parallelograms: Problem type 1
gem527 Properties of parallelograms: Problem type 2
gem433 Properties of rectangles
gem434 Properties of rhombi
gem452 The sum of interior angle measures in a convex polygon
gem453 Interior and exterior angle measures in a regular polygon
gem239 Perimeter of a polygon
gem400 Perimeter of a square or a rectangle
gem4538 Perimeter of a piecewise rectangular figure
gem407 Sides of polygons having the same perimeter
gem487 Finding a side length given the perimeter and side lengths with variables
gem419 Area of a square or a rectangle
gem450 Distinguishing between area and perimeter
gem435 Areas of rectangles with the same perimeter
gem440 Area of a piecewise rectangular figure
gem427 Finding the side length of a rectangle given its perimeter or area
gem413 Finding the perimeter or area of a rectangle given one of these values
gem422 Area of a parallelogram
gem423 Area of a trapezoid
gem42 Word problem involving the area between two rectangles
gem434 Area involving rectangles and triangles
gem425 Area of a regular polygon
gem437 Introduction to a circle: Diameter, radius, and chord
gem434 Identifying central angles, inscribed angles, arcs, chords, and tangents of a circle
gem448 Tangents of a circle: Problem type 1
APPENDIX B. PROGRAMS IN ALEKS

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
geom306 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
geom383 Similar polygons
geom510 Triangles and parallel lines
geom513 Similar right triangles
geom507 Right triangles and geometric mean
geom337 Indirect measurement
geom846 Similar solids: Problem type 1
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
geom334 Drawing lines of symmetry
geom335 Rotating a figure about the origin
geom815 Finding an angle of rotation
geom331 Rotational and point symmetries
geom336 Dilating a figure

Volumes and Surface Areas

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
geom935 Volume of a cylinder
geom896 Volume of a cone: Exact answers in terms of pi
geom841 Volume of a sphere
geom692 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
geom91 Surface area of a triangular prism
geom034 Surface area of a cylinder: Exact answers in terms of pi
B.30 INTEGRATED MATHEMATICS I

Coordinate Geometry

geom338 Surface area involving prisms or cylinders
geom842 Surface area of a sphere

Arithmetic Readiness

arith123 Rounding to hundreds or thousands
arith233 Introduction to exponents
arith692 Writing expressions using 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
alge731 Evaluating an algebraic expression: Whole numbers with two operations
arith658 Filling in missing operations to make an equation
arith656 Factors
arith634 Prime numbers
arith635 Prime factorization
arith633 Greatest common factor of 2 numbers
arith670 Least common multiple of 2 numbers
arith663 Writing ratios for real-world situations
arith064 Solving a word problem on proportions using a unit rate
arith212 Equivalent fractions
arith067 Simplifying a fraction
arith092 Using a common denominator to order fractions
arith068 Addition or subtraction of fractions with the same denominator
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
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
arith22 Fraction division
arith697 Mixed arithmetic operations with fractions
arith015 Writing an improper fraction as a mixed number
arith619 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
arith020 Mixed number multiplication: Problem type 1
arith068 Mixed number division
arith110 Decimal place value: Tenths and hundredths
arith220 Decimal place value: Hundreds to ten thousandths
arith221 Rounding decimals
arith608 Ordering decimals
arith090 Ordering fractions and 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
arith013 Decimal addition with 3 numbers
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
arith017 Multiplication of a decimal by a whole number
arith082 Multiplication of a decimal by a power of ten
arith055 Decimal multiplication: Problem type 1
arith081 Division of a decimal by a whole number
arith083 Division of a decimal by a power of ten
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
arith609 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
arith698 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
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
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
unit034 Converting between metric and U.S. Customary unit systems
unit035 Converting between compound units: Basic
unit036 Converting between compound units: Advanced
mstat065 Converting between temperatures in Fahrenheit and Celsius

Real Numbers

arith699 Writing a signed number for a real-world situation
mstat038 Reading the temperature from a thermometer
alge286 Plotting integers on a number line
arith691 Ordering integers
arith687 Fractional position on a number line
arith605 Plotting rational numbers on a number line
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
arith116 Signed fraction addition or subtraction: Basic
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
arith822 Signed fraction multiplication: Basic
arith118 Order of operations with integers
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
arith657 Understanding the distributive property
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
alge187 Properties of addition
alge188 Properties of real numbers

Linear Equations and Inequalities

alge009 Additive property of equality with whole numbers
alge800 Additive property of equality with decimals
alge010 Additive property of equality with integers
alge266 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
alge740 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
APPENDIX B. PROGRAMS IN ALEKS

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
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
alge810 Introduction to algebraic symbol manipulation
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
alge602 Writing a one-step variable expression for a real-world situation
alge291 Translating a phrase into a two-step expression
alge016 Translating a sentence into a one-step equation
alge730 Writing a multi-step equation for a real-world situation
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
alge794 Solving a value mixture problem using a linear equation
alge795 Solving a percent 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
alge015 Translating a sentence by using an inequality symbol
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
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
alge745 Solving a linear inequality: Problem type 5
alge746 Solving a compound linear inequality: Problem type 1
alge748 Writing an 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 $-ax + b - = c$
alge170 Solving an absolute value inequality: Basic

Lines and Systems 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
alge850 Table for a linear equation
alge850 Table for a linear equation
alge850 Table for a linear equation
alge806 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
Exponents, Polynomials, and Quadratics

alge790 Evaluating expressions with exponents of zero
arith684 Power of 10: Negative exponent
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
alge821 Understanding the product rule of exponents
alge624 Introduction to the product rule of exponents
alge630 Product rule with positive exponents: Multivariate
alge628 Product rule with negative exponents
alge627 Introduction to the quotient rule of exponents
alge626 Quotient of expressions involving exponents
alge755 Quotient rule with negative exponents: Problem type 1
alge826 Understanding the power rules of exponents
alge754 Introduction to the power rules of exponents
alge637 Power rules with positive exponents
alge625 Power of a power rule with negative exponents
alge799 Power rules with negative exponents
alge756 Power and product rules with positive exponents
arith029 Ordering numbers with positive exponents
arith030 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
alge798 Simplifying a sum or difference of two 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
alge765 Multiplying binomials in two variables
alge032 Squaring a binomial: Univariate
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
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
alge039 Factoring a quadratic with leading coefficient 1
alge043 Factoring a perfect square trinomial
alge040 Factoring a quadratic with leading coefficient greater than 1
alge265 Factoring a quadratic in two variables 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
alge181 Factoring a polynomial by grouping: Problem type 2
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
alge092 Solving a quadratic equation using the square root property: Problem type 1
alge227 Solving a quadratic equation using the square root property: Problem type 2
alge094 Completing the square
alge780 Solving a quadratic equation by completing the square
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
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
alge252 Graphing a parabola of the form $y = ax^2$
alge253 Graphing a parabola of the form $y = (x-a)^2 + c$
pcalc746 Graphing a parabola of the form $y = ax^2 + bx + c$: Integer coefficients
alge702 Classifying the graph of a function
alge723 How the leading coefficient affects the shape of a parabola

Functions and Sequences

set004 Set builder and interval notation
fun001 Table for a linear function
pcalc760 Evaluating functions: Linear and quadratic or cubic
fun033 Variable expressions as inputs of functions
fun032 Identifying functions from relations
fun010 Vertical line test
fun016 Domain and range from ordered pairs
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
mstat052 Identifying independent and dependent variables from equations or real-world situations
pcalc768 Finding the average rate of change of a function
fun019 Sum, difference, and product of two functions
fun022 Composition of two functions: Basic
fun002 Graphing integer functions
pcalc761 Finding inputs and outputs of a function from its graph
pcalc750 Finding intercepts of a nonlinear function given its graph
pcalc772 Transforming the graph of a function by shrinking or stretching
alg262 Graphing a cubic function of the form \( y = ax^3 \)
alg168 Graphing an absolute value equation in the plane: Advanced
alg712 Graphing an exponential function and its asymptote: \( f(x) = a(b)x \)
mstat051 Choosing a graph to fit a narrative: Advanced
fun015 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
alg262 Translating the graph of a function by shrinking or stretching
alg168 Graphing a cubic function of the form \( y = ax^3 \)
alg168 Graphing an absolute value equation in the plane: Advanced
alg172 Graphing an exponential function and its asymptote: \( f(x) = a(b)x \)
mstat051 Choosing a graph to fit a narrative: Advanced
fun015 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
alg262 Graphing a cubic function of the form \( y = ax^3 \)
alg168 Graphing an absolute value equation in the plane: Advanced
alg712 Graphing an exponential function and its asymptote: \( f(x) = a(b)x \)
mstat051 Choosing a graph to fit a narrative: Advanced
alg005 Domain of a rational function
alg010 Simplifying a ratio of polynomials: Problem type 1
alg032 Simplifying a ratio of polynomials: Problem type 2
alg053 Multiplying rational expressions involving multivariate monomials
alg620 Multiplying rational expressions involving quadratics with leading coefficients of 1
alg054 Dividing rational expressions involving multivariate monomials
alg766 Dividing rational expressions involving quadratics with leading coefficients of 1
alg767 Introduction to the LCM of two monomials
alg055 Least common multiple of two monomials
alg056 Adding rational expressions with common denominators and binomial numerators
alg057 Adding rational expressions with different denominators: \( ax, bx \)
alg022 Adding rational expressions with multivariate monomial denominators: Advanced
alg062 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
alg058 Complex fraction involving multivariate monomials
alg678 Complex fraction: GCF and quadratic factoring
alg769 Complex fraction made of sums involving rational expressions
alg272 Solving a proportion of the form \( x/a = b/c \)
alge271 Solving a proportion of the form \( a/(x+b) = c/x \)
alge060 Solving a rational equation that simplifies to linear: Denominator \( x \)
alge265 Solving a rational equation that simplifies to linear: Denominator \( x+a \)
alge206 Solving a rational equation that simplifies to linear: Unlike binomial denominators
alg769 Solving a rational equation that simplifies to linear: Denominator \( x+a \)
alge212 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
pcalc789 Finding the asymptotes of a rational function: Basic
pcalc108 Graphing a rational function: Problem type 1
arith610 Word problem on proportions: Problem type 1
arith611 Word problem on proportions: Problem type 2
arith612 Word problem involving multiple rates
alge770 Solving a work problem using a rational equation
alge220 Word problem on inverse proportions
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
alge213 Domain of a square root function
pcalc781 Graphing a square root function
arith616 Square root of a perfect square
arith602 Estimating a square root
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
arith632 Square root addition or subtraction
arith639 Square root multiplication: Advanced
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
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
alge182 Solving a radical equation that simplifies to a quadratic equation: Two radicals

Perimeter, Area, and Volume

ggeom300 Perimeter of a square or a rectangle
ggeom339 Perimeter of a polygon
ggeom221 Finding the missing length in a figure
ggeom353 Perimeter of a piecewise rectangular figure
ggeom817 Finding a side length given the perimeter and side lengths with variables
ggeom078 Sides of polygons having the same perimeter
ggeom019 Area of a square or a rectangle
ggeom350 Distinguishing between area and perimeter
ggeom351 Areas of rectangles with the same perimeter
ggeom340 Area of a piecewise rectangular figure
ggeom142 Word problem involving the area between two rectangles
ggeom217 Finding the side length of a rectangle given its perimeter or area
ggeom143 Finding the perimeter or area of a rectangle given one of these values
ggeom801 Area of a triangle
ggeom022 Area of a parallelogram
ggeom023 Area of a trapezoid
ggeom344 Area involving rectangles and triangles
ggeom213 Area of a regular polygon
ggeom352 Area of quadrilaterals in the coordinate plane
ggeom724 Finding an area in terms of variables
ggeom016 Circumference of a circle
geom218 Finding the radius or the diameter of a circle given its circumference
geom301 Perimeter involving rectangles and circles
geom838 Circumference ratios
geom802 Circumference and area of a circle
geom805 Arc length and area of a sector of a circle
geom302 Area involving rectangles and circles
geom836 Word problem involving the area between two concentric circles
geom214 Area involving inscribed figures
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
geom886 Volume of a cone: Exact answers in terms of pi
geom841 Volume of a sphere
geom219 Nets of solids
geom861 Nets of solids: Advanced
geom348 Vertices, edges, and faces of a solid
geom816 Side views of a solid made of cubes
geom831 Surface area of a cube or a rectangular prism
geom835 Surface area of a piecewise rectangular prism made of unit cubes
geom891 Surface area of a triangular prism
geom834 Surface area of a cylinder: Exact answers in terms of pi
geom842 Surface area of a sphere
geom338 Surface area involving prisms or cylinders

Lines, Angles, and Triangles

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
geom349 Naming segments, rays, and lines
geom525 Computing distances between decimals on the number line
geom526 Midpoint of a number line segment
geom521 Segment addition and midpoints
geom816 Introduction to proofs: Justifying statements
geom614 Proofs involving segment congruence
geom358 Identifying parallel and perpendicular lines
geom835 Introduction to proofs involving parallel lines
geom836 Proofs involving parallel lines
geom154 Constructing the perpendicular bisector of a line segment
geom150 Constructing a pair of perpendicular lines
geom157 Constructing a pair of parallel 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
geom304 Identifying corresponding and alternate angles
geom305 Identifying supplementary and vertical angles
geom530 Solving equations involving vertical angles
geom531 Solving equations involving angles and parallel lines
geom850 Introduction to angle addition
geom851 Angle addition and angle bisectors
geom611 Proofs involving angle congruence
geom159 Constructing congruent angles
geom158 Constructing an angle bisector
geom306 Acute, obtuse, and right triangles
geom307 Scalene, isosceles, and equilateral triangles
geom001 Finding an angle measure of a triangle given two angles
geom812 Finding an angle measure given extended triangles
geom813 Finding an angle measure given a triangle and parallel lines
geom908 Finding an angle measure for a triangle with an extended side
geom909 Finding an angle measure for a triangle sharing a side with another triangle
geom902 Finding angle measures of a right or isosceles triangle given angles with variables
geom844 Triangle inequality: Problem type 1
geom845 Triangle inequality: Problem type 2
geom854 Relationship between angle measures and side lengths in a triangle: Problem type 1
geom855 Relationship between angle measures and side lengths in a triangle: Problem type 2
geom044 Pythagorean Theorem
geom068 Computing an area using the Pythagorean Theorem
geom506 Special right triangles
geom212 Circles inscribed in and circumscribed about regular polygons
geom520 Identifying and naming congruent triangles
geom617 Proofs involving congruent triangles: Problem type 1
geom837 Proofs involving congruent triangles: Problem type 2
geom839 Proofs involving congruent triangles: Problem type 4
geom843 Proofs involving congruent triangles: Problem type 5
geom850 Indirect proof (proof by contradiction)
pcalc600 Sine, cosine, and tangent ratios: Variables for side lengths
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 distances
pcalc608 Using a trigonometric ratio to find an angle measure in a right triangle
pcalc611 Using trigonometry to find angles of elevation or depression
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
pcalc6060 Magnitude of a vector
pcalc6063 Translation of a vector
geom858 Scalar multiplication of a vector: Geometric Approach
geom857 Vector addition: Geometric approach
geom586 Vector addition and scalar multiplication
vector008 Linear combination of vectors: Algebraic approach
vector002 Calculating the magnitude and direction of a vector
vector005 Finding the components of a vector

Polygons, Circles, and Similarity

alge191 Midpoint of a line segment in the plane
alge132 Distance between two points in the plane
geom310 Classifying quadrilaterals
geom523 Classifying quadrilaterals: Advanced problem
geom323 Classifying parallelograms
geom528 Properties of parallelograms: Problem type 1
geom527 Properties of parallelograms: Problem type 2
geom833 Properties of rectangles
geom84 Properties of rhombi
geom870 Sum of the angle measures of a quadrilateral
geom852 The sum of interior angle measures in a convex polygon
geom853 Interior and exterior angle measures in a regular polygon
geom819 Finding coordinates of vertices of polygons
geom818 Finding the coordinates of a point to make a parallelogram
geom863 Congruence in the coordinate plane
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
pcalc605 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
geom359 Identifying congruent shapes on a grid
geom360 Identifying similar or congruent shapes on a grid
geom037 Similar polygons
geom038 Similar right triangles
geom337 Indirect measurement
geom510 Triangles and parallel lines
geom507 Right triangles and geometric mean
geom846 Similar solids: Problem type 1
geom847 Similar solids: Problem type 2
geom357 Identifying transformations
geom330 Translating a polygon
geom332 Reflecting a polygon over a vertical or horizontal line
geom333 Finding the coordinates of three points reflected over an axis
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

**Statistics and Probability**

mstat004 Constructing a histogram for numerical data
mstat005 Constructing a bar graph for non-numerical data
mstat024 Interpreting a bar graph
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
mstat006 Constructing a box-and-whisker plot
mstat031 Interpreting a stem-and-leaf plot
mstat027 Using back-to-back stem-and-leaf plots to compare data sets
geom814 Angle measure in a circle graph
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
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
mstat066 Weighted mean
mstat025 Finding if a question can be answered by the data
stat802 Rejecting unreasonable claims based on average statistics
stat805 Making a reasonable inference based on proportion statistics
stat021 Population standard deviation
mstat041 Interpreting a tree diagram
mstat040 Introduction to the counting principle
mstat015 Counting principle
mstat008 Word problem involving permutations
APPENDIX B. PROGRAMS IN ALEKS

mstat009 Word problem involving combinations
stat790 Permutations, combinations, and the multiplication principle for counting
mstat026 Introduction to the probability of an event
mstat010 Probability of an event
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

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Arithmetic Readiness

arith123 Rounding to hundreds or thousands
arith233 Introduction to exponents
arith692 Writing expressions using 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
alge731 Evaluating an algebraic expression: Whole numbers with two operations
arith658 Filling in missing operations to make an equation
arith056 Factors
arith634 Prime numbers
arith635 Prime factorization
arith633 Greatest common factor of 2 numbers
arith070 Least common multiple of 2 numbers
arith663 Writing ratios for real-world situations
arith064 Solving a word problem on proportions using a unit rate
arith212 Equivalent fractions
arith067 Simplifying a fraction
arith092 Using a common denominator to order fractions
arith618 Addition or subtraction of fractions with the same denominator
arith601 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
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
arith022 Fraction division
arith697 Mixed arithmetic operations with fractions
arith015 Writing an improper fraction as a mixed number
arith619 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
arith020 Mixed number multiplication: Problem type 1
arith068 Mixed number division
arith110 Decimal place value: Tenths and hundredths
arith220 Decimal place value: Hundreds to ten thousandths
arith221 Rounding decimals
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arith608 Ordering decimals
arth609 Ordering fractions and decimals
arth607 Converting a decimal to a proper fraction in simplest form: Advanced
arth222 Converting a fraction to a terminating decimal
arth608 Converting a fraction to a repeating decimal
arth613 Decimal addition with 3 numbers
arth625 Subtraction of aligned decimals
arth626 Word problem with one decimal operation: Problem type 1
arth627 Word problem with one decimal operation: Problem type 2
arth617 Multiplication of a decimal by a whole number
arth6028 Multiplication of a decimal by a power of ten
arth655 Decimal multiplication: Problem type 1
arth681 Division of a decimal by a whole number
arth683 Division of a decimal by a power of ten
arth226 Converting between percentages and decimals
arth602 Converting a fraction to a percentage: Denominator of 20, 25, or 50
arth690 Converting a percentage to a fraction in simplest form
arth691 Writing a ratio as a percentage without a calculator
mstat049 Computing a percentage from a table of values
arth6030 Finding a percentage of a whole number without a calculator: Basic
arth698 Applying the percent equation
arth674 Finding the sale price without a calculator given the original price and percent discount
arth681 Finding the original price given the sale price and percent discount
arth225 Finding the percentage increase or decrease: Advanced
arth632 Finding simple interest without a calculator
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
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
unit034 Converting between metric and U.S. Customary unit systems
unit035 Converting between compound units: Basic
unit036 Converting between compound units: Advanced
mstat065 Converting between temperatures in Fahrenheit and Celsius

Real Numbers

arith699 Writing a signed number for a real-world situation
mstat038 Reading the temperature from a thermometer
alg286 Plotting integers on a number line
arth691 Ordering integers
arth687 Fractional position on a number line
arth605 Plotting rational numbers on a number line
arth200 Integer addition: Problem type 1
arth108 Integer addition: Problem type 2
arth688 Integer subtraction: Problem type 1
arth689 Integer subtraction: Problem type 2
arth690 Integer subtraction: Problem type 3
arth701 Word problem with addition or subtraction of integers
arth116 Signed fraction addition or subtraction: Basic
arth117 Signed decimal addition and subtraction
arth134 Signed decimal addition and subtraction with 3 numbers
arth231 Integer multiplication and division
arth800 Multiplication of 3 or 4 integers
APPENDIX B. PROGRAMS IN ALEKS

arith822 Signed fraction multiplication: Basic
arith118 Order of operations with integers
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
arith104 Operations with absolute value: Problem type 2
alge001 Identifying numbers as integers or non-integers
alge002 Identifying numbers as rational or irrational
arith657 Understanding the distributive property
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
alge187 Properties of addition
alge188 Properties of real numbers

Linear Equations and Inequalities

alge009 Additive property of equality with whole numbers
alge800 Additive property of equality with decimals
alge010 Additive property of equality with integers
alge266 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
alge740 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
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
alge810 Introduction to algebraic symbol manipulation
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
alge602 Writing a one-step variable expression for a real-world situation
alge291 Translating a phrase into a two-step expression
alge016 Translating a sentence into a one-step equation
alge730 Writing a multi-step equation for a real-world situation
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
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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
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
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
alge186 Translating a sentence into a compound inequality
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
alge207 Solving a linear inequality: Problem type 4
alge745 Solving a linear inequality: Problem type 5
alge746 Solving a compound linear inequality: Problem type 1
alge748 Writing an inequality for a real-world situation
alge749 Solving a decimal word problem using a two-step linear inequality
alge270 Solving an absolute value equation of the form $a-|x-b|=c$ or $-a-|x|=c$
alge103 Solving an absolute value equation of the form $a-|x|=c$
alge170 Solving an absolute value inequality: Basic

Lines and Systems 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
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
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
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
mstat030 Sketching the line of best fit
mstat023 Scatter plots and correlation
alge018 Graphing a linear inequality in the plane: 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
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
APPENDIX B. PROGRAMS IN ALEKS

alge076 Solving a system of linear equations using elimination with multiplication and addition
alge752 Solving a system of linear equations that is inconsistent or consistent dependent
alge753 Solving a system of 3 linear equations in 3 unknowns
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
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
alge079 Graphing a system of two linear inequalities: Basic
pcalc037 Scalar multiplication of a matrix
pcalc038 Addition or subtraction of matrices
pcalc740 Linear combination of matrices

Exponents, Polynomials, and Quadratics

alge790 Evaluating expressions with exponents of zero
arith042 Power of 10: Negative exponent
arith043 Evaluating an expression with a negative exponent: Positive fraction base
arith044 Evaluating an expression with a negative exponent: Negative integer base
alge791 Rewriting an algebraic expression without a negative exponent
alge821 Understanding the product rule of exponents
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
alge826 Understanding the power rules of exponents
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
arith029 Ordering numbers with positive 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
alge759 Simplifying a sum or difference of two 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
alge765 Multiplying binomials in two variables
alge032 Squaring a binomial: Univariate
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
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
alge039 Factoring a quadratic with leading coefficient 1
alge043 Factoring a perfect square trinomial
alge040 Factoring a quadratic with leading coefficient greater than 1
alge265 Factoring a quadratic in two variables with leading coefficient greater than 1
Functions and Sequences

set004 Set builder and interval notation
fun001 Table for a linear function
pcalc760 Evaluating functions: Linear and quadratic or cubic
fun053 Variable expressions as inputs of functions
fun032 Identifying functions from relations
fun010 Vertical line test
fun016 Domain and range from ordered pairs
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
mstat052 Identifying independent and dependent variables from equations or real-world situations
pcalc768 Finding the average rate of change of a function
fun019 Sum, difference, and product of two functions
fun022 Composition of two functions: Basic
fun002 Graphing integer functions
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
pcalc114 Even and odd functions
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
alge262 Graphing a cubic function of the form $y = ax^3$
alge168 Graphing an absolute value equation in the plane: Advanced
alge712 Graphing an exponential function and its asymptote: $f(x) = a(b)^x$
mstat051 Choosing a graph to fit a narrative: Advanced
alge807 Finding the next terms of a sequence with whole numbers
alge732 Finding patterns in shapes
pcalc080 Finding the first terms of a sequence using an explicit rule with multiple occurrences of $n$
APPENDIX B. PROGRAMS IN ALEKS

pcalc713  Arithmetic and geometric sequences: Identifying and writing an explicit rule
pcalc085  Finding a specified term of an arithmetic sequence given the common difference and first term
pcalc086  Finding a specified term of a geometric sequence given the common ratio and first term
alge177  Finding a final amount in a word problem on exponential growth or decay
alge741  Compound interest

Rational and Radical Expressions

alge715  Domain of a rational function
alge710  Simplifying a ratio of polynomials: Problem type 1
alge682  Simplifying a ratio of polynomials: Problem type 2
alge053  Multiplying rational expressions involving multivariate monomials
alge620  Multiplying rational expressions involving quadratics with leading coefficients of 1
alge084  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
arith095  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
alge272  Solving a proportion of the form x/a = b/c
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
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
pcalc789  Finding the asymptotes of a rational function: Basic
pcalc108  Graphing a rational function: Problem type 1
arith610  Word problem on proportions: Problem type 1
arith611  Word problem on proportions: Problem type 2
arith612  Word problem involving multiple rates
alge770  Solving a work problem using a rational equation
alge220  Word problem on inverse proportions
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
alge213  Domain of a square root function
pcalc781  Graphing a square root function
arith016  Square root of a perfect square
arith602  Estimating a square root
arith016  Square root of a 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
arith632  Square root addition or subtraction
arith639  Square root multiplication: Advanced
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
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
alge182 Solving a radical equation that simplifies to a quadratic equation: Two radicals

Perimeter, Area, and Volume

geom300 Perimeter of a square or a rectangle
geom339 Perimeter of a polygon
geom221 Finding the missing length in a figure
geom353 Perimeter of a piecewise rectangular figure
geom817 Finding a side length given the perimeter and side lengths with variables
geom078 Sides of polygons having the same perimeter
geom019 Area of a square or a rectangle
geom350 Distinguishing between area and perimeter
geom351 Areas of rectangles with the same perimeter
geom340 Area of a piecewise rectangular figure
geom142 Word problem involving the area between two rectangles
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
geom023 Area of a trapezoid
geom344 Area involving rectangles and triangles
geom213 Area of a regular polygon
geom832 Area of quadrilaterals in the coordinate plane
alge724 Finding an area in terms of variables
geom016 Circumference of a circle
geom218 Finding the radius or the diameter of a circle given its circumference
geom301 Perimeter involving rectangles and circles
geom838 Circumference ratios
geom802 Circumference and area of a circle
geom305 Arc length and area of a sector of a circle
geom302 Area involving rectangles and circles
geom036 Word problem involving the area between two concentric circles
geom214 Area involving inscribed figures
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
geom086 Volume of a cone: Exact answers in terms of pi
geom841 Volume of a sphere
geom219 Nets of solids
geom861 Nets of solids: Advanced
geom348 Vertices, edges, and faces of a solid
geom816 Side views of a solid made of cubes
geom334 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
geom034 Surface area of a cylinder: Exact answers in terms of pi
geom842 Surface area of a sphere
geom338 Surface area involving prisms or cylinders

Lines, Angles, and Triangles

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
geom349 Naming segments, rays, and lines
geom525 Computing distances between decimals on the number line
geom526 Midpoint of a number line segment
geom521 Segment addition and midpoints
geom616 Introduction to proofs: Justifying statements
geom614 Proofs involving segment congruence
geom358 Identifying parallel and perpendicular lines
geom835 Introduction to proofs involving parallel lines
geom836 Proofs involving parallel lines
geom154 Constructing the perpendicular bisector of a line segment
geom150 Constructing a pair of perpendicular lines
geom157 Constructing a pair of parallel 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
geom304 Identifying corresponding and alternate angles
geom305 Identifying supplementary and vertical angles
geom530 Solving equations involving vertical angles
geom531 Solving equations involving angles and parallel lines
geom850 Introduction to angle addition
geom851 Angle addition and angle bisectors
geom611 Proofs involving angle congruence
geom159 Constructing congruent angles
geom158 Constructing an angle bisector
geom306 Acute, obtuse, and right triangles
geom307 Scalene, isosceles, and equilateral triangles
geom001 Finding an angle measure of a triangle given two angles
geom012 Finding an angle measure given extended triangles
geom819 Finding an angle measure given a triangle and parallel lines
geom908 Finding an angle measure for a triangle with an extended side
geom399 Finding an angle measure for a triangle sharing a side with another triangle
geom502 Finding angle measures of a right or isosceles triangle given angles with variables
geom844 Triangle inequality: Problem type 1
geom845 Triangle inequality: Problem type 2
geom854 Relationship between angle measures and side lengths in a triangle: Problem type 1
geom855 Relationship between angle measures and side lengths in a triangle: Problem type 2
geom844 Pythagorean Theorem
geom068 Computing an area using the Pythagorean Theorem
geom862 Using the Pythagorean Theorem repeatedly
geom506 Special right triangles
geom212 Circles inscribed in and circumscribed about regular polygons
geom520 Identifying and naming congruent triangles
geom617 Proofs involving congruent triangles: Problem type 1
geom837 Proofs involving congruent triangles: Problem type 2
geom840 Proofs involving congruent triangles: Problem type 3
geom859 Proofs involving congruent triangles: Problem type 4
geom843 Proofs involving congruent triangles: Problem type 5
geom650 Indirect proof (proof by contradiction)
Polygons, Circles, and Similarity

alge191 Midpoint of a line segment in the plane
alge132 Distance between two points in the plane
geom310 Classifying quadrilaterals
geom523 Classifying quadrilaterals: Advanced problem
geom532 Classifying parallelograms
geom528 Properties of parallelograms: Problem type 1
geom527 Properties of parallelograms: Problem type 2
geom833 Properties of rectangles
geom834 Properties of rhombi
geom870 Sum of the angle measures of a quadrilateral
geom852 The sum of interior angle measures in a convex polygon
geom855 Interior and exterior angle measures in a regular polygon
geom819 Finding coordinates of vertices of polygons
geom818 Finding the coordinates of a point to make a parallelogram
geom863 Congruence in the coordinate plane
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
g geom512 Central angles and inscribed angles of a circle
geom513 Angles of intersecting secants and tangents
pcalc605 Graphing a circle given its equation in standard form
pcalc606 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
geom359 Identifying congruent shapes on a grid
geom360 Identifying similar or congruent shapes on a grid
geom837 Similar polygons
geom838 Similar right triangles
g geom337 Indirect measurement
g geom510 Triangles and parallel lines
geom507 Right triangles and geometric mean
geom846 Similar solids: Problem type 1
geom847 Similar solids: Problem type 2
g geom357 Identifying transformations
geom330 Translating a polygon
g geom331 Using a translated point to find coordinates of other translated points
g geom332 Reflecting a polygon over a vertical or horizontal line
g geom333 Finding the coordinates of three points reflected over an axis
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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

Statistics and Probability

mstat004 Constructing a histogram for numerical data
mstat005 Constructing a bar graph for non-numerical data
mstat024 Interpreting a bar graph
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
mstat006 Constructing a box-and-whisker plot
mstat031 Interpreting a stem-and-leaf plot
mstat027 Using back-to-back stem-and-leaf plots to compare data sets
geom814 Angle measure in a circle graph
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
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
mstat066 Weighted mean
mstat025 Finding if a question can be answered by the data
stat802 Rejecting unreasonable claims based on average statistics
stat805 Making a reasonable inference based on proportion statistics
stat021 Population standard deviation
mstat041 Interpreting a tree diagram
mstat040 Introduction to the counting principle
mstat015 Counting principle
mstat008 Word problem involving permutations
mstat009 Word problem involving combinations
stat790 Permutations, combinations, and the multiplication principle for counting
mstat026 Introduction to the probability of an event
mstat010 Probability of an event
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

B.32 Algebra 2

Real Numbers and Linear Equations

arith691 Ordering integers
alge286 Plotting integers on a number line
arith687 Fractional position on a number line
arith605 Plotting rational numbers on a number line
arith108 Integer addition: Problem type 2
arith107 Integer subtraction
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
arith105 Signed fraction multiplication: Advanced
arith118 Order of operations with integers
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
arith671 Absolute value of a number
arith104 Operations with absolute value: Problem type 2
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
arith629 Ordering numbers with positive exponents
arith624 Ordering numbers with negative exponents
alge059 Ordering fractions with variables
arith036 Scientific notation with positive exponent
arith037 Scientific notation with negative exponent
scinot002 Multiplying and dividing numbers written in scientific notation
alge001 Identifying numbers as integers or non-integers
alge002 Identifying numbers as rational or irrational
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
alge187 Properties of addition
alge188 Properties of real 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
alge740 Multiplicative 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
alge824 Solving a two-step equation with signed decimals
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
alge810 Introduction to algebraic symbol manipulation
alge743 Algebraic symbol manipulation: Problem type 1
alge744 Algebraic symbol manipulation: Problem type 2
alge602 Writing a one-step variable expression for a real-world situation
alge016 Translating a sentence into a one-step equation
alge291 Translating a phrase into a two-step expression
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alge730 Writing a multi-step equation for a real-world situation
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
alge795 Solving a percent mixture problem using a linear equation
arith228 Word problem on unit rates associated with ratios of whole numbers: Decimal answers
alge218 Solving a word problem involving rates and time conversion
alge796 Solving a distance, rate, time problem using a linear 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
stat801 Computations from a circle graph
mstat049 Computing a percentage from a table of values
arith322 Finding simple interest without a calculator
stat803 Finding the value for a new score that will yield a given mean
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
alge186 Translating a sentence into a compound inequality
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
alge207 Solving a linear inequality: Problem type 4
alge745 Solving a linear inequality: Problem type 5
alge746 Solving a compound linear inequality: Problem type 1
alge747 Solving a compound linear inequality: Problem type 2
alge748 Writing an inequality for a real-world situation
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 $a-x-b = b$ 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
alge169 Solving an absolute value inequality: Advanced
geom044 Pythagorean Theorem
geom300 Perimeter of a square or a rectangle
geom078 Sides of polygons having the same perimeter
geom17 Finding a side length given the perimeter and side lengths with variables
geom019 Area of a square or a rectangle
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
geom802 Circumference and area of a circle
geom838 Circumference ratios
geom036 Word problem involving the area between two concentric circles
geom311 Volume of a rectangular prism
geom035 Volume of a cylinder
geom092 Word problem involving the rate of filling or emptying a cylinder
geom133 Ratio of volumes
geom037 Surface area of a cube or a rectangular prism
geom034 Surface area of a cylinder: Exact answers in terms of pi
geom900 Solving equations involving vertical angles and linear pairs
geom032 Finding angle measures of a right or isosceles triangle given angles with variables
geom037 Similar polygons
geom337 Indirect measurement
Lines and Functions

alg064 Reading a point in the coordinate plane
alg067 Plotting a point in the coordinate plane
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
alg194 Graphing a line given its x- and y-intercepts
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
alg069 Finding the y-intercept of a line given its equation
alg210 Finding x- and y-intercepts of a line given the equation: Advanced
alg064 Finding slope given the graph of a line on a grid
alg065 Finding slope given two points on the line
alg062 Finding the slope of a line given its equation
alg071 Writing an equation of a line given a point and a slope
alg072 Writing the equation of the line through two given points
alg073 Writing the equations of vertical and horizontal lines through a given point
alg071 Writing an equation and drawing its graph to model a real-world situation: Advanced
alg085 Application problem with a linear function: Finding a coordinate given the slope and a point
alg086 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
mstat024 Scatter plots and correlation
mstat030 Sketching the line of best fit
alg018 Graphing a linear inequality in the plane: Standard form
alg225 Graphing a linear inequality in the plane: Vertical or horizontal line
alg720 Graphing a linear inequality in the plane: Slope-intercept form
set001 Set builder notation
set004 Set builder and interval notation
set002 Union and intersection of finite sets
set005 Union and intersection of intervals
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
fun016 Domain and range from ordered pairs
fun032 Identifying functions from relations
fun010 Vertical line test
pcalc757 Determining whether an equation defines a function: Advanced
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
alg185 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
pcalc773 Transforming the graph of a function using more than one transformation
alg252 Graphing a parabola of the form y = ax^2
alg262 Graphing a cubic function of the form y = ax^3
alg168 Graphing an absolute value equation in the plane: Advanced
fun031 Graphing a piecewise-defined function
mstat051 Choosing a graph to fit a narrative: Advanced
Systems of Linear Equations and Matrices

- `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
- `alge076` Solving a system of linear equations using elimination with multiplication and addition
- `alge752` Solving a system of linear equations that is inconsistent or consistent dependent
- `alge077` Creating an inconsistent system of linear equations
- `alge753` Solving a system of 3 linear equations in 3 unknowns
- `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
- `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
- `alge079` Creating an inconsistent system of linear equations
- `pcalc093` Solving a word problem using a system of linear inequalities
- `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
- `pcalc710` Multiplication of matrices: Advanced
- `pcalc042` Finding the determinant of a 2x2 matrix
- `pcalc043` Finding the determinant of a 3x3 matrix
- `pcalc040` Finding the inverse of a 2x2 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
- `pcalc711` Using the inverse of a matrix to solve a 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 Polynomial Expressions

- `alge791` Rewriting an algebraic expression without a negative exponent
- `alge821` Understanding the product rule of exponents
- `alge624` 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
- `alge826` Understanding the power rules of exponents
- `alge754` Introduction to the power rules of exponents
- `alge627` 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
- `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
- `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
- `alge765` Multiplying binomials in two variables
B.32. ALGEBRA 2

alg032 Squaring a binomial: Univariate
alg180 Multiplication involving binomials and trinomials in two variables
alg736 Introduction to the GCF of two monomials
alg037 Greatest common factor of two multivariate monomials
alg738 Factoring out a monomial from a polynomial: Univariate
alg739 Factoring out a monomial from a polynomial: Multivariate
alg039 Factoring a quadratic with leading coefficient 1
alg043 Factoring a perfect square trinomial
alg040 Factoring a quadratic with leading coefficient greater than 1
alg265 Factoring a quadratic in two variables with leading coefficient greater than 1
alg041 Factoring a product of a quadratic trinomial and a monomial
alg624 Factoring a difference of squares
alg042 Factoring with repeated use of the difference of squares formula
alg044 Factoring a sum or difference of two cubes
alg038 Factoring a polynomial by grouping: Problem type 1
alg181 Factoring a polynomial by grouping: Problem type 2

Quadratic and Polynomial Functions

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
alg781 Solving an equation that can be written in quadratic form: Problem type 1
alg163 Writing a quadratic equation given the roots and the leading coefficient
alg092 Solving a quadratic equation using the square root property: Problem type 1
alg227 Solving a quadratic equation using the square root property: Problem type 2
alg094 Completing the square
alg780 Solving a quadratic equation by completing the square
alg095 Applying the quadratic formula: Exact answers
alg214 Discriminant of a quadratic equation
alg183 Discriminant of a quadratic equation with parameter
alg703 Solving a word problem using a quadratic equation with rational roots
alg524 Solving a word problem using a quadratic equation with irrational roots
alg277 Finding the x-intercept(s) and the vertex of a parabola
pcalc774 Rewriting a quadratic function to find the vertex of its graph
pcalc793 Using a graphing calculator to find the x-intercept(s) and vertex of a quadratic function
pcalc775 Finding the maximum or minimum of a quadratic function
alg785 Word problem involving the maximum or minimum of a quadratic function
pcalc762 Range of a quadratic function
alg253 Graphing a parabola of the form y = (x-a)2 + 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
alg702 Classifying the graph of a function
alg723 How the leading coefficient affects the shape of a parabola
pcalc680 Writing the equation of a quadratic function given its graph
alg784 Solving a quadratic inequality written in factored form
alg771 Solving a quadratic inequality
pcalc748 Graphing a quadratic inequality: Problem type 1
pcalc749 Graphing a quadratic inequality: Problem type 2
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
alg681 Solving an equation written in factored form
alg046 Roots of a product of polynomials
pcalc764 Finding zeros of a polynomial function written in factored form
pcalc766 Finding a polynomial of a given degree with given zeros: 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
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
pcalc788 Descartes’ Rule of Signs
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
pcalc767 Finding a polynomial of a given degree with given zeros: Complex zeros
pcalc745 Using the rational zeros theorem to find all zeros of a polynomial: Complex zeros
pcalc705 Linear factors theorem and conjugate zeros theorem
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
pcalc783 Matching graphs with polynomial functions
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
pcalc704 Using a graphing calculator to solve a word problem involving a polynomial of degree 3
pcalc115 Using a graphing calculator to solve a word problem involving a local extremum of a polynomial function

Radicals and Advanced Functions

alge213 Domain of a square root function
pcalc781 Graphing a square root function
arith016 Square root of a perfect square
arith017 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
alge082 Simplifying a product of radical expressions: Multivariate, fractional exponents
alge276 Simplifying a product involving square roots using the distributive property: Advanced
alge774 Special products of radical expressions: Conjugates and squaring
alge776 Simplifying products or quotients of higher radicals with different indices: Multivariate
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
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
alge182 Solving a radical equation that simplifies to a quadratic equation: Two radicals
alge777 Solving an equation with a root index greater than 2
Exponential and Logarithmic Functions

pcalc798 Evaluating an exponential function that models a real-world situation
alge108 Converting between logarithmic and exponential equations
pcalc799 Converting between natural logarithmic and exponential equations
alge202 Evaluating a logarithmic expression
pcalc708 Basic properties of logarithms
alge787 Writing an expression as a single logarithm
pcalc779 Expanding a logarithmic expression: Problem type 1
pcalc780 Expanding a logarithmic expression: Problem type 2
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 logba = c
alge113 Solving an equation involving logarithms on both sides: Problem type 1
calc803 Solving a multi-step equation involving a single logarithm
calc804 Solving a multi-step equation involving natural logarithms
calc805 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
calc806 Using a graphing calculator to solve an exponential or logarithmic equation
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
calc614 Finding the initial or final amount in a word problem on exponential growth or decay
calc615 Finding the rate or time in a word problem on exponential growth or decay
alge741 Compound interest
alge712 Graphing an exponential function and its asymptote: f(x) = a(b)x
calc797 The graph, domain, and range of an exponential function
calc103 Graphing an exponential function and its asymptote: f(x) = a(e)x-b + c
alge788 Graphing a logarithmic function: Basic
calc800 The graph, domain, and range of a logarithmic function
calc104 Graphing a logarithmic function: Advanced
calc102 Translating the graph of a logarithmic or exponential function

Rational Expressions and Functions

alge049 Restriction on a variable in a denominator: Linear
alge715 Domain of a rational function
alge710 Simplifying a ratio of polynomials: Problem type 1
alge602 Simplifying a ratio of polynomials: Problem type 2
alge044 Simplifying a ratio of multivariate polynomials
alge053 Multiplying rational expressions involving multivariate monomials
alge620 Multiplying rational expressions involving quadratics with leading coefficients of 1
APPENDIX B. PROGRAMS 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
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
alge271 Solving a proportion of the form a/(x+b) = c/x
alge060 Solving a rational equation that simplifies to linear: Denominator x
alge162 Solving a rational equation that simplifies to linear: 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
alge770 Solving a work problem using a rational equation
alge772 Word problem on combined variation
Conic Sections

alge191 Midpoint of a line segment in the plane
alge132 Distance between two points in the plane
pcalc067 Graphing a parabola with a horizontal or a vertical axis
pcalc068 Writing an equation of a parabola given the vertex and the focus
pcalc069 Finding the focus of a parabola
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
pcalc070 Graphing an ellipse centered at the origin: Ax^2 + By^2 = C
pcalc074 Graphing an ellipse given its equation in standard form
pcalc071 Graphing an ellipse given its equation in general form
pcalc072 Finding the foci of an ellipse
pcalc074 Writing an equation of an ellipse given the center, an endpoint of an axis, and the length of the other axis
pcalc075 Graphing a hyperbola centered at the origin: Ax^2 - By^2 - C = 0
pcalc075 Graphing a hyperbola given its equation in standard form
Sequences and Probability

- Finding the first terms of a sequence using an explicit rule with multiple occurrences of \(n\)
- Arithmetic and geometric sequences: Identifying and writing an explicit rule
- Finding a specified term of an arithmetic sequence given two terms of the sequence
- Finding a specified term of a geometric sequence given two terms of the sequence
- Sum of the first \(n\) terms of an arithmetic sequence
- Sum of the first \(n\) terms of a geometric sequence
- Sum of an infinite geometric series
- Counting principle
- Factorial expressions
- Introduction to permutations and combinations
- Permutations and combinations: Problem type 1
- Permutations and combinations: Problem type 2
- Permutations and combinations: Problem type 3
- Binomial formula
- Probability of an event
- Outcomes and event probability
- Probabilities involving two dice
- Experimental and theoretical probability
- Area as probability
- Probability of independent events
- Probability of dependent events
- Probabilities of draws with replacement
- Probabilities of draws without replacement
- Probability of intersection or union: Word problems
- Independent events: Basic
- Probability of union: Basic
- Conditional probability: Basic
- Binomial problems: Basic
- Binomial problems: Advanced
- Mode of a data set
- Finding the mode and range of a data set
- Mean and median of a data set
- Weighted mean
- Constructing a box-and-whisker plot
- Percentiles
- Population standard deviation
- Word problem involving calculations from a normal distribution

Trigonometry

- Special right triangles
- Sine, cosine, and tangent ratios: Variables for side lengths
- Finding trigonometric ratios given a right triangle
- Using a trigonometric ratio to find a side length in a right triangle
- Using trigonometry to find distances
- Using a trigonometric ratio to find an angle measure in a right triangle
- Using trigonometry to find angles of elevation or depression
pcalc642 Solving a right triangle
pcalc601 Converting degrees-minutes-seconds to decimal degrees
pcalc661 Converting a decimal degree to degrees-minutes-seconds
pcalc602 Converting between degree and radian measure: Problem type 1
pcalc621 Converting between degree and radian measure: Problem type 2
pcalc606 Sketching an angle in standard position
pcalc622 Coterminal angles
pcalc626 Reference angles: Problem type 1
pcalc652 Reference angles: Problem type 2
pcalc605 Arc length and central angle measure
pcalc623 Area of a sector of a circle
pcalc627 Finding coordinates on the unit circle for special angles
pcalc671 Determining the location of a terminal point given the signs of trigonometric values
pcalc629 Trigonometric functions and special angles: Problem type 1
pcalc630 Trigonometric functions and special angles: Problem type 2
pcalc631 Trigonometric functions and special angles: Problem type 3
pcalc611 Finding values of trigonometric functions given information about an angle: Problem type 1
pcalc6012 Finding values of trigonometric functions given information about an angle: Problem type 2
pcalc6013 Finding values of trigonometric functions given information about an angle: Problem type 3
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
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
pcalc633 Amplitude and period of sine and cosine functions
pcalc634 Amplitude, period, and phase shift of sine and cosine functions
pcalc640 Word problem involving a sine or cosine function: Problem type 1
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
pcalc6107 Sketching the graph of a sine or cosine function: Problem type 1
pcalc6106 Sketching the graph of a sine or cosine function: Problem type 2
pcalc6104 Sketching the graph of a sine or cosine function: Problem type 3
pcalc6107 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
pcalc6105 Sketching the graph of a tangent or cotangent function: Problem type 1
pcalc6105 Sketching the graph of a tangent or cotangent function: Problem type 2
pcalc616 Values of inverse trigonometric functions
pcalc648 Simplifying trigonometric expressions
pcalc666 Using cofunction identities
pcalc629 Sum and difference identities: Problem type 1
pcalc663 Sum and difference identities: Problem type 2
pcalc664 Sum and difference identities: Problem type 3
pcalc6030 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
pcalc6110 Verifying a trigonometric identity
pcalc634 Proving trigonometric identities: Problem type 1
pcalc640 Proving trigonometric identities: Problem type 2
pcalc6035 Proving trigonometric identities: Problem type 3
pcalc643 Proving trigonometric identities using sum and difference properties
pcalc642 Proving trigonometric identities using double-angle properties
pcalc650 Finding solutions in an interval for a basic equation involving sine or cosine
pcalc660 Solving a basic trigonometric equation using a calculator
pcalc651 Finding solutions in an interval for a basic tangent, cotangent, secant, or cosecant equation
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
pcalc657 Finding solutions in an interval for an equation with sine and cosine using double-angle identities
B.33. ALGEBRA 2 WITH TRIGONOMETRY

pcalc668 Solving a trigonometric equation modeling a real-world situation
pcalc811 Using a graphing calculator to solve a trigonometric equation
pcalc020 Solving a basic trigonometric equation involving sine or cosine
pcalc021 Solving a basic trigonometric equation involving tangent, cotangent, secant, or cosecant
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
pcalc027 Solving a trigonometric equation using double-angle identities
pcalc060 Magnitude of a vector
pcalc063 Translation of a vector
pcalc739 Multiplication of a vector by a scalar: Geometric approach
geom857 Vector addition: Geometric approach
vector007 Vector subtraction: Geometric approach
geom856 Vector addition and scalar multiplication
vector008 Linear combination of vectors: Algebraic approach
vector009 Dot product
vector010 Using the dot product to find perpendicular vectors
pcalc739 Finding the angle between two vectors

B.33 Algebra 2 with Trigonometry

Real Numbers and Linear Equations

arith691 Ordering integers
alge286 Plotting integers on a number line
arith687 Fractional position on a number line
arith605 Plotting rational numbers on a number line
arith108 Integer addition: Problem type 2
arith107 Integer subtraction
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
arith105 Signed fraction multiplication: Advanced
arith118 Order of operations with integers
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
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
alge059 Ordering fractions with variables
arith036 Scientific notation with positive exponent
arith037 Scientific notation with negative exponent
scinot002 Multiplying and dividing numbers written in scientific notation
alge001 Identifying numbers as integers or non-integers
alge002 Identifying numbers as rational or irrational
alge606 Distributive property: Whole number coefficients
alge604 Distributive property: Integer coefficients
alge607 Combining like terms: Integer coefficients
alge663 Combining like terms: Advanced
APPENDIX B. PROGRAMS IN ALEKS

alg293 Combining like terms in a quadratic expression
alg187 Properties of addition
alg188 Properties of real numbers
alg010 Additive property of equality with integers
alg266 Additive property of equality with a negative coefficient
alg008 Multiplicative property of equality with whole numbers
alg740 Multiplicative property of equality with integers
alg012 Multiplicative property of equality with signed fractions
alg006 Solving a two-step equation with integers
alg208 Solving a two-step equation with signed fractions
alg824 Solving a two-step equation with signed decimals
alg200 Solving an equation to find the value of an expression
alg021 Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
alg061 Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
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
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
alg810 Introduction to algebraic symbol manipulation
alg743 Algebraic symbol manipulation: Problem type 1
alg744 Algebraic symbol manipulation: Problem type 2
alg602 Writing a one-step variable expression for a real-world situation
alg016 Translating a sentence into a one-step equation
alg291 Translating a phrase into a two-step expression
alg730 Writing a multi-step equation for a real-world situation
alg802 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
alg219 Solving a decimal word problem using a linear equation with the variable on both sides
alg173 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
alg792 Solving a word problem with three unknowns using a linear equation
alg794 Solving a value mixture problem using a linear equation
alg795 Solving a percent mixture problem using a linear equation
arith228 Word problem on unit rates associated with ratios of whole numbers: Decimal answers
alg218 Solving a word problem involving rates and time conversion
alg796 Solving a distance, rate, time problem using a linear 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
stat801 Computations from a circle graph
mstat049 Computing a percentage from a table of values
arith232 Finding simple interest without a calculator
stat303 Finding the value for a new score that will yield a given mean
alg015 Translating a sentence by using an inequality symbol
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
alg019 Solving a linear inequality: Problem type 1
alg020 Solving a linear inequality: Problem type 2
alg021 Solving a linear inequality: Problem type 3
alg207 Solving a linear inequality: Problem type 4
alg745 Solving a linear inequality: Problem type 5
alg746 Solving a compound linear inequality: Problem type 1
alg747 Solving a compound linear inequality: Problem type 2
alg748 Writing an inequality for a real-world situation
alg729 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
alge169 Solving an absolute value inequality: Advanced
geom044 Pythagorean Theorem
geom060 Perimeter of a square or a rectangle
geom078 Sides of polygons having the same perimeter
geom037 Finding a side length given the perimeter and side lengths with variables
geom019 Area of a square or a rectangle
geom021 Finding the side length of a rectangle given its perimeter or area
geom071 Finding the perimeter or area of a rectangle given one of these values
geom081 Area of a triangle
geom082 Circumference and area of a circle
geom085 Circumference ratios
geom036 Word problem involving the area between two concentric circles
geom031 Volume of a rectangular prism
geom035 Volume of a cylinder
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
geom090 Solving equations involving vertical angles and linear pairs
geom092 Finding angle measures of a right or isosceles triangle given angles with variables
geom037 Similar polygons
geom037 Indirect measurement

**Lines and Functions**

alg064 Reading a point in the coordinate plane
alg067 Plotting a point in the coordinate plane
alg066 Finding a solution to a linear equation in two variables
alg0216 Determining whether given points lie on one, both, or neither of two lines given equations
alg0197 Graphing a line given its x- and y-intercepts
alg0194 Graphing a line given its equation in slope-intercept form
alg0195 Graphing a line given its equation in standard form
alg0196 Graphing a line through a given point with a given slope
alg0198 Graphing a vertical or horizontal line
alg0609 Finding the y-intercept of a line given its equation
alg0210 Finding x- and y-intercepts of a line given the equation: Advanced
alg0684 Finding slope given the graph of a line on a grid
alg0685 Finding slope given two points on the line
alg0211 Finding the slope of a line given its equation
alg0270 Writing an equation of a line given the y-intercept and another point
alg0271 Writing the equation of a line given the slope and a point on the line
alg0272 Writing the equation of the line through two given points
alg0273 Writing the equations of vertical and horizontal lines through a given point
alg0271 Writing an equation and drawing its graph to model a real-world situation: Advanced
alg0805 Application problem with a linear function: Finding a coordinate given the slope and a point
alg0806 Application problem with a linear function: Finding a coordinate given two points
geom0708 Writing equations of lines parallel and perpendicular to a given line through a point
mstat023 Scatter plots and correlation
mstat030 Sketching the line of best fit
alg0218 Graphing a linear inequality in the plane: Standard form
alg0225 Graphing a linear inequality in the plane: Vertical or horizontal line
alg02720 Graphing a linear inequality in the plane: Slope-intercept form
set001 Set builder notation
set004 Set builder and interval notation
set002 Union and intersection of finite sets
set005 Union and intersection of intervals
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
fun016 Domain and range from ordered pairs
fun032 Identifying functions from relations
fun010 Vertical line test
pcalc757 Determining whether an equation defines a function: Advanced
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
pcalc773 Transforming the graph of a function using more than one transformation
alge285 Graphing a parabola of the form $y = ax^2$
alge282 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
mstat051 Choosing a graph to fit a narrative: Advanced

Systems of Linear Equations and Matrices

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
alge076 Solving a system of linear equations using elimination with multiplication and addition
alge752 Solving a system of linear equations that is inconsistent or consistent dependent
alge077 Creating an inconsistent system of linear equations
alge753 Solving a system of 3 linear equations in 3 unknowns
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
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
alge079 Graphing a system of two linear inequalities: Basic
pcalc093 Solving a word problem using a system of linear inequalities
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
pcalc710 Multiplication of matrices: Advanced
pcalc042 Finding the determinant of a 2x2 matrix
pcalc043 Finding the determinant of a 3x3 matrix
pcalc040 Finding the inverse of a 2x2 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
B.33. ALGEBRA 2 WITH TRIGONOMETRY

pcalc711 Using the inverse of a matrix to solve a 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 Polynomial Expressions

alge791 Rewriting an algebraic expression without a negative exponent
alge821 Understanding the product rule of exponents
alg024 Introduction to the product rule of exponents
alge00 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
alge826 Understanding the power rules of exponents
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
alge758 Degree and leading coefficient of a univariate polynomial
alge001 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
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
alge765 Multiplying binomials in two variables
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
alge039 Factoring a quadratic with leading coefficient 1
alge043 Factoring a perfect square trinomial
alge040 Factoring a quadratic with leading coefficient greater than 1
alge265 Factoring a quadratic in two variables with leading coefficient greater than 1
alge041 Factoring a product of a quadratic trinomial and a monomial
alge624 Factoring a difference of squares
alge042 Factoring with repeated use of the difference of squares formula
alge044 Factoring a sum or difference of two cubes
alge038 Factoring a polynomial by grouping: Problem type 1
alge181 Factoring a polynomial by grouping: Problem type 2

Quadratic and Polynomial Functions

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
alge011 Solving a quadratic equation needing simplification
alge781 Solving an equation that can be written in quadratic form: Problem type 1
alge163 Writing a quadratic equation given the roots and the leading coefficient
alge092 Solving a quadratic equation using the square root property: Problem type 1
alge227 Solving a quadratic equation using the square root property: Problem type 2
alge094 Completing the square
alge780 Solving a quadratic equation by completing the square
alge095 Applying the quadratic formula: Exact answers
APPENDIX B. PROGRAMS IN ALEKS

alge214 Discriminant of a quadratic equation
alge193 Discriminant of a quadratic equation with parameter
alge703 Solving a word problem using a quadratic equation with rational roots
alge524 Solving a word problem using a quadratic equation with irrational roots
alge277 Finding the x-intercept(s) and the vertex of a parabola
pcalc774 Rewriting a quadratic function to find the vertex of its graph
pcalc793 Using a graphing calculator to find the x-intercept(s) and vertex of a quadratic function
pcalc775 Finding the maximum or minimum of a quadratic function
alge785 Word problem involving the maximum or minimum of a quadratic function
pcalc762 Range of a quadratic function
alge253 Graphing a parabola of the form $y = (x-a)^2 + c$
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
alge792 Classifying the graph of a function
alge723 How the leading coefficient affects the shape of a parabola
pcalc80 Writing the equation of a quadratic function given its graph
alge784 Solving a quadratic inequality written in factored form
alge771 Solving a quadratic inequality
pcalc748 Graphing a quadratic inequality: Problem type 1
pcalc749 Graphing a quadratic inequality: Problem type 2
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
alge681 Solving an equation written in factored form
alge046 Roots of a product of polynomials
pcalc764 Finding zeros of a polynomial function written in factored form
pcalc766 Finding a polynomial of a given degree with given zeros: 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
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
pcalc788 Descartes’ Rule of Signs
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
pcalc785 Multiplying expressions involving complex conjugates
pcalc767 Finding a polynomial of a given degree with given zeros: Complex zeros
pcalc745 Using the rational zeros theorem to find all zeros of a polynomial: Complex zeros
pcalc705 Linear factors theorem and conjugate zeros theorem
pcalc706 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
pcalc783 Matching graphs with polynomial functions
pcalc705 Using a graphing calculator to find zeros of a polynomial function
pcalc794 Using a graphing calculator to find local extrema of a polynomial function
pcalc704 Using a graphing calculator to solve a word problem involving a polynomial of degree 3
pcalc115 Using a graphing calculator to solve a word problem involving a local extremum of a polynomial function

Radicals and Advanced Functions

alge213 Domain of a square root function
pcalc781 Graphing a square root function
Exponential and Logarithmic Functions

pcalc798 Evaluating an exponential function that models a real-world situation
alg108 Converting between logarithmic and exponential equations
pcalc799 Converting between natural logarithmic and exponential equations
alg232 Evaluating a logarithmic expression
pcalc708 Basic properties of logarithms
alg787 Writing an expression as a single logarithm
pcalc779 Expanding a logarithmic expression: Problem type 1
pcalc780 Expanding a logarithmic expression: Problem type 2
pcalc612 Change of base for logarithms: Problem type 1
pcalc613 Change of base for logarithms: Problem type 2
alg223 Solving an equation of the form log _a_ x = c
alg113 Solving an equation involving logarithms on both sides: Problem type 1
pcalc803 Solving a multi-step equation involving a single logarithm
APPENDIX B. PROGRAMS IN ALEKS

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
pcalc806 Using a graphing calculator to solve an exponential or logarithmic equation
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 exponential growth or decay
alge741 Compound interest
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: \( f(x) = a(e)^{x-b} + c \)
alge788 Graphing a logarithmic function: Basic
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

Rational Expressions and Functions

alge049 Restriction on a variable in a denominator: Linear
alge715 Domain of a rational function
alge682 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 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
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
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
alge783 Solving a rational inequality: Problem type 1
pcalc677 Solving a rational inequality: Problem type 2
pcalc789 Finding the asymptotes of a rational function: Basic
pcalc790 Finding the asymptotes of a rational function: Advanced
pcalc108 Graphing a rational function: Problem type 1
pcalc109 Graphing a rational function: Problem type 2
pcalc792 Graphing rational functions with holes
pcalc791 Matching graphs with rational functions: Two vertical asymptotes
arith610 Word problem on proportions: Problem type 1
B.33. ALGEBRA 2 WITH TRIGONOMETRY

arith611 Word problem on proportions: Problem type 2
arith612 Word problem involving multiple rates
alge770 Solving a work problem using a rational equation
alge220 Word problem on inverse proportions
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

Conic Sections

alge191 Midpoint of a line segment in the plane
alge132 Distance between two points in the plane
pcalc067 Graphing a parabola with a horizontal or a vertical axis
pcalc068 Writing an equation of a parabola given the vertex and the focus
pcalc069 Finding the focus of a parabola
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
pcalc070 Graphing an ellipse centered at the origin: \( Ax^2 + By^2 = C \)
pcalc734 Graphing an ellipse given its equation in standard form
pcalc071 Graphing an ellipse given its equation in general form
pcalc072 Finding the foci of an ellipse
pcalc074 Writing an equation of an ellipse given the center, an endpoint of an axis, and the length of the other axis
pcalc075 Graphing a hyperbola centered at the origin: \( Ax^2 - By^2 - C = 0 \)
pcalc735 Graphing a hyperbola given its equation in standard form
pcalc076 Graphing a hyperbola given its equation in general form
pcalc077 Finding the foci of a hyperbola
pcalc078 Writing an equation of a hyperbola given the foci and the vertices
pcalc736 Classifying conics given their equations
pcalc098 Solving a system of nonlinear equations
pcalc796 Using a graphing calculator to solve a system of equations
pcalc096 Graphing a system of nonlinear inequalities: Problem type 1
pcalc097 Graphing a system of nonlinear inequalities: Problem type 2

Sequences and Probability

pcalc080 Finding the first terms of a sequence using an explicit rule with multiple occurrences of \( n \)
pcalc713 Arithmetic and geometric sequences: Identifying and writing an explicit rule
pcalc715 Finding a specified term of an arithmetic sequence given two terms of the sequence
pcalc717 Finding a specified term of a geometric sequence given two terms of the sequence
pcalc718 Sum of the first \( n \) terms of an arithmetic sequence
pcalc719 Sum of the first \( n \) terms of a geometric sequence
pcalc720 Sum of an infinite geometric series
mstat015 Counting principle
pcalc082 Factorial expressions
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
stat106 Outcomes and event probability
stat112 Probabilities involving two dice
mstat046 Experimental and theoretical 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
stat114 Probability of intersection or union: Word problems
stat115 Independent events: Basic
stat120 Probability of union: Basic
stat116 Conditional probability: Basic
stat174 Binomial problems: Basic
stat155 Binomial problems: Advanced
mstat003 Mode of a data set
mstat055 Finding the mode and range of a data set
mstat028 Mean and median of a data set
mstat066 Weighted mean
mstat006 Constructing a box-and-whisker plot
stat009 Percentiles
stat021 Population standard deviation
stat852 Word problem involving calculations from a normal distribution

**Trigonometry**

gem050 Special right triangles
pcalc600 Sine, cosine, and tangent ratios: Variables for side lengths
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 distances
pcalc608 Using a trigonometric ratio to find an angle measure in a right triangle
pcalc611 Using trigonometry to find angles of elevation or depression
pcalc642 Solving a right triangle
pcalc601 Converting degrees-minutes-seconds to decimal degrees
pcalc661 Converting a decimal degree to degrees-minutes-seconds
pcalc602 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
pcalc626 Reference angles: Problem type 1
pcalc632 Reference angles: Problem type 2
pcalc005 Arc length and central angle measure
pcalc623 Area of a sector of a circle
pcalc627 Finding coordinates on the unit circle for special angles
pcalc671 Determining the location of a terminal point given the signs of trigonometric values
pcalc629 Trigonometric functions and special angles: Problem type 1
pcalc630 Trigonometric functions and special angles: Problem type 2
pcalc631 Trigonometric functions and special angles: Problem type 3
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
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
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
pcalc633 Amplitude and period of sine and cosine functions
pcalc634 Amplitude, period, and phase shift of sine and cosine functions
pcalc640 Word problem involving a sine or cosine function: Problem type 1
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
pcalc107 Sketching the graph of a sine or cosine function: Problem type 1
B.34 Math Intervention

### Whole Numbers

arith124 Whole number place value: Problem type 1
arith125 Whole number place value: Problem type 2
arith066 Expanded form
arith028 Numerical translation: Problem type 1
arith060 Numerical translation: Problem type 2
APPENDIX B. PROGRAMS IN ALEKS

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
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
arith641 Multiples: Problem type 1
arith642 Multiples: Problem type 2
arith075 Division facts
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
arith601 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
arith645 Introduction to parentheses
arith681 Introduction to order of operations
arith048 Order of operations with whole numbers
arith646 Even and odd numbers
arith647 Divisibility rules for 2, 5, and 10
arith056 Factors
arith634 Prime numbers
arith635 Prime factorization
arith633 Greatest common factor of 2 numbers
B.34. **MATH INTERVENTION**

arith070 Least common multiple of 2 numbers
arith655 Introduction to properties of addition
arith656 Introduction to properties of multiplication
arith653 Fact families for addition and subtraction
arith654 Fact families for multiplication and division
alge807 Finding the next terms of a sequence with whole numbers

**Fractions**

arith623 Introduction to fractions
arith665 Understanding equivalent fractions
arith212 Equivalent fractions
arith666 Introduction to simplifying a fraction
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
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
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
arith087 The reciprocal of a number
arith694 Division involving a whole number and a fraction
arith022 Fraction division
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
arith020 Mixed number multiplication: 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
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
arith672 Converting a decimal to a mixed number
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
APPENDIX B. PROGRAMS IN ALEKS

arith131 Estimating a decimal sum or difference
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
arith028 Word problem with multiple decimal operations: 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
arith064 Solving a word problem on proportions using a unit rate
arith074 Finding the percentage of a grid that is shaded
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

Geometry

geom151 Measuring an angle with the protractor
geom303 Acute, obtuse, and right angles
geom306 Acute, obtuse, and right triangles
geom091 Finding an angle measure of a triangle given two angles
geom300 Perimeter of a square or a rectangle
geom339 Perimeter of a polygon
geom221 Finding the missing length in a figure
geom866 Perimeter and area on a grid
geom019 Area of a square or a rectangle
geom350 Distinguishing between area and perimeter
geom354 Volume of a rectangular prism
geom219 Nets of solids
geom350 Volume of a rectangular prism made of unit cubes

Measurement and Data

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
mstat035 Conversions involving 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
mstat060 Choosing metric measurement units
mstat063 Measuring length to the nearest centimeter
unit001 Metric distance conversion with whole number values
unit002 Metric mass or capacity conversion with whole number values
time010 Telling time
unit012 Time unit conversion with whole number values
time009 Introduction to adding time
time011 Introduction to elapsed time
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
mstat055 Finding the mode and range of a data set
mstat001 Mean of a data set
mstat028 Mean and median of a data set
B.35 Mastery of SAT Math

Arithmetic Readiness

arith034 Prime numbers
arith035 Prime factorization
arith033 Greatest common factor of 2 numbers
arith070 Least common multiple of 2 numbers
arith240 Word problem with common multiples
arith117 Simplifying a fraction
arith072 Using a common denominator to order fractions
arith081 Finding the LCD of two fractions
arith029 Addition or subtraction of fractions with different denominators
arith087 Product of a fraction and a whole number: Problem type 1
arith033 Fraction multiplication
arith088 The reciprocal of a number
arith018 Division involving a whole number and a fraction
arith022 Fraction division
arith074 Mixed arithmetic operations with fractions
arith015 Writing an improper fraction as a mixed number
arith019 Writing a mixed number as an improper fraction
arith112 Decimal place value: Tenths and hundredths
arith021 Rounding decimals
arith008 Ordering decimals

mstat031 Interpreting a stem-and-leaf plot
mstat042 Interpreting a Venn diagram of 2 sets
mstat054 Classifying likelihood
mstat026 Introduction to the probability of an event

Algebra

mstat038 Reading the temperature from a thermometer
alge286 Plotting integers on a number line
arith691 Ordering integers
arith200 Integer addition: Problem type 1
arith108 Integer addition: Problem type 2
arith688 Integer subtraction: Problem type 1
arith231 Integer multiplication and division
alge284 Evaluating an algebraic expression: Whole number addition or subtraction
alge83 Evaluating an algebraic expression: Whole number multiplication or division
alge285 Evaluating an algebraic expression: Whole numbers with two operations
alge009 Additive property of equality with whole numbers
alge000 Additive property of equality with decimals
alge813 Solving simple equations with multiplication or division
alge008 Multiplicative property of equality 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
alge279 Plotting a point in quadrant 1
alge280 Graphing a line in quadrant 1
arith233 Introduction to exponents
arith692 Writing expressions using exponents
APPENDIX B. PROGRAMS IN ALEKS

arith609 Ordering fractions and decimals
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
arith686 Writing a ratio as a percentage
mstat049 Computing a percentage from a table of values
arith698 Applying the percent equation
arith674 Finding the sale price without a calculator given the original price and percent discount
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

Real Numbers

arith699 Writing a signed number for a real-world situation
mstat038 Reading the temperature from a thermometer
arith691 Ordering integers
arith687 Fractional position on a number line
arith605 Plotting rational numbers on a number line
arith200 Integer addition: Problem type 1
arith108 Integer addition: Problem type 2
arith88 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
arith116 Signed fraction addition or subtraction: Basic
arith231 Integer multiplication and division
arith822 Signed fraction multiplication: Basic
arith118 Order of operations with integers
arith702 Exponents and integers: Problem type 1
arith703 Exponents and integers: Problem type 2
arith704 Exponents and signed fractions
arith000 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
arith657 Understanding the distributive property
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
alge187 Properties of addition
alge188 Properties of real numbers

Linear Equations and Inequalities

alge010 Additive property of equality with integers
alge026 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
alge740 Multiplicative property of equality with integers
alge012 Multiplicative property of equality with signed fractions
alge006 Solving a two-step equation with integers
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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
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
alge810 Introduction to algebraic symbol manipulation
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
alge602 Writing a one-step variable expression for a real-world situation
alge291 Translating a phrase into a two-step expression
alge016 Translating a sentence into a one-step equation
alge730 Writing a multi-step equation for a real-world situation
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
alge795 Solving a percent mixture problem using a linear equation
arith228 Word problem on unit rates associated with ratios of whole numbers: Decimal answers
alge829 Word problem involving distance, rate, and time
alge218 Solving a word problem involving rates and time conversion
alge796 Solving a distance, rate, time problem using a linear equation
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
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
alge745 Solving a linear inequality: Problem type 5
alge746 Solving a compound linear inequality: Problem type 1
alge748 Writing an 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 $-ax+b- = c$
alge170 Solving an absolute value inequality: Basic

Lines and Systems 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
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
APPENDIX B. PROGRAMS IN ALEKS

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
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
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
mstat030 Sketching the line of best fit
mstat023 Scatter plots and correlation
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
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
alge076 Solving a system of linear equations using elimination with multiplication and addition
alge752 Solving a system of linear equations that is inconsistent or consistent dependent
alge753 Solving a system of 3 linear equations in 3 unknowns
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
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
alge079 Graphing a system of two linear inequalities: Basic

Exponents, Polynomials, and Quadratics

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
alge821 Understanding the product rule of exponents
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
alge826 Understanding the power rules of exponents
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
arith029 Ordering numbers with positive 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
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Algebra

- Simplifying a sum or difference of two univariate polynomials
- Multiplying a univariate polynomial by a monomial with a positive coefficient
- Multiplying a multivariate polynomial by a monomial
- Multiplying binomials with leading coefficients of 1
- Multiplying conjugate binomials: Univariate
- Multiplying binomials in two variables
- Squaring a binomial: Univariate
- Multiplying involving binomials and trinomials in two variables
- 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
- Introduction to the GCF of two monomials
- Greatest common factor of two multivariate monomials
- Factoring out a monomial from a polynomial: Univariate
- Factoring a quadratic with leading coefficient 1
- Factoring out a monomial from a polynomial: Multivariate
- Factoring a perfect square trinomial
- Factoring a quadratic with leading coefficient greater than 1
- Factoring a quadratic in two variables with leading coefficient greater than 1
- Factoring a quadratic trinomial and a monomial
- Factoring a difference of squares
- Factoring a polynomial by grouping: Problem type 1
- Factoring a polynomial by grouping: Problem type 2
- 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
- Solving a quadratic equation needing simplification
- Solving a quadratic equation using the square root property: Problem type 1
- Solving a quadratic equation using the square root property: Problem type 2
- Completing the square
- 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
- Finding the x-intercept(s) and the vertex of a parabola
- Finding the maximum or minimum of a quadratic function
- Word problem involving the maximum or minimum of a quadratic function
- Graphing a parabola of the form $y = ax^2$
- Graphing a parabola of the form $y = (x-a)^2 + c$
- Graphing a parabola of the form $y = ax^2 + bx + c$: Integer coefficients
- Classifying the graph of a function
- How the leading coefficient affects the shape of a parabola
- Evaluating an exponential function that models a real-world situation
- Solving an exponential equation by finding common bases: Linear and quadratic exponents
- Finding a final amount in a word problem on exponential growth or decay
- Compound interest

Functions and Sequences

- Set builder and interval notation
- Table for a linear function
- Evaluating functions: Linear and quadratic or cubic
- Variable expressions as inputs of functions
- Identifying functions from relations
- Vertical line test
- Domain and range from ordered pairs
- Checking if a formula describes a pattern
- 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  
mstat052 Identifying independent and dependent variables from equations or real-world situations  
pcalc768 Finding the average rate of change of a function  
fun019 Sum, difference, and product of two functions  
fun022 Composition of two functions: Basic  
fun002 Graphing integer functions  
pcalc761 Finding inputs and outputs of a function from its graph  
pcalc759 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  
pcalc114 Even and odd functions  
alge185 Writing an equation for a function after a vertical translation  
fun020 Writing an equation for a function after a vertical and horizontal translation  
pcalc709 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  
alge262 Graphing a cubic function of the form $y = ax^3$  
alge168 Graphing an absolute value equation in the plane: Advanced  
alge712 Graphing an exponential function and its asymptote: $f(x) = a(b)x$  
mstat051 Choosing a graph to fit a narrative: Advanced  
alg087 Finding the next terms of a sequence with whole numbers  
alge732 Finding patterns in shapes  
pcalc080 Finding the first terms of a sequence using an explicit rule with multiple occurrences of $n$  
pcalc713 Arithmetic and geometric sequences: Identifying and writing an explicit rule  
pcalc085 Finding a specified term of an arithmetic sequence given the common difference and first term  
pcalc086 Finding a specified term of a geometric sequence given the common ratio and first term

Rational and Radical Expressions

alg715 Domain of a rational function  
alge710 Simplifying a ratio of polynomials: Problem type 1  
alge682 Simplifying a ratio of polynomials: Problem type 2  
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  
alge767 Complex fraction: GCF and quadratic factoring  
alge768 Complex fraction made of sums involving rational expressions  
alge272 Solving a proportion of the form $x/a = b/c$  
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  
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  
pcalc789 Finding the asymptotes of a rational function: Basic  
pcalc108 Graphing a rational function: Problem type 1
Perimeter, Area, and Volume

geom300 Perimeter of a square or a rectangle
geom221 Finding the missing length in a figure
geom253 Perimeter of a piecewise rectangular figure
geom817 Finding a side length given the perimeter and side lengths with variables
geom078 Sides of polygons having the same perimeter
geom019 Area of a square or a rectangle
geom350 Distinguishing between area and perimeter
geom351 Areas of rectangles with the same perimeter
geom340 Area of a piecewise rectangular figure
geom142 Word problem involving the area between two rectangles
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
geom023 Area of a trapezoid
geom344 Area involving rectangles and triangles
geom213 Area of a regular polygon
geom832 Area of quadrilaterals in the coordinate plane
alg524 Finding an area in terms of variables
geom016 Circumference of a circle
geom218 Finding the radius or the diameter of a circle given its circumference
geom301 Perimeter involving rectangles and circles
geom838 Circumference ratios
geom892 Circumference and area of a circle
geom805 Arc length and area of a sector of a circle
geom302 Area involving rectangles and circles
geom836 Word problem involving the area between two concentric circles
geom214 Area involving inscribed figures
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
geom086 Volume of a cone: Exact answers in terms of pi
geom841 Volume of a sphere
geom219 Nets of solids
geom861 Nets of solids: Advanced
geom248 Vertices, edges, and faces of a solid
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
geom034 Surface area of a cylinder: Exact answers in terms of pi
geom842 Surface area of a sphere
geom338 Surface area involving prisms or cylinders

Lines, Angles, and Triangles

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
gem349 Naming segments, rays, and lines
gem525 Computing distances between decimals on the number line
gem526 Midpoint of a number line segment
gem521 Segment addition and midpoints
gem358 Identifying parallel and perpendicular lines
gem515 Measuring an angle with the protractor
gem512 Drawing an angle with the protractor
gem303 Acute, obtuse, and right angles
gem339 Finding supplementary and complementary angles
gem304 Identifying corresponding and alternate angles
gem305 Identifying supplementary and vertical angles
gem530 Solving equations involving vertical angles
gem531 Solving equations involving angles and parallel lines
gem850 Introduction to angle addition
gem851 Angle addition and angle bisectors
gem306 Acute, obtuse, and right triangles
gem307 Scalene, isosceles, and equilateral triangles
gem001 Finding an angle measure of a triangle given two angles
gem812 Finding an angle measure given extended triangles
gem813 Finding an angle measure given a triangle and parallel lines
gem908 Finding an angle measure for a triangle with an extended side
gem309 Finding an angle measure for a triangle sharing a side with another triangle
gem302 Finding angle measures of a right or isosceles triangle given angles with variables
gem844 Triangle inequality: Problem type 1
gem845 Triangle inequality: Problem type 2
gem854 Relationship between angle measures and side lengths in a triangle: Problem type 1
gem855 Relationship between angle measures and side lengths in a triangle: Problem type 2
gem044 Pythagorean Theorem
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geom068 Computing an area using the Pythagorean Theorem
geom062 Using the Pythagorean Theorem repeatedly
geom050 Special right triangles
geom212 Circles inscribed in and circumscribed about regular polygons

Polygons, Circles, and Similarity

alge191 Midpoint of a line segment in the plane
alge132 Distance between two points in the plane
geom310 Classifying quadrilaterals
geom523 Classifying quadrilaterals: Advanced problem
geom532 Classifying parallelograms
geom528 Properties of parallelograms: Problem type 1
geom527 Properties of parallelograms: Problem type 2
geom833 Properties of rectangles
geom834 Properties of rhombi
geom870 Sum of the angle measures of a quadrilateral
geom852 The sum of interior angle measures in a convex polygon
geom853 Interior and exterior angle measures in a regular polygon
geom819 Finding coordinates of vertices of polygons
geom818 Finding the coordinates of a point to make a parallelogram
geom863 Congruence in the coordinate plane
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
pcalc605 Graphing a circle given its equation in standard form
pcalc065 Writing an equation of a circle given its center and a radius
pcalc066 Writing an equation of a circle given the endpoints of a diameter
geom359 Identifying congruent shapes on a grid
geom360 Identifying similar or congruent shapes on a grid
geom037 Similar polygons
geom038 Similar right triangles
geom037 Indirect measurement
geom510 Triangles and parallel lines
geom597 Right triangles and geometric mean
geom846 Similar solids: Problem type 1
geom847 Similar solids: Problem type 2
geom133 Ratio of volumes
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
geom335 Finding the coordinates of three points reflected over an axis
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

Statistics and Probability

mstat004 Constructing a histogram for numerical data
mstat005 Constructing a bar graph for non-numerical data
mstat024 Interpreting a bar graph
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
geom814 Angle measure in a circle graph
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
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
mstat066 Weighted mean
mstat025 Finding if a question can be answered by the data
stat802 Rejecting unreasonable claims based on average statistics
stat805 Making a reasonable inference based on proportion statistics
mstat041 Interpreting a tree diagram
mstat040 Introduction to the counting principle
mstat015 Counting principle
mstat008 Word problem involving permutations
mstat009 Word problem involving combinations
stat790 Permutations, combinations, and the multiplication principle for counting
mstat026 Introduction to the probability of an event
mstat010 Probability 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

B.36 PreCalculus

Algebra and Geometry Review

arith691 Ordering integers
alge001 Identifying numbers as integers or non-integers
alge002 Identifying numbers as rational or irrational
alge188 Properties of real numbers
arith104 Operations with absolute value: Problem type 2
arith702 Exponents and integers: Problem type 1
arith703 Exponents and integers: Problem type 2
arith690 Order of operations with integers and exponents
alge005 Evaluating a linear expression: Integer multiplication with addition or subtraction
alge004 Evaluating a quadratic expression: Integers
arith116 Signed fraction addition or subtraction: Basic
arith105 Signed fraction multiplication: Advanced
arith696 Complex fraction without variables: Problem type 2
alge067 Plotting a point in the coordinate plane
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
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 \(-ax + b = -cx + d\)
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
alge719 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
geom143 Finding the perimeter or area of a rectangle given one of these values
arith031 Finding the original price given the sale price and percent discount
arith232 Finding simple interest without a calculator
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
stat803 Finding the value for a new score that will yield a given mean
alge792 Solving a word problem with three unknowns 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
alge746 Solving a compound linear inequality: Problem type 1
alge747 Solving a compound linear inequality: Problem type 2
alge170 Solving an absolute value inequality: Basic
alge169 Solving an absolute value inequality: Advanced
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
alge758 Degree and leading coefficient of a univariate polynomial
alge603 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
alge764 Multiplying conjugate binomials: Univariate
alge765 Multiplying binomials in two variables
alge180 Multiplication involving binomials and trinomials in two variables
alge037 Greatest common factor of two multivariate monomials
alge705 Factoring a quadratic with leading coefficient 1
alge040 Factoring a quadratic with leading coefficient greater than 1
alge045 Factoring a quadratic in two variables with leading coefficient greater than 1
alge624 Factoring a difference of squares
alge042 Factoring with repeated use of the difference of squares formula
alge044 Factoring a sum or difference of two cubes
alge738 Factoring out a monomial from a polynomial: Univariate
alge739 Factoring out a monomial from a polynomial: Multivariate
alge041 Factoring a product of a quadratic trinomial and a monomial
alge038 Factoring a polynomial by grouping: Problem type 1
alge181 Factoring a polynomial by grouping: Problem type 2
pca12675 Factoring out a binomial from a polynomial: Advanced
alge055 Least common multiple of two monomials
alge056 Adding rational expressions with common denominators and binomial numerators
alge229 Adding rational expressions with multivariate monomial denominators: Advanced
alge057 Adding rational expressions with different denominators: ax, bx
alge622 Adding rational expressions with different denominators: x+a, x+b
alge661 Adding rational expressions involving different quadratic denominators
alge710 Simplifying a ratio of polynomials: Problem type 1
alge082 Simplifying a ratio of polynomials: Problem type 2
alge053 Multiplying rational expressions involving multivariate monomials
APPENDIX B. PROGRAMS IN ALEKS

alge620 Multiplying rational expressions involving quadratics with leading coefficients of 1
alge624 Dividing rational expressions involving multivariate monomials
alge766 Dividing rational expressions involving quadratics with leading coefficients of 1
alge767 Complex fraction: GCF and quadratic factoring
alge768 Complex fraction made of sums involving rational expressions
alge769 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
arith612 Word problem involving multiple rates
alge770 Solving a work problem using a rational equation
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
alge790 Evaluating expressions with exponents of zero
arith705 Evaluating numbers with negative exponents
alge060 Introduction to the product rule of exponents
alge030 Product rule with positive exponents: Multivariate
alge026 Product rule with negative exponents
alge026 Quotient of expressions involving exponents
alge735 Quotient rule with negative exponents: Problem type 1
alge734 Introduction to the power rules of exponents
alge627 Power rules with positive exponents
alge625 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
scinot001 Converting between decimal numbers and numbers written in scientific notation
scinot002 Multiplying and dividing numbers written in scientific notation
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
alge625 Simplifying a radical expression with an even exponent
alge275 Simplifying a radical expression with two variables
arith032 Square root addition or subtraction
alge620 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
alge686 Rationalizing the denominator of a radical expression
alge687 Rationalizing the denominator of a radical expression using conjugates
alge273 Simplifying a higher root of a whole number
alge681 Simplifying a higher radical expression: Multivariate
alge775 Rationalizing a denominator: Quotient involving higher radicals and monomials
alge689 Solving a radical equation that simplifies to a linear equation: One radical, basic
alge690 Solving a radical equation that simplifies to a linear equation: Two radicals
alge691 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
alge777 Solving an equation with a root index greater than 2
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
alge812 Converting between radical form and exponent form
alge776 Simplifying products or quotients of higher radicals with different indices: Multivariate
alge230 Solving an equation with positive rational exponent
geom044 Pythagorean Theorem
geom801 Area of a triangle
geom802 Circumference and area of a circle
geom838 Circumference ratios
geom142 Word problem involving the area between two rectangles
geom036 Word problem involving the area between two concentric circles
geom302 Area involving rectangles and circles
geom214 Area involving inscribed figures
geom311 Volume of a rectangular prism
geom090 Volume of a triangular prism
geom035 Volume of a cylinder
geom892 Word problem involving the rate of filling or emptying a cylinder
geom841 Volume of a sphere
geom031 Surface area of a cube or a rectangular prism
geom091 Surface area of a triangular prism
geom034 Surface area of a sphere
geom037 Similar polygons
geom337 Indirect measurement

Functions and Graphs

set004 Set builder and interval notation
set002 Union and intersection of finite sets
set005 Union and intersection of intervals
fun032 Identifying functions from relations
pcalc757 Determining whether an equation defines a function: Advanced
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
fun016 Domain and range from ordered pairs
pcalc763 Domain of a square root function: Advanced
alg071 Domain of a rational function
pcalc754 Finding the domain of a fractional function involving radicals
pcalc753 Finding a difference quotient for a function
pcalc768 Finding the average rate of change of a function
alg0716 Determining whether given points lie on one, both, or neither of 2 lines given equations
alg0714 Graphing a line given its equation in slope-intercept form
alg0715 Graphing a line given its equation in standard form
alg0716 Graphing a line through a given point with a given slope
alg0718 Graphing a vertical or horizontal line
alg0710 Finding x- and y-intercepts of a line given the equation: Advanced
alg0704 Finding slope given the graph of a line on a grid
alg0705 Finding slope given two points on the line
alg0701 Finding the slope of a line given its equation
alg0700 Writing an equation of a line given the y-intercept and another point
alg0701 Writing the equation of a line given the slope and a point on the line
alg0702 Writing the equation of the line through two given points
alg0703 Writing the equations of vertical and horizontal lines through a given point
alg0704 Writing an equation and drawing its graph to model a real-world situation: Advanced
alg0703 Interpreting the graphs of two functions
alg0705 Application problem with a linear function: Finding a coordinate given the slope and a point
alg0706 Application problem with a linear function: Finding a coordinate given two points
geom0807 Finding slopes of lines parallel and perpendicular to a line given in the form $Ax + By = C$
geom0808 Writing equations of lines parallel and perpendicular to a given line through a point
alg0701 Graphing a linear inequality in the plane: Standard form
alg0725 Graphing a linear inequality in the plane: Vertical or horizontal line
alg0720 Graphing a linear inequality in the plane: Slope-intercept form
pcalc761 Finding inputs and outputs of a function from its graph
pcalc750 Finding intercepts of a nonlinear function given its graph
pcalc678 Finding x- and y-intercepts of the graph of a nonlinear equation
Polynomial and Rational Functions

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
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
alge784 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
alge092 Solving a quadratic equation using the square root property: Problem type 1
alge227 Solving a quadratic equation using the square root property: Problem type 2
alge094 Completing the square
alge780 Solving a quadratic equation by completing the square
alge095 Applying the quadratic formula: Exact answers
alge214 Discriminant of a quadratic equation
alge193 Discriminant of a quadratic equation with parameter
alge703 Solving a word problem using a quadratic equation with rational roots
alge524 Solving a word problem using a quadratic equation with irrational roots
pcalc762 Range of a quadratic function
pcalc775 Finding the maximum or minimum of a quadratic function
alge785 Word problem involving the maximum or minimum of a quadratic function
alge277 Finding the x-intercept(s) and the vertex of a parabola
pcalc774 Rewriting a quadratic function to find the vertex of its graph
pcalc793 Using a graphing calculator to find the x-intercept(s) and vertex of a quadratic function
alge253 Graphing a parabola of the form \( y = (x-a)^2 + c \)
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
Exponential and Logarithmic Functions

pcalc798 Evaluating an exponential function that models a real-world situation
alge108 Converting between logarithmic and exponential equations
APPENDIX B. PROGRAMS IN ALEKS

pcalc799 Converting between natural logarithmic and exponential equations
alg232 Evaluating a logarithmic expression
pcalc708 Basic properties of logarithms
alg237 Writing an expression as a single logarithm
pcalc779 Expanding a logarithmic expression: Problem type 1
pcalc780 Expanding a logarithmic expression: Problem type 2
pcalc612 Change of base for logarithms: Problem type 1
pcalc613 Change of base for logarithms: Problem type 2
alg113 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
alg111 Solving an exponential equation by using logarithms: Exact answers in logarithmic form
alg232Solving an exponential equation by finding common bases: Linear and quadratic exponents
alg237Solving exponential equations by using logarithms and natural logarithms: Decimal answers
pcalc802 Solving an exponential equation by using substitution and quadratic factoring
pcalc806 Using a graphing calculator to solve an exponential or logarithmic equation
alg177 Finding a final amount in a word problem on exponential growth or decay
alg178 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 exponential growth or decay
alg741Compound interest
alg712 Graphing an exponential function and its asymptote: \( f(x) = a(b)^x \)
pcalc797 The graph, domain, and range of an exponential function
alg238 Graphing an exponential function and its asymptote: \( f(x) = a(e)^x - b + c \)
alg238S 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
pcalc102 Translating the graph of a logarithmic or exponential function

Trigonometry

pcalc001 Converting degrees-minutes-seconds to decimal degrees
pcalc002 Converting between degree and radian measure: Problem type 1
pcalc021 Converting between degree and radian measure: Problem type 2
pcalc022 Coterminal angles
pcalc006 Sketching an angle in standard position
pcalc226 Reference angles: Problem type 1
pcalc032 Reference angles: Problem type 2
pcalc005 Arc length and central angle measure
pcalc623 Area of a sector of a circle
pcalc624 Angular and linear speed
pcalc625 Finding coordinates on the unit circle for special angles
pcalc625 Finding a point on the circle given one coordinate
pcalc628 Finding trigonometric ratios from a point on the unit circle
geom306 Special right triangles
pcalc600 Sine, cosine, and tangent ratios: Variables for side lengths
pcalc608 Finding trigonometric ratios given a right triangle
pcalc607 Using a trigonometric ratio to find a side length in a right triangle
pcalc609 Using trigonometry to find distances
pcalc608 Using a trigonometric ratio to find an angle measure in a right triangle
pcalc611 Using trigonometry to find angles of elevation or depression
pcalc612 Solving a right triangle
pcalc617 Determining the location of a terminal point given the signs of trigonometric values
pcalc629 Trigonometric functions and special angles: Problem type 1
pcalc630 Trigonometric functions and special angles: Problem type 2
pcalc631 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
pcalc633 Amplitude and period of sine and cosine functions
pcalc634 Amplitude, period, and phase shift of sine and cosine functions
pcalc640 Word problem involving a sine or cosine function: Problem type 1
pcalc641 Word problem involving a sine or cosine function: Problem type 2
pcalc653 Writing the equation of a sine or cosine function given its graph: Problem type 1
pcalc655 Writing the equation of a sine or cosine function given its graph: Problem type 2
pcalc107 Sketching the graph of a sine or cosine function: Problem type 1
pcalc108 Sketching the graph of a sine or cosine function: Problem type 2
pcalc014 Sketching the graph of a sine or cosine function: Problem type 3
pcalc017 Sketching the graph of a secant or cosecant function: Problem type 1
pcalc636 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
pcalc675 Writing the equation of a secant or cosecant function given its graph: Problem type 1
pcalc676 Writing the equation of a secant or cosecant function given its graph: Problem type 2
pcalc677 Writing the equation of a secant or cosecant function given its graph: Problem type 3
pcalc680 Writing the equation of a tangent or cotangent function given its graph: Problem type 1
pcalc681 Writing the equation of a tangent or cotangent function given its graph: Problem type 2
pcalc682 Writing the equation of a tangent or cotangent function given its graph: Problem type 3
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
pcalc652 Finding solutions in an interval for a trigonometric equation in factored form
pcalc653 Finding solutions in an interval for a trigonometric equation with a squared function: Problem type 1
pcalc654 Finding solutions in an interval for a trigonometric equation with a squared function: Problem type 2
pcalc655 Finding solutions in an interval for a trigonometric equation using Pythagorean identities
pcalc656 Finding solutions in an interval for an equation with sine and cosine using sum and difference identities
pcalc657 Finding solutions in an interval for an equation with sine and cosine using double-angle identities
pcalc658 Solving a trigonometric equation modeling a real-world situation
pcalc611 Using a graphing calculator to solve a trigonometric equation
pcalc127 Using a graphing calculator to solve a trigonometric inequality
pcalc020 Solving a basic trigonometric equation involving sine or cosine
pcalc021 Solving a basic trigonometric equation involving tangent, cotangent, secant, or cosecant
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
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
APPENDIX B. PROGRAMS IN ALEKS

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
pcalc660 Magnitude of a vector
pcalc729 Unit vectors
pcalc739 Multiplication of a vector by a scalar: Geometric approach
pcalc663 Translation of a vector
geom856 Vector addition and scalar multiplication
vector008 Linear combination of vectors: Algebraic approach
geom857 Vector addition: Geometric approach
vector007 Vector subtraction: Geometric approach
vector002 Calculating the magnitude and direction of a vector
vector005 Finding the components of a vector
vector011 Finding magnitudes in a three vector problem
vector012 Solving a force problem with vectors
vector009 Dot product
vector010 Using the dot product to find perpendicular vectors
pcalc730 Finding the angle between two vectors
vector006 Finding the component of a vector along another vector
pcalc555 Plotting a point in polar coordinates
pcalc556 Converting rectangular coordinates to polar coordinates
pcalc657 Converting polar coordinates to rectangular coordinates
pcalc558 Converting an equation written in rectangular coordinates to one written in polar form
pcalc559 Converting an equation written in polar form to one written in rectangular coordinates
pcalc552 Writing a complex number in trigonometric form
pcalc554 De Moivre’s theorem
pcalc887 Finding the nth roots of a number: Problem type 1
pcalc888 Finding the nth roots of a number: Problem type 2

Systems of Linear Equations and Matrices

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
alge076 Solving a system of linear equations using elimination with multiplication and addition
alge752 Solving a system of linear equations that is inconsistent or consistent dependent
alge757 Creating an inconsistent system of linear equations
pcalc099 Consistency and independence of a system of linear equations
alge753 Solving a system of 3 linear equations in 3 unknowns
alge078 Solving a word problem involving a sum and another basic relationship using a system of linear equations
alge814 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
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
alge079 Graphing a system of two linear inequalities: Basic
pcalc903 Solving a word problem using a system of linear inequalities
pcalc905 Linear programming
pcalc894 Solving a word problem using linear programming
pcalc837 Scalar multiplication of a matrix
pcalc838 Addition or subtraction of matrices
pcalc840 Linear combination of matrices
pcalc039 Multiplication of matrices: Basic
B.36. PRECALCULUS

B.36.1. Matrices

- pcalc710 Multiplication of matrices: Advanced
- pcalc042 Finding the determinant of a 2x2 matrix
- pcalc043 Finding the determinant of a 3x3 matrix
- pcalc040 Finding the inverse of a 2x2 matrix
- pcalc041 Finding the inverse 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
- pcalc711 Using the inverse of a matrix to solve a system of linear equations
- pcalc712 Gauss-Jordan elimination with a 2x2 matrix
- pcalc046 Solving a system of linear equations given its augmented matrix

B.36.2. Sequences, Series, and Probability

- pcalc080 Finding the first terms of a sequence using an explicit rule with multiple occurrences of n
- pcalc713 Arithmetic and geometric sequences: Identifying and writing an explicit rule
- pcalc715 Finding a specified term of an arithmetic sequence given two terms of the sequence
- pcalc717 Finding a specified term of a geometric sequence given two terms of the sequence
- pcalc718 Sum of the first n terms of an arithmetic sequence
- pcalc719 Sum of the first n terms of a geometric sequence
- pcalc720 Sum of an infinite geometric series
- pcalc082 Factorial expressions
- 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
- stat117 Probabilities of draws with replacement
- stat118 Probabilities of draws without replacement
- stat119 Venn diagrams: Two events
- stat101 Venn diagrams: Word problems
- stat106 Outcomes and event probability
- stat112 Probabilities involving two dice
- stat114 Probability of intersection or union: Word problems
- stat115 Independent events: Basic
- stat120 Probability of union: Basic
- stat109 Intersection and conditional probability

B.36.3. Conic Sections

- pcalc067 Graphing a parabola with a horizontal or a vertical axis
- pcalc068 Writing an equation of a parabola given the vertex and the focus
- pcalc069 Finding the focus of a parabola
- alge191 Midpoint of a line segment in the plane
- alge132 Distance between two points 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
- pcalc070 Graphing an ellipse centered at the origin: Ax2 + By2 = C
- pcalc734 Graphing an ellipse given its equation in standard form
- pcalc071 Graphing an ellipse given its equation in general form
- pcalc072 Finding the foci of an ellipse
- pcalc073 Writing an equation of an ellipse given the foci and the major axis length
- pcalc074 Writing an equation of an ellipse given the center, an endpoint of an axis, and the length of the other axis
- pcalc075 Graphing a hyperbola centered at the origin: Ax2 - By2 = C = 0
- pcalc735 Graphing a hyperbola given its equation in standard form
- pcalc076 Graphing a hyperbola given its equation in general form
pcalc077 Finding the foci of a hyperbola
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
pcalc736 Classifying conics given their equations
pcalc098 Solving a system of nonlinear equations
pcalc796 Using a graphing calculator to solve a system of equations
pcalc096 Graphing a system of nonlinear inequalities: Problem type 1
pcalc097 Graphing a system of nonlinear inequalities: Problem type 2

Limits and Continuity

pcalc901 Estimating a limit numerically
pcalc902 Finding limits from a graph
pcalc904 Finding limits for a piecewise-defined function
pcalc905 Finding a limit by using the limit laws: Problem type 1
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
pcalc910 Limits at infinity and graphs
pcalc908 Limits at infinity and rational functions
pcalc915 Infinite limits and graphs
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.37 Trigonometry

Algebra and Geometry Review

arith691 Ordering integers
alg001 Identifying numbers as integers or non-integers
alg002 Identifying numbers as rational or irrational
alg188 Properties of real numbers
arith104 Operations with absolute value: Problem type 2
arith702 Exponents and integers: Problem type 1
arith703 Exponents and integers: Problem type 2
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
arith116 Signed fraction addition or subtraction: Basic
arith105 Signed fraction multiplication: Advanced
arith696 Complex fraction without variables: Problem type 2
alg067 Plotting a point in the coordinate plane
alg061 Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
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
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
alg270 Solving an absolute value equation of the form $a - x - = b$ or $-x - + a = b$
B.37. TRIGONOMETRY

- alge103 Solving an absolute value equation of the form \(-ax+b=-c\)
- alge167 Solving an absolute value equation of the form \(-ax+b=+c\)
- 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
- geom143 Finding the perimeter or area of a rectangle given one of these values
- arith031 Finding the original price given the sale price and percent discount
- arith232 Finding simple interest without a calculator
- alge794 Solving a value mixture problem using a linear equation
- alge795 Solving a percent mixture problem using a linear equation
- 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
- alge620 Solving a linear inequality: Problem type 2
- alge621 Solving a linear inequality: Problem type 3
- alge627 Solving a linear inequality: Problem type 4
- alge746 Solving a compound linear inequality: Problem type 1
- alge747 Solving a compound linear inequality: Problem type 2
- alge170 Solving an absolute value inequality: Basic
- alge169 Solving an absolute value inequality: Advanced
- 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
- alge758 Degree and leading coefficient of a univariate 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
- alge603 Multiplying binomials with leading coefficients of 1
- alge502 Squaring a binomial: Univariate
- alge764 Multiplying conjugate binomials: Univariate
- alge765 Multiplying binomials in two variables
- alge180 Multiplication involving binomials and trinomials in two variables
- alge037 Greatest common factor of two multivariate monomials
- alge705 Factoring a quadratic with leading coefficient 1
- alge040 Factoring a quadratic with leading coefficient greater than 1
- alge265 Factoring a quadratic in two variables with leading coefficient greater than 1
- alge624 Factoring a difference of squares
- alge042 Factoring with repeated use of the difference of squares formula
- alge044 Factoring a sum or difference of two cubes
- alge748 Factoring out a monomial from a polynomial: Univariate
- alge739 Factoring out a monomial from a polynomial: Multivariate
- alge041 Factoring a product of a quadratic trinomial and a monomial
- alge038 Factoring a polynomial by grouping: Problem type 1
- alge181 Factoring a polynomial by grouping: Problem type 2
- pcalc675 Factoring out a binomial from a polynomial: Advanced
- alge605 Least common multiple of two monomials
- alge656 Adding rational expressions with common denominators and binomial numerators: Advanced
- alge676 Adding rational expressions with multivariate monomial denominators: Advanced
- alge657 Adding rational expressions with different denominators: ax, bx
- alge622 Adding rational expressions with different denominators: x+a, x+b
- alge661 Adding rational expressions involving different quadratic denominators
- alge710 Simplifying a ratio of polynomials: Problem type 1
- alge682 Simplifying a ratio of polynomials: Problem type 2
- alge053 Multiplying rational expressions involving multivariate monomials
- alge620 Multiplying rational expressions involving quadratics with leading coefficients of 1
- alge684 Dividing rational expressions involving multivariate monomials
- alge766 Dividing rational expressions involving quadratics with leading coefficients of 1
- alge058 Complex fraction involving multivariate monomials
APPENDIX B. PROGRAMS IN ALEKS

alge767 Complex fraction: GCF and quadratic factoring
alge768 Complex fraction made of sums involving rational expressions
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
arith612 Word problem involving multiple rates
alge770 Solving a work problem using a rational equation
alge790 Evaluating expressions with exponents of zero
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
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
alge273 Simplifying a higher root of a whole number
alge811 Simplifying a higher radical expression: Multivariate
alge775 Rationalizing a denominator: Quotient involving higher radicals and monomials
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
alge182 Solving a radical equation that simplifies to a quadratic equation: Two radicals
alge277 Solving an equation with a root index greater than 2
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
alge812 Converting between radical form and exponent form
alge776 Simplifying products or quotients of higher radicals with different indices: Multivariate
alge230 Solving an equation with positive rational exponent
geom044 Pythagorean Theorem
geom801 Area of a triangle
geom802 Circumference and area of a circle
geom838 Circumference ratios
geom142 Word problem involving the area between two rectangles
geom036 Word problem involving the area between two concentric circles
geom302 Area involving rectangles and circles
geom214 Area involving inscribed figures
geom311 Volume of a rectangular prism
geom090 Volume of a triangular prism
geom035 Volume of a cylinder
B.37. TRIGONOMETRY

geom092 Word problem involving the rate of filling or emptying a cylinder
geom841 Volume of a sphere
geom031 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
geom842 Surface area of a sphere
geom037 Similar polygons
geom033 Indirect measurement

Functions and Graphs

set004 Set builder and interval notation
set002 Union and intersection of finite sets
set005 Union and intersection of intervals
fun032 Identifying functions from relations
pcalc757 Determining whether an equation defines a function: Advanced
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
fun016 Domain and range from ordered pairs
pcalc763 Domain of a square root function: Advanced
alg0715 Domain of a rational function
pcalc754 Finding the domain of a fractional function involving radicals
pcalc753 Finding a difference quotient for a function
pcalc768 Finding the average rate of change of a function
alg0216 Determining whether given points lie on one, both, or neither of 2 lines given equations
alge074 Graphing a line given its equation in slope-intercept form
alge075 Graphing a line given its equation in standard form
alge0186 Graphing a line through a given point with a given slope
alge0187 Graphing a vertical or horizontal line
alge0210 Finding x- and y-intercepts of a line given the equation: Advanced
alge0684 Finding slope given the graph of a line on a grid
alge0685 Finding slope given two points on the line
alge0631 Finding the slope of a line given its equation
alge0070 Writing an equation of a line given the y-intercept and another point
alge0071 Writing the equation of a line given the slope and a point on the line
alge0072 Writing the equation of the line through two given points
alge0073 Writing the equations of vertical and horizontal lines through a given point
alge0701 Writing an equation and drawing its graph to model a real-world situation: Advanced
alge0263 Interpreting the graphs of two functions
alge0805 Application problem with a linear function: Finding a coordinate given the slope and a point
alge0806 Application problem with a linear function: Finding a coordinate given two points
geom0807 Finding slopes of lines parallel and perpendicular to a line given in the form Ax + By = C
geom0808 Writing equations of lines parallel and perpendicular to a given line through a point
pcalc761 Finding inputs and outputs of a function from its graph
pcalc750 Finding intercepts of nonlinear function given its graph
pcalc678 Finding x- and y-intercepts of the graph of a nonlinear equation
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
pcalc679 Testing an equation for symmetry about the axes and origin
pcalc114 Even and odd functions
alge0185 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
APPENDIX B. PROGRAMS IN ALEKS

pcalc772 Transforming the graph of a function by shrinking or stretching
pcalc773 Transforming the graph of a function using more than one transformation
alge252 Graphing a parabola of the form y = ax^2
alge262 Graphing a cubic function of the form y = ax^3
pcalc781 Graphing a square root function
alge168 Graphing an absolute value equation in the plane: Advanced
fun0311 Graphing a piecewise-defined function
mstat051 Choosing a graph to fit a narrative: Advanced
fun019 Sum, difference, and product of two functions
alge786 Quotient of two functions
pcalc756 Combining functions: Advanced
fun021 Composition of two functions: Domain and range
fun022 Composition of two functions: Basic
alge129 Composition of two functions: Advanced
pcalc776 Expressing a function as a composition of two functions
fun011 Horizontal line test
pcalc777 Determining whether two functions are inverses of each other
fun012 Inverse functions: Problem type 1
alge130 Inverse functions: Problem type 2
pcalc778 Inverse functions: Problem type 3

Quadratic Functions

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
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
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
alge092 Solving a quadratic equation using the square root property: Problem type 1
alge227 Solving a quadratic equation using the square root property: Problem type 2
alge094 Completing the square
alge780 Solving a quadratic equation by completing the square
alge095 Applying the quadratic formula: Exact answers
alge214 Discriminant of a quadratic equation
alge193 Discriminant of a quadratic equation with parameter
alge703 Solving a word problem using a quadratic equation with rational roots
alge524 Solving a word problem using a quadratic equation with irrational roots
pcalc762 Range of a quadratic function
alge277 Finding the x-intercept(s) and the vertex of a parabola
pcalc774 Rewriting a quadratic function to find the vertex of its graph
pcalc773 Using a graphing calculator to find the x-intercept(s) and vertex of a quadratic function
alge253 Graphing a parabola of the form y = (x-a)^2 + c
pcalc746 Graphing a parabola of the form y = ax^2 + bx + c: Integer coefficients
alge723 How the leading coefficient affects the shape of a parabola
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
pcalc765 Finding x- and y-intercepts given a polynomial function
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

Unit Circle and Right Triangle Trigonometry
B.37. TRIGONOMETRY

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
pcalc622 Coterminal angles
pcalc006 Sketching an angle in standard position
pcalc626 Reference angles: Problem type 1
pcalc632 Reference angles: Problem type 2
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
geom506 Special right triangles
pcalc690 Sine, cosine, and tangent ratios: Variables for side lengths
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 distances
pcalc608 Using a trigonometric ratio to find an angle measure in a right triangle
pcalc611 Using trigonometry to find angles of elevation or depression
pcalc642 Solving a right triangle
pcalc671 Determining the location of a terminal point given the signs of trigonometric values
pcalc629 Trigonometric functions and special angles: Problem type 1
pcalc630 Trigonometric functions and special angles: Problem type 2
pcalc631 Trigonometric functions and special angles: Problem type 3
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

Trigonometric Graphs and Inverse Functions

pcalc633 Amplitude and period of sine and cosine functions
pcalc634 Amplitude, period, and phase shift of sine and cosine functions
pcalc640 Word problem involving a sine or cosine function: Problem type 1
pcalc641 Word problem involving a sine or cosine function: Problem type 2
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
pcalc107 Sketching the graph of a sine or cosine function: Problem type 1
pcalc106 Sketching the graph of a sine or cosine function: Problem type 2
pcalc014 Sketching the graph of a sine or cosine function: Problem type 3
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
pcalc637 Matching graphs and equations for secant, cosecant, tangent, and cotangent functions
pcalc616 Values of inverse trigonometric functions
pcalc018 Composition of a trigonometric function and an inverse trigonometric function: Problem type 1
pcalc019 Composition of a trigonometric function and an inverse trigonometric function: Problem type 2
pcalc036 Composition of a trigonometric function and an inverse trigonometric function: Problem type 3
pcalc643 Composition of a trigonometric function and an inverse trigonometric function: Problem type 4

Trigonometric Identities and Equations

pcalc648 Simplifying trigonometric expressions
pcalc666 Using cofunction identities
pcalc029 Sum and difference identities: Problem type 1
pcalc663 Sum and difference identities: Problem type 2
Applications of 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
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
pcalc660 Magnitude of a vector
pcalc729 Unit vectors
pcalc739 Multiplication of a vector by a scalar: Geometric approach
pcalc6063 Translation of a vector
geom856 Vector addition and scalar multiplication
vector008 Linear combination of vectors: Algebraic approach
geom857 Vector addition: Geometric approach
vector007 Vector subtraction: Geometric approach
vector002 Calculating the magnitude and direction of a vector
vector005 Finding the components of a vector
vector011 Finding magnitudes in a three vector problem
vector012 Solving a force problem with vectors
vector009 Dot product
vector010 Using the dot product to find perpendicular vectors
B.37. TRIGONOMETRY

pcalc730 Finding the angle between two vectors
vector006 Finding the component of a vector along another vector
pcalc055 Plotting a point in polar coordinates
pcalc056 Converting rectangular coordinates to polar coordinates
pcalc057 Converting polar coordinates to rectangular coordinates
pcalc058 Converting an equation written in rectangular coordinates to one written in polar form
pcalc059 Converting an equation written in polar form to one written in rectangular coordinates
pcalc052 Writing a complex number in trigonometric form
pcalc054 De Moivre’s theorem
pcalc807 Finding the nth roots of a number: Problem type 1
pcalc808 Finding the nth roots of a number: Problem type 2

Conic Sections

pcalc067 Graphing a parabola with a horizontal or a vertical axis
pcalc068 Writing an equation of a parabola given the vertex and the focus
pcalc069 Finding the focus of a parabola
alg191 Midpoint of a line segment in the plane
alg132 Distance between two points in the plane
pcalc695 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
pcalc070 Graphing an ellipse centered at the origin: $Ax^2 + By^2 = C$
pcalc074 Graphing an ellipse given its equation in standard form
pcalc071 Graphing an ellipse given its equation in general form
pcalc072 Finding the foci of an ellipse
pcalc073 Writing an equation of an ellipse given the foci and the major axis length
pcalc074 Writing an equation of an ellipse given the center, an endpoint of an axis, and the length of the other axis
pcalc075 Graphing a hyperbola centered at the origin: $Ax^2 - By^2 - C = 0$
pcalc079 Graphing a hyperbola given its equation in standard form
pcalc076 Graphing a hyperbola given its equation in general form
pcalc077 Finding the foci of a hyperbola
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
pcalc736 Classifying conics given their equations

Exponential and Logarithmic Functions

pcalc798 Evaluating an exponential function that models a real-world situation
alg108 Converting between logarithmic and exponential equations
pcalc799 Converting between natural logarithmic and exponential equations
alg232 Evaluating a logarithmic expression
pcalc708 Basic properties of logarithms
alg787 Writing an expression as a single logarithm
pcalc779 Expanding a logarithmic expression: Problem type 1
pcalc780 Expanding a logarithmic expression: Problem type 2
pcalc612 Change of base for logarithms: Problem type 1
pcalc613 Change of base for logarithms: Problem type 2
alg233 Solving an equation of the form $\log_b a = c$
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
alg111 Solving an exponential equation by using logarithms: Exact answers in logarithmic form
alg112 Solving an exponential equation by finding common bases: Linear and quadratic exponents
alg789 Solving exponential equations by using logarithms and natural logarithms: Decimal answers
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pcalc802 Solving an exponential equation by using substitution and quadratic factoring
pcalc806 Using a graphing calculator to solve an exponential or logarithmic equation
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 exponential growth or decay
alge741 Compound interest
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: \( f(x) = a(e)^{x-b} + c \)
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
pcalc102 Translating the graph of a logarithmic or exponential function

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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
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
arith007 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
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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
arith623 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
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
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

Fractions

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
arith677 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
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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
arith095 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
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
arith810 Addition and subtraction of 3 mixed numbers with different denominators
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
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
arith717 Converting a decimal to a proper fraction without simplifying: Basic
arith719 Converting a decimal to a proper fraction without simplifying: Advanced
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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
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
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
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

Ratios, Proportions, and Percents

arith823 Writing ratios using different notations
arith663 Writing ratios for real-world situations
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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
arith010 Word problem on proportions: Problem type 1
arith011 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
arith764 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
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
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
arith861 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
alge741 Compound interest
arith854 Computing a percent mixture

Geometry

gem339 Perimeter of a polygon
gem300 Perimeter of a square or a rectangle
gem618 Perimeter of a polygon involving mixed numbers and fractions
gem078 Sides of polygons having the same perimeter
gem222 Finding the missing length in a figure
gem353 Perimeter of a piecewise rectangular figure
gem358 Identifying parallel and perpendicular lines
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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 Scalene, isosceles, and equilateral triangles
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 Classifying 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 area and perimeter
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 Circumference and area of a circle
geom307 Area involving rectangles and circles
geom036 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
geom305 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
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
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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
geom037 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
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arith856 Finding a percentage of a total amount in a circle graph
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mstat066 Weighted mean
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arith699 Writing a signed number for a real-world situation
arith691 Ordering integers
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arith688 Integer subtraction: Problem type 1
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arith701 Word problem with addition or subtraction of integers
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alg002 Identifying numbers as rational or irrational
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arith864 Signed fraction subtraction involving double negation
arith106 Signed fraction addition or subtraction: Advanced
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arith822 Signed fraction multiplication: Basic
arith105 Signed fraction multiplication: Advanced
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arith702 Exponents and integers: Problem type 1
arith703 Exponents and integers: Problem type 2
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arith600 Order of operations with integers and exponents
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arith636 Scientific notation with positive exponent
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scinot012 Converting between scientific notation and standard form in a real-world situation

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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
alg604 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
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alg513 Solving for a variable in terms of other variables using multiplication or division: Basic
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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
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
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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
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alge512 Solving for a variable in terms of other variables using addition or subtraction: Advanced
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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 parallel lines
geom822 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
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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
alge864 Multiplicative property of inequality with signed fractions
alge855 Solving a two-step linear inequality: Problem type 1
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alge850 Table for a linear equation
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fun005 Writing a function rule given a table of ordered pairs: One-step rules
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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
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alge881 Graphing a line by first finding its x- and y-intercepts
alge954 Graphing a parabola of the form y = ax2
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
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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
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alge903 Identifying direct and inverse variation equations
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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
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alge821 Understanding the product rule of exponents
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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
alge081 Multiplying conjugate binomials: Multivariate
alge032 Squaring a binomial: Univariate
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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
arith895 Evaluating an algebraic expression: Whole numbers with two operations
arith832 Evaluating an algebraic expression: Whole number operations and exponents
arith156 Factors
arith134 Prime numbers
arith135 Prime factorization
arith153 Greatest common factor of 2 numbers
arith170 Least common multiple of 2 numbers
arith184 Least common multiple of 3 numbers
arith240 Word problem with common multiples
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<th>Description</th>
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- 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
- 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
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- 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
- 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
- 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
- mstat003 Mode of a data set
- 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
- geom339 Perimeter of a polygon
- geom018 Perimeter of a polygon involving mixed numbers and fractions
- geom078 Sides of polygons having the same perimeter
- geom019 Area of a square or a rectangle
- geom350 Distinguishing between area and perimeter
- geom020 Area of a rectangle involving fractions
- geom019 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
- geom092 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
- 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
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geom091 Surface area of a triangular prism
geom061 Surface area of a cylinder
geom842 Surface area of a sphere
geom303 Acute, obtuse, and right angles
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arith829 Reading decimal position on a number line: Tenths
arith830 Reading decimal position on a number line: Hundredths
alge266 Plotting integers on a number line
arith605 Plotting rational numbers on a number line
arith699 Writing a signed number for a real-world situation
arith92 Using a common denominator to order fractions
arith129 Introduction to ordering decimals
arith608 Ordering decimals
arith609 Ordering fractions and decimals
arith691 Ordering integers
arith616 Square root of a perfect square
arith763 Using a calculator to approximate a square root
arith602 Estimating a square root
arith712 Ordering real numbers
arith61 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
arith864 Signed fraction subtraction involving double negation
arith106 Signed fraction addition or subtraction: Advanced
arith81 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
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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
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alge004 Evaluating a quadratic expression: Integers
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alge808 Evaluating a linear expression: Signed fraction multiplication with addition or subtraction
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alge303 Evaluating a linear expression: Signed decimal multiplication with addition or subtraction
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alge607 Combining like terms: Integer coefficients
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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
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alge609 Using distribution with double negation and combining like terms to simplify: Multivariate
alge293 Combining like terms in a quadratic expression

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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
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
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
alge603 Introduction to solving an absolute value equation
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
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<tr>
<th>Program Name</th>
<th>Description</th>
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<tbody>
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<td>alg512</td>
<td>Solving for a variable in terms of other variables using addition or subtraction: Advanced</td>
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<tr>
<td>alg513</td>
<td>Solving for a variable in terms of other variables using multiplication or division: Basic</td>
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<td>alg514</td>
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<td>alg517</td>
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<td>alg507</td>
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<td>alg831</td>
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<td>alg291</td>
<td>Translating a phrase into a two-step expression</td>
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<td>alg016</td>
<td>Translating a sentence into a one-step equation</td>
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<td>alg841</td>
<td>Translating a sentence into a multi-step equation</td>
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<tr>
<td>alg802</td>
<td>Solving a fraction word problem using a linear equation of the form $Ax = B$</td>
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<td>alg014</td>
<td>Solving a word problem with two unknowns using a linear equation</td>
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<tr>
<td>alg173</td>
<td>Solving a decimal word problem using a linear equation of the form $Ax + B = C$</td>
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<td>alg219</td>
<td>Solving a decimal word problem using a linear equation with the variable on both sides</td>
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<td>alg704</td>
<td>Solving a fraction word problem using a linear equation with the variable on both sides</td>
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<td>alg792</td>
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<td>alg842</td>
<td>Solving a word problem involving consecutive integers</td>
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<td>alg730</td>
<td>Writing a multi-step equation for a real-world situation</td>
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<td>alg794</td>
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<tr>
<td>alg823</td>
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<tr>
<td>alg218</td>
<td>Solving a word problem involving rates and time conversion</td>
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<tr>
<td>alg796</td>
<td>Solving a distance, rate, time problem using a linear equation</td>
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<tr>
<td>mstat065</td>
<td>Converting between temperatures in Fahrenheit and Celsius</td>
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<td>geom217</td>
<td>Finding the side length of a rectangle given its perimeter or area</td>
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<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>
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<tr>
<td>geom218</td>
<td>Finding the radius or the diameter of a circle given its circumference</td>
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<tr>
<td>geom530</td>
<td>Solving equations involving vertical angles</td>
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<tr>
<td>geom001</td>
<td>Finding an angle measure of a triangle given two angles</td>
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<tr>
<td>geom623</td>
<td>Finding angle measures of a triangle given angles with variables</td>
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<tr>
<td>geom902</td>
<td>Finding angle measures of a right or isosceles triangle given angles with variables</td>
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<td>geom812</td>
<td>Finding an angle measure given extended triangles</td>
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<td>geom813</td>
<td>Finding an angle measure given a triangle and parallel lines</td>
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<td>stat803</td>
<td>Finding the value for a new score that will yield a given mean</td>
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<tr>
<td>arith840</td>
<td>Finding a percentage of a whole number without a calculator: Basic</td>
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<tr>
<td>arith844</td>
<td>Finding a percentage of a whole number without a calculator: Advanced</td>
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<tr>
<td>arith862</td>
<td>Applying the percent equation: Problem type 1</td>
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<tr>
<td>arith863</td>
<td>Applying the percent equation: Problem type 2</td>
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<tr>
<td>arith845</td>
<td>Finding a percentage of a total amount: Real-world situations</td>
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<tr>
<td>arith846</td>
<td>Finding a percentage of a total amount without a calculator: Sales tax, commission, discount</td>
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<tr>
<td>arith857</td>
<td>Estimating a tip without a calculator</td>
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<td>arith069</td>
<td>Writing a ratio as a percentage without a calculator</td>
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<td>mstat049</td>
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<tr>
<td>arith850</td>
<td>Finding the rate of a tax or commission</td>
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<tr>
<td>arith849</td>
<td>Finding the total amount given the percentage of a partial amount</td>
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<tr>
<td>arith852</td>
<td>Finding the multiplier to give a final amount after a percentage increase or decrease</td>
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<tr>
<td>arith851</td>
<td>Finding the final amount given the original amount and a percentage increase or decrease</td>
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<tr>
<td>arith847</td>
<td>Finding the sale price given the original price and percent discount</td>
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<tr>
<td>arith074</td>
<td>Finding the sale price without a calculator given the original price and percent discount</td>
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<tr>
<td>arith848</td>
<td>Finding the total cost including tax or markup</td>
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<td>arith855</td>
<td>Finding the original amount given the result of a percentage increase or decrease</td>
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<tr>
<td>arith031</td>
<td>Finding the original price given the sale price and percent discount</td>
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<tr>
<td>arith858</td>
<td>Finding the percentage increase or decrease: Basic</td>
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<tr>
<td>arith225</td>
<td>Finding the percentage increase or decrease: Advanced</td>
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<tr>
<td>unit052</td>
<td>Finding the absolute error and percent error of a measurement</td>
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<td>arith854</td>
<td>Computing a percent mixture</td>
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<tr>
<td>alg795</td>
<td>Solving a percent mixture problem using a linear equation</td>
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<td>stat804</td>
<td>Interpreting a circle graph or pie chart</td>
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<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>
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</tbody>
</table>
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: Problem type 1
- alge747 Solving a compound linear inequality: Problem type 2
- 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
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<tr>
<td>alge888</td>
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<tr>
<td>alge259</td>
<td>Graphing a line given its slope and y-intercept</td>
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<tr>
<td>alge196</td>
<td>Graphing a line through a given point with a given slope</td>
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<tr>
<td>alge876</td>
<td>Identifying linear equations: Advanced</td>
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<tr>
<td>alge874</td>
<td>Identifying linear functions given ordered pairs</td>
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<tr>
<td>alge891</td>
<td>Rewriting a linear equation in the form $Ax + By = C$</td>
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<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>
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<tr>
<td>alge882</td>
<td>Graphing a line by first finding its slope and y-intercept</td>
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<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>
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<tr>
<td>alge893</td>
<td>Writing an equation in slope-intercept form given the slope and a point</td>
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<tr>
<td>alge883</td>
<td>Graphing a line given its equation in point-slope form</td>
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<tr>
<td>alge894</td>
<td>Writing an equation in point-slope form given the slope and a point</td>
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<td>alge070</td>
<td>Writing an equation of a line given the y-intercept and another point</td>
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<td>alge072</td>
<td>Writing the equation of the line through two given points</td>
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<td>alge073</td>
<td>Writing the equations of vertical and horizontal lines through a given point</td>
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<td>geom806</td>
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<tr>
<td>geom807</td>
<td>Finding slopes of lines parallel and perpendicular to a line given in the form $Ax + By = C$</td>
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<tr>
<td>alge895</td>
<td>Identifying parallel and perpendicular lines from equations</td>
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<tr>
<td>geom808</td>
<td>Writing equations of lines parallel and perpendicular to a given line through a point</td>
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<tr>
<td>alge897</td>
<td>Writing and evaluating a function that models a real-world situation: Advanced</td>
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<tr>
<td>alge701</td>
<td>Writing an equation and drawing its graph to model a real-world situation: Advanced</td>
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<tr>
<td>fun005</td>
<td>Writing a function rule given a table of ordered pairs: One-step rules</td>
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<td>fun006</td>
<td>Writing a function rule given a table of ordered pairs: Two-step rules</td>
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<td>alge992</td>
<td>Combining functions to write a new function that models a real-world situation</td>
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<td>alge987</td>
<td>Comparing properties of linear functions given in different forms</td>
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<td>alge989</td>
<td>Interpreting the parameters of a linear function that models a real-world situation</td>
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<td>alge805</td>
<td>Application problem with a linear function: Finding a coordinate given the slope and a point</td>
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<tr>
<td>alge806</td>
<td>Application problem with a linear function: Finding a coordinate given two points</td>
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<tr>
<td>mstat052</td>
<td>Identifying independent and dependent variables from equations or real-world situations</td>
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<td>mstat030</td>
<td>Sketching the line of best fit</td>
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<td>mstat023</td>
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<td>mstat068</td>
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<td>mstat067</td>
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<td>mstat069</td>
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<td>mstat070</td>
<td>Interpreting residual plots</td>
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<td>mstat071</td>
<td>Linear relationship and the correlation coefficient</td>
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<td>mstat074</td>
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<tr>
<td>alge898</td>
<td>Translating the graph of an absolute value function: One step</td>
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<tr>
<td>alge899</td>
<td>Translating the graph of an absolute value function: Two steps</td>
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<td>alge913</td>
<td>Graphing an absolute value equation of the form $y = A -</td>
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<td>alge901</td>
<td>How the leading coefficient affects the graph of an absolute value function</td>
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<td>fun032</td>
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<td>fun016</td>
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<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</td>
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<td>alge295</td>
<td>Finding outputs of a two-step function with decimals that models a real-world situation: Function notation</td>
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<td>alge296</td>
<td>Finding inputs and outputs of a two-step function that models a real-world situation: Function notation</td>
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<td>alge990</td>
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<td>fun026</td>
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<td>pcalc761</td>
<td>Finding inputs and outputs of a function from its graph</td>
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<tr>
<td>fun007</td>
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<td>fun024</td>
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<tr>
<td>alge896</td>
<td>Graphing an integer function and finding its range for a given domain</td>
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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
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
alge976 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 system of linear equations that is inconsistent or consistent dependent
alge988 Identifying the operations used to create equivalent systems of equations
alge753 Solving a system of 3 linear equations in 3 unknowns
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
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
pcalc93 Solving a word problem using a system of linear inequalities

**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
APPENDIX B. PROGRAMS IN ALEKS

Introduction to the quotient rule of exponents
Simplifying a ratio of univariate monomials
Quotient of expressions involving exponents
Simplifying a ratio of multivariate monomials: Advanced
Power and quotient rules with positive exponents
Evaluating expressions with exponents of zero
Power of 10: Negative exponent
Evaluating an expression with a negative exponent: Whole number base
Evaluating an expression with a negative exponent: Positive fraction base
Evaluating an expression with a negative exponent: Negative integer base
Ordering numbers with negative exponents
Rewriting an algebraic expression without a negative exponent
Introduction to the product rule with negative exponents
Product rule with negative exponents
Quotient rule with negative exponents: Problem type 1
Quotient rule with negative exponents: Problem type 2
Power of a power rule with negative exponents
Power rules with negative exponents
Power and quotient rules with negative exponents: Problem type 1
Power and quotient rules with negative exponents: Problem type 2
Power, product, and quotient rules with negative exponents
Scientific notation with positive exponent
Scientific notation with negative exponent
Converting between scientific notation and standard form in a real-world situation
Multiplying numbers written in scientific notation: Basic
Multiplying numbers written in scientific notation: Advanced
Dividing numbers written in scientific notation: Basic
Dividing numbers written in scientific notation: Advanced
Table for an exponential function
Evaluating an exponential function that models a real-world situation
Introduction to compound interest
Finding a final amount in a word problem on exponential growth or decay
Compound interest
Finding the initial amount and rate of change given an exponential function
Solving an exponential equation by finding common bases: Linear exponents
Graphing an exponential function: f(x) = ax
Graphing an exponential function: f(x) = a(b)x
Writing an exponential function rule given a table of ordered pairs
Comparing linear, polynomial, and exponential functions

Polynomials and Factoring

Degree and leading coefficient of a univariate polynomial
Degree of a multivariate polynomial
Simplifying a sum or difference of two univariate polynomials
Simplifying a sum or difference of three univariate polynomials
Simplifying a sum or difference of multivariate polynomials
Multiplying a univariate polynomial by a monomial with a positive coefficient
Multiplying a univariate polynomial by a monomial with a negative coefficient
Multiplying a multivariate polynomial by a monomial
Multiplying binomials with leading coefficients of 1
Multiplying binomials with leading coefficients greater than 1
Multiplying binomials in two variables
Multiplying conjugate binomials: Univariate
Multiplying conjugate binomials: Multivariate
Squaring a binomial: Univariate
Squaring a binomial: Multivariate
Multiplying binomials with negative coefficients
Multiplication involving binomials and trinomials in one variable
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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
alge005 Factoring a linear binomial
alge746 Introduction to the GCF of two monomials
alge690 Greatest common factor of three univariate monomials
alge607 Greatest common factor of two multivariate monomials
alge788 Factoring out a monomial from a polynomial: Univariate
alge789 Factoring out a monomial from a polynomial: Multivariate
alge949 Factoring out a binomial from a polynomial: Basic
alge950 Factoring out a binomial from a polynomial: Problem type 1
alge951 Factoring out a binomial from a polynomial: Problem type 2
alge952 Factoring out a binomial from a polynomial: Problem type 3
alge953 Factoring out a constant before factoring a quadratic
alge954 Factoring a quadratic with leading coefficient greater than 1: Problem type 1
alge955 Factoring a quadratic with leading coefficient greater than 1: Problem type 2
alge956 Factoring a quadratic with leading coefficient greater than 1: Problem type 3
alge957 Factoring a quadratic by the ac-method
alge958 Factoring a quadratic with leading coefficient greater than 1
alge959 Factoring a quadratic with leading coefficient greater than 1
alge960 Factoring a quadratic with leading coefficient greater than 1
alge961 Factoring a quadratic with leading coefficient greater than 1
alge962 Factoring a quadratic with leading coefficient greater than 1
alge963 Factoring a quadratic with leading coefficient greater than 1
alge964 Factoring a perfect square trinomial with leading coefficient greater than 1
alge965 Factoring a perfect square trinomial with leading coefficient greater than 1
alge966 Factoring a perfect square trinomial in two variables
alge967 Factoring a difference of squares in one variable: Basic
alge968 Factoring a difference of squares in one variable: Advanced
alge969 Factoring a difference of squares in two variables
alge970 Factoring a polynomial involving a GCF and a difference of squares: Univariate
alge971 Factoring a polynomial involving a GCF and a difference of squares: Multivariate
alge972 Factoring a product of a quadratic trinomial and a monomial
alge973 Factoring with repeated use of the difference of squares formula
alge974 Factoring a sum or difference of two cubes
alge975 Factoring an equation written in factored form
alge976 Finding the roots of a quadratic equation of the form ax2 + bx = 0
alge977 Finding the roots of a quadratic equation with leading coefficient 1
alge978 Finding the roots of a quadratic equation with leading coefficient greater than 1
alge979 Solving a quadratic equation needing simplification
alge980 Solving a word problem using a quadratic equation with rational roots
alge981 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

alge490 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
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
APPENDIX B. PROGRAMS IN ALEKS

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
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 bxn
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 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 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
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
arith828 Computing unit prices to find the better buy
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 involving multiple rates
arith611 Word problem on proportions: Problem type 1
gom037 Similar polygons
gom038 Similar right triangles
gom337 Indirect measurement
gom538 Circumference ratios
arith612 Word problem involving multiple rates
alge770 Solving a work problem using a rational equation
alge509 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
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
APPENDIX B. PROGRAMS IN ALEKS

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
alg0520 Introduction to simplifying a radical expression with an odd exponent
alg0521 Simplifying a radical expression with an odd exponent
alg0275 Simplifying a radical expression with two variables
alg0273 Simplifying a higher root of a whole number
alg0551 Introduction to simplifying a higher radical expression
alg0552 Simplifying a higher radical expression: Univariate
alg0811 Simplifying a higher radical expression: Multivariate
arith767 Introduction to square root addition or subtraction
arith032 Square root addition or subtraction
alg0533 Square root addition or subtraction with three terms
alg0531 Introduction to simplifying a sum or difference of radical expressions: Univariate
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
arith0764 Introduction to square root multiplication
arith765 Square root multiplication: Basic
arith039 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
arith0766 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
alg0809 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
alg0403 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
alg0406 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
alge182 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
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
alg546 Converting between radical form and exponent form
alg0560 Rational exponents: Unit fraction exponents and whole number bases
Complex Numbers and Quadratic Equations

\begin{itemize}
  \item \texttt{alg002} Using \( i \) to rewrite square roots of negative numbers
  \item \texttt{alg003} Simplifying a product and quotient involving square roots of negative numbers
  \item \texttt{pcal004} Adding or subtracting complex numbers
  \item \texttt{pcal005} Multiplying complex numbers
  \item \texttt{pcal006} Dividing complex numbers
  \item \texttt{alg008} Solving an equation of the form \( x^2 = a \) using the square root property
  \item \texttt{alg009} Solving a quadratic equation using the square root property: Problem type 1
  \item \texttt{alg010} Solving a quadratic equation using the square root property: Problem type 2
  \item \texttt{alg011} Completing the square
  \item \texttt{pcal007} Solving a quadratic equation by completing the square
  \item \texttt{alg012} Applying the quadratic formula: Exact answers
  \item \texttt{alg013} Applying the quadratic formula: Decimal answers
  \item \texttt{pcal008} Solving a quadratic equation with complex roots
  \item \texttt{alg014} Discriminant of a quadratic equation
  \item \texttt{alg015} Finding the vertex, \( x \)-intercepts, and axis of symmetry from the graph of a parabola
  \item \texttt{alg016} Translating the graph of a parabola: One step
  \item \texttt{pcal009} Graphing a parabola of the form \( y = (x-a)^2 + c \)
  \item \texttt{alg017} Graphing a parabola of the form \( y = x^2 + bx + c \)
  \item \texttt{pcal010} Graphing a parabola of the form \( y = ax^2 + bx + c \): Integer coefficients
  \item \texttt{pcal011} Graphing a parabola of the form \( y = ax^2 + bx + c \): Rational coefficients
  \item \texttt{alg018} Finding the \( x \)-intercept(s) and the vertex of a parabola
  \item \texttt{pcal014} Rewriting a quadratic function to find the vertex of its graph
  \item \texttt{pcal015} Finding the maximum or minimum of a quadratic function
  \item \texttt{alg019} Word problem involving the maximum or minimum of a quadratic function
  \item \texttt{alg020} Domain and range from the graph of a parabola
  \item \texttt{pcal016} Range of a quadratic function
  \item \texttt{alg021} Solving a quadratic equation by graphing
  \item \texttt{alg022} Comparing properties of quadratic functions given in different forms
  \item \texttt{alg023} Classifying the graph of a function
  \item \texttt{alg024} Identifying linear, quadratic, and exponential functions given ordered pairs
  \item \texttt{alg025} Graphing a cubic function of the form \( y = ax^3 \)
  \item \texttt{fun009} Sum, difference, and product of two functions
  \item \texttt{fun010} Composition of two functions: Basic
  \item \texttt{pcal017} Expressing a function as a composition of two functions
  \item \texttt{pcal018} Determining whether an equation defines a function: Basic
  \item \texttt{pcal019} Determining whether an equation defines a function: Advanced
\end{itemize}
APPENDIX B. PROGRAMS IN ALEKS

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
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
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
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
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
arith655 Introduction to properties of addition
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
alge293 Combining like terms in a quadratic expression
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
geom822 Area of a parallelogram
geom823 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
geom306 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
geom633 Volume of a pyramid
geom835 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
geom831 Surface area of a cube or a rectangular prism
geom891 Surface area of a triangular prism
geom621 Surface area of a cylinder
geom842 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
alge068 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
alge996 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
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 \(x/a = b/c\)
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
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
alge790 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
geom902 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
alge852 Finding the multiplier to give a final amount after a percentage increase or decrease
alge851 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
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
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
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: Problem type 1
alge747 Solving a compound linear inequality: Problem type 2
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 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
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
APPENDIX B. PROGRAMS IN ALEKS

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
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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
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mstat018 Choosing a graph to fit a narrative: Basic
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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

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alge024 Introduction to the product rule of exponents
alge025 Product rule with positive exponents: Univariate
alge026 Product rule with positive exponents: Multivariate
arith029 Ordering numbers with positive exponents
alge034 Understanding the power rules of exponents
alge036 Introduction to the power of a power rule of exponents
alge037 Introduction to the power of a product rule of exponents
alge038 Power rules with positive exponents: Multivariate products
alge039 Power rules with positive exponents: Multivariate quotients
alge035 Power and product rules with positive exponents
alge041 Simplifying a ratio of multivariate monomials: Basic
alge042 Introduction to the quotient rule of exponents
alge043 Simplifying a ratio of univariate monomials
alge044 Quotient of expressions involving exponents
alge045 Simplifying a ratio of multivariate monomials: Advanced
alge046 Power and quotient rules with positive exponents
FACTORS POLYNOMIALS

alge034 Prime numbers
arithmetic033 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
alge024 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: 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
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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
alge949 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
alge081 Solving an equation written in factored form
alge056 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
alge046 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

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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
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
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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
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
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
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
Appendix B. Programs 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
- 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 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
- alge540 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
- alge099 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
- 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
B.40. MATH FOR 4-YEAR COLLEGE SUCCESS

Quadratic Equations and Functions

- Using $i$ to rewrite square roots of negative numbers
- Simplifying a product and quotient involving square roots of negative numbers
- Adding or subtracting complex numbers
- Multiplying complex numbers
- Dividing complex numbers
- Simplifying a power of $i$

- Solving an equation of the form $x^2 = a$ using the square root property
- Solving a quadratic equation using the square root property: Problem type 1
- Solving a quadratic equation using the square root property: Problem type 2
- Completing the square
- Solving a quadratic equation by completing the square
- Applying the quadratic formula: Exact answers
- Applying the quadratic formula: Decimal answers
- Solving a quadratic equation with complex roots
- Discriminant of a quadratic equation
- Discriminant of a quadratic equation with parameter
- Solving a word problem using a quadratic equation with irrational roots
- Solving an equation using the odd-root property: Problem type 1
- Solving an equation using the odd-root property: Problem type 2
- Solving a quadratic equation that can be written in quadratic form: Problem type 1
- Solving a quadratic equation that can be written in quadratic form: Problem type 2
- Solving an equation with positive rational exponent
- Solving an equation with negative rational exponent
- Finding the vertex, x-intercepts, and axis of symmetry from the graph of a parabola
- Graphing a parabola of the form $y = (x-a)^2 + c$
- Graphing a parabola of the form $y = ax^2 + bx + c$:
  - Integer coefficients
  - Rational coefficients
- 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
- Rewriting a quadratic function to find the vertex of 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 parabola
- 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
- How the leading coefficient affects the shape of a parabola
- Solving a quadratic inequality written in factored form
- Solving a quadratic inequality
- Graphing a polynomial inequality
- Solving a rational inequality: Problem type 1
- Solving a rational inequality: Problem type 2

Function Operations and Inverses

- Translating the graph of a parabola: One step
- Translating the graph of an absolute value function: One step
- Translating the graph of an absolute value function: Two steps
- Graphing an absolute value equation in the plane: Basic
- Graphing an absolute value equation in the plane: Advanced
- How the leading coefficient affects the graph of an absolute value function
- 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
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: Problem type 1
alge130 Inverse functions: Problem type 2
pcalc778 Inverse functions: Problem type 3

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 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 \( \log_a b = c \)
pcalc923 Translating the graph of a logarithmic function
alge788 Graphing a logarithmic function: Basic
alge980 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
pcalc921 Solving an exponential equation by using natural logarithms: Decimal answers
alge111 Solving an exponential equation by using logarithms: Exact answers in logarithmic form
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 exponential growth or decay

Conic Sections and Sequences

alge191 Midpoint of a line segment in the plane
alge144 Finding an endpoint of a line segment given the other endpoint and the midpoint
alge132 Distance between two points in the plane
pcalc067 Graphing a parabola with a horizontal or a vertical axis
pcalc068 Writing an equation of a parabola given the vertex and the focus
pcalc069 Finding the focus of a parabola
pcalc128 Graphing a circle given its equation in standard form
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
pcalc70 Graphing an ellipse centered at the origin: $Ax^2 + By^2 = C$
pcalc711 Graphing an ellipse given its equation in general form
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
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
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
alge980 Finding 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
alge905 Identifying linear, quadratic, and exponential functions given ordered pairs
pcalc082 Factorial expressions
pcalc087 Binomial formula
APPENDIX B. PROGRAMS IN ALEKS

B.41 Math Prep. for the CAHSEE

Number Sense

arith001 Addition without carry
arith050 Addition with carry
arith007 Subtraction without borrowing
arith006 Subtraction with borrowing
arith613 Word problem with addition or subtraction of whole numbers
arith077 Ordering large numbers
arith078 Rounding to tens or hundreds
arith061 Rounding to thousands, ten thousands, or hundred thousands
arith103 Average of two numbers
arith08 One-digit multiplication
arith093 Multiplication without carry
arith004 Multiplication with carry
arith075 Division facts
arith052 Division without carry
arith005 Division with carry
arith614 Word problem with multiplication or division of whole numbers
arith23 Word problem with division of whole numbers and rounding
arith101 Estimating a sum of whole numbers
arith102 Estimating a difference of whole numbers
arith677 Estimating a product
arith78 Estimating a quotient
arith604 Estimating a product or quotient of whole numbers
arith048 Order of operations with whole numbers
arith051 Order of operations with whole numbers and grouping symbols
arith056 Factors
arith034 Prime numbers
arith035 Prime factorization
arith240 Word problem with common multiples
arith033 Greatest common factor of 2 numbers
arith070 Least common multiple of 2 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
arith018 Addition or subtraction of fractions with the same denominator
arith230 Addition or subtraction of fractions with different denominators
arith100 Fractional part of a circle
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
arith220 Decimal place value: Hundreds to ten thousandths
arith221 Decimal place value: Thousandths
arith222 Decimal place value: Ten thousandths
arith223 Decimal place value: Hundred thousandths
arith224 Decimal place value: Millionths
arith225 Decimal place value: Ten millionths
arith226 Decimal place value: Hundred millionths
arith227 Decimal place value: Ten hundred millionths
arith608 Ordering 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
arith015 Writing an improper fraction as a mixed number
arith019 Writing a mixed number as an improper fraction
arith023 Converting a mixed number to a decimal
arith082 Multiplication of a decimal by a power of ten
arith017 Multiplication of a decimal by a whole number
arith028 Word problem with multiple decimal operations: Problem type 1
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arith083 Division of a decimal by a power of ten
arith629 Word problem with multiple decimal operations: Problem type 2
arith609 Ordering fractions and decimals
arith667 Plotting fractions on a number line
alge286 Plotting integers on a number line
arith605 Plotting rational numbers on a number line
arith671 Absolute value of a number
arith200 Integer addition: Problem type 1
arith108 Integer addition: Problem type 2
arith107 Integer subtraction
arith231 Integer multiplication and division
arith106 Signed fraction addition or subtraction: Advanced
arith105 Signed fraction multiplication: Advanced
arith683 Power of 10: Positive exponent
arith84 Power of 10: Negative exponent
arith036 Scientific notation with positive exponent
arith037 Scientific notation with negative exponent
arith016 Square root of a perfect square
arith601 Square root of a rational perfect square
arith602 Estimating a square root
arith047 Evaluating expressions with exponents: Problem type 1
arith049 Evaluating expressions with exponents: Problem type 2
arith600 Order of operations with integers and exponents
arith228 Word problem on unit rates associated with ratios of whole numbers: Decimal answers
arith612 Word problem involving multiple rates
alge272 Solving a proportion of the form \( \frac{x}{a} = \frac{b}{c} \)
arith604 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
arith226 Converting between percentages and decimals
arith090 Converting a percentage to a fraction in simplest form
arith092 Converting a fraction to a percentage: Denominator of 20, 25, or 50
arith030 Finding a percentage of a whole number without a calculator: Basic
arith069 Writing a ratio as a percentage without a calculator
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

Statistics, Data Analysis, and Probability

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
mstat004 Constructing a histogram for numerical data
mstat005 Constructing a bar graph for non-numerical data
mstat024 Interpreting a bar graph
mstat007 Interpreting a line graph
mstat044 Interpreting a double bar graph
stat801 Computations from a circle graph
stat804 Interpreting a circle graph or pie chart
mstat023 Scatter plots and correlation
mstat003 Mode of a data set
mstat028 Mean and median of a data set
mstat014 Random samples and prediction
mstat025 Finding if a question can be answered by the data
stat802 Rejecting unreasonable claims based on average statistics
stat805 Making a reasonable inference based on proportion statistics
mstat026 Introduction to the probability of an event
APPENDIX B. PROGRAMS IN ALEKS

mstat015 Counting principle
mstat010 Probability of an event
stat106 Outcomes and event probability
mstat041 Interpreting a tree diagram
stat112 Probabilities involving two dice
mstat011 Area as probability
mstat012 Probability of independent events
mstat013 Probability of dependent events

Algebra and Functions

alge005 Evaluating a linear expression: Integer multiplication with addition or subtraction
alge602 Writing a one-step variable expression for a real-world situation
alge016 Translating a sentence into a one-step equation
alge606 Distributive property: Whole number coefficients
alge604 Distributive property: Integer coefficients
alge607 Combining like terms: Integer coefficients
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
alge015 Translating a sentence by using an inequality symbol
alge186 Translating a sentence into a compound inequality
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
alge004 Evaluating a quadratic expression: Integers
alge285 Evaluating an algebraic expression: Whole numbers with two operations
alge663 Combining like terms: Advanced
alge029 Simplifying a sum or difference of three univariate polynomials
alge630 Product rule with positive exponents: Multivariate
alge053 Multiplying rational expressions involving multivariate monomials
alge054 Dividing rational expressions involving multivariate monomials
alge064 Reading a point in the coordinate plane
alge067 Plotting a point in the coordinate plane
fun005 Writing a function rule given a table of ordered pairs: One-step rules
fun001 Table for a linear function
fun002 Graphing integer functions
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
alge198 Graphing a vertical or horizontal line
alge070 Writing an equation of a line given the y-intercept and another point
alge263 Interpreting the graphs of two functions
alge637 Determining the slope of a line given its graph
alge252 Graphing a parabola of the form \( y = ax^2 \)
alge262 Graphing a cubic function of the form \( y = ax^3 \)
alge702 Classifying the graph of a function

Measurement and Geometry

unit005 U.S. Customary unit conversion with whole number values
unit006 U.S. Customary unit conversion with whole number values: Two-step conversion
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unit007 U.S. Customary unit conversion with mixed number values: One-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
unit034 Converting between metric and U.S. Customary unit systems
unit035 Converting between compound units: Basic
unit036 Converting between compound units: Advanced
unit012 Time unit conversion with whole number values
time006 Adding time
time007 Elapsed time
geom339 Perimeter of a polygon
geom300 Perimeter of a square or a rectangle
geom078 Sides of polygons having the same perimeter
geom019 Area of a square or a rectangle
geom143 Finding the perimeter or area of a rectangle given one of these values
geom353 Perimeter of a piecewise rectangular figure
geom340 Area of a piecewise rectangular figure
geom801 Area of a triangle
geom344 Area involving rectangles and triangles
geom022 Area of a parallelogram
geom023 Area of a trapezoid
geom142 Word problem involving the area between two rectangles
geom044 Pythagorean Theorem
geom068 Computing an area using the Pythagorean Theorem
geom802 Circumference and area of a circle
geom301 Perimeter involving rectangles and circles
time038 Circumference ratios
geom305 Arc length and area of a sector of a circle
geom036 Word problem involving the area between two concentric circles
geom029 Area involving rectangles and circles
geom214 Area involving inscribed figures
geom354 Volume of a rectangular prism made of unit cubes
geom311 Volume of a rectangular prism
geom505 Volume of a piecewise rectangular prism
time090 Volume of a triangular prism
geom035 Volume of a cylinder
geom133 Ratio of volumes
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
geom044 Surface area of a cylinder: Exact answers in terms of pi
geom338 Surface area involving prisms or cylinders
geom037 Similar polygons
geom508 Length, area, and volume ratios of similar figures
geom334 Drawing lines of symmetry
geom330 Translating a polygon
gem031 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

Algebra I

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
APPENDIX B. PROGRAMS 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
alge022 Word problem with linear inequalities
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 $-ax + b = c$
alge170 Solving an absolute value inequality: Basic
alge218 Solving a word problem involving rates and time conversion
alge271 Solving a proportion of the form $a/(x+b) = c/x$
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
alge195 Graphing a line given its equation in standard form
alge701 Writing an equation and drawing its graph to model a real-world situation: 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
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
alge072 Writing the equation of the line through two given points
alge074 Writing the equation of the line through a given point and parallel to a given line
alge018 Graphing a linear inequality in the plane: Standard form
alge225 Graphing a linear inequality in the plane: Vertical or horizontal line
alge075 Classifying systems of linear equations from graphs
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
alge079 Graphing a system of two linear inequalities: Basic
alge024 Introduction to the product rule of exponents
arith029 Ordering numbers with positive exponents
alge055 Least common multiple of two monomials
alge026 Quotient of expressions involving exponents
alge028 Product rule with negative exponents
alge027 Power rules with positive exponents
arith042 Evaluating an expression with a negative exponent: Positive fraction base
arith043 Evaluating an expression with a negative exponent: Negative integer base
alge025 Power of a power rule with negative exponents
alge033 Multiplying binomials with leading coefficients of 1
alge032 Squaring a binomial: Univariate
alge180 Multiplication involving binomials and trinomials in two variables
alge264 Square root of a perfect square monomial
alge089 Solving a radical equation that simplifies to a linear equation: One radical, basic
alge220 Word problem on inverse proportions
alge810 Introduction to algebraic symbol manipulation
alge160 Algebraic symbol manipulation
alge175 Word problem on direct variation
alge176 Word problem on inverse variation

B.42 Prep. for FL Algebra 1 EOC Assessment

Arithmetic Readiness

arith123 Rounding to hundreds or thousands
arith233 Introduction to exponents
arith692 Writing expressions using 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
B.42. PREP. FOR FL ALGEBRA 1 EOC ASSESSMENT

alg731 Evaluating an algebraic expression: Whole numbers with two operations
arith658 Filling in missing operations to make an equation
arith056 Factors
arith034 Prime numbers
arith035 Prime factorization
arith033 Greatest common factor of 2 numbers
arith070 Least common multiple of 2 numbers
arith212 Equivalent fractions
arith067 Simplifying a fraction
arith092 Using a common denominator to order fractions
arith618 Addition or subtraction of fractions with the same denominator
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
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
arith022 Fraction division
arith697 Mixed arithmetic operations with fractions
arith015 Writing an improper fraction as a mixed number
arith619 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
arith020 Mixed number multiplication: Problem type 1
arith068 Mixed number division
arith110 Decimal place value: Tenths and hundredths
arith220 Decimal place value: Hundreds to ten thousandths
arith221 Rounding decimals
arith608 Ordering decimals
arith609 Ordering fractions and decimals
arith222 Converting a fraction to a terminating decimal
arith089 Converting a fraction to a repeating decimal
arith087 Converting a decimal to a proper fraction in simplest form: Advanced
arith013 Decimal addition with 3 numbers
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
arith017 Multiplication of a decimal by a whole number
arith082 Multiplication of a decimal by a power of ten
arith055 Decimal multiplication: Problem type 1
arith081 Division of a decimal by a whole number
arith083 Division of a decimal by a power of ten
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
arith698 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
gem200 Perimeter of a polygon
gem200 Perimeter of a square or a rectangle
gem221 Finding the missing length in a figure
gem019 Area of a square or a rectangle
gem240 Area of a piecewise rectangular figure
gem142 Word problem involving the area between two rectangles
APPENDIX B. PROGRAMS IN ALEKS

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
geom838 Circumference ratios
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
geom031 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
geom842 Surface area of a sphere
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
geom886 Volume of a cone: Exact answers in terms of pi
geom841 Volume of a sphere
geom039 Finding supplementary and complementary angles
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
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
unit034 Converting between metric and U.S. Customary unit systems
unit035 Converting between compound units: Basic
unit036 Converting between compound units: Advanced
mstat065 Converting between temperatures in Fahrenheit and Celsius

Real Numbers

alge001 Identifying numbers as integers or non-integers
alge002 Identifying numbers as rational or irrational
mstat038 Reading the temperature from a thermometer
arith699 Writing a signed number for a real-world situation
alge286 Plotting integers on a number line
arith687 Fractional position on a number line
arith695 Plotting rational numbers on a number line
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
arith701 Word problem with addition or subtraction of integers
arith116 Signed fraction addition or subtraction: Basic
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
arith822 Signed fraction multiplication: Basic
B.42. PREP. FOR FL ALGEBRA 1 EOC ASSESSMENT

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
arith671 Absolute value of a number
arith104 Operations with absolute value: Problem type 2
 geom525 Computing distances between decimals on the number line
alge187 Properties of addition
alge188 Properties of real numbers
arith657 Understanding the distributive property
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

Linear Equations and Inequalities

alge009 Additive property of equality with whole numbers
alge800 Additive property of equality with decimals
alge010 Additive property of equality with integers
alge266 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
alge740 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
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
alge810 Introduction to algebraic symbol manipulation
alge743 Algebraic symbol manipulation: Problem type 1
alge744 Algebraic symbol manipulation: Problem type 2
alge813 Writing a one-step expression for a real-world situation
alge602 Writing a one-step variable expression for a real-world situation
alge291 Translating a phrase into a two-step expression
alge016 Translating a sentence into a one-step equation
alge730 Writing a multi-step equation for a real-world situation
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
alge794 Solving a value mixture problem using a linear equation
alge795 Solving a percent 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
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
geom530 Solving equations involving vertical angles
geom531 Solving equations involving angles and parallel lines
geom001 Finding an angle measure of a triangle given two angles
geom502 Finding angle measures of a right or isosceles triangle given angles with variables
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
alge186 Translating a sentence into a compound inequality
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
alge207 Solving a linear inequality: Problem type 4
alge745 Solving a linear inequality: Problem type 5
alge746 Solving a compound linear inequality: Problem type 1
alge748 Writing an 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 \( -ax+b- = c \)
alge170 Solving an absolute value inequality: Basic

Functions and Lines

set004 Set builder and interval notation
fun001 Table for a linear function
pcalc760 Evaluating functions: Linear and quadratic or cubic
fun033 Variable expressions as inputs of functions
fun002 Graphing integer functions
fun016 Domain and range from ordered pairs
fun032 Identifying functions from relations
fun010 Vertical line test
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
mstat052 Identifying independent and dependent variables from equations or real-world situations
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
pcalc114 Even and odd functions
pcalc768 Finding the average rate of change of a function
fun019 Sum, difference, and product of two functions
fun022 Composition of two functions: Basic
alg064 Reading a point in the coordinate plane
alg067 Plotting a point in the coordinate plane
alg0850 Table for a linear equation
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
alg197 Graphing a line given its x- and y-intercepts
alg194 Graphing a line given its equation in slope-intercept form
<table>
<thead>
<tr>
<th>Topic</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graphing a line given its equation in standard form</td>
<td>alge195</td>
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<tr>
<td>Graphing a line through a given point with a given slope</td>
<td>alge196</td>
</tr>
<tr>
<td>Graphing a vertical or horizontal line</td>
<td>alge198</td>
</tr>
<tr>
<td>Finding the y-intercept of a line given its equation</td>
<td>alg069</td>
</tr>
<tr>
<td>Finding x- and y-intercepts of a line given the equation: Advanced</td>
<td>alg210</td>
</tr>
<tr>
<td>Finding slope given the graph of a line on a grid</td>
<td>alg684</td>
</tr>
<tr>
<td>Finding slope given two points on the line</td>
<td>alg685</td>
</tr>
<tr>
<td>Finding the slope of a line given its equation</td>
<td>alg631</td>
</tr>
<tr>
<td>Writing an equation of a line given the y-intercept and another point</td>
<td>alg070</td>
</tr>
<tr>
<td>Writing the equation of a line given the slope and a point on the line</td>
<td>alg071</td>
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<tr>
<td>Writing the equation of the line through two given points</td>
<td>alg072</td>
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<tr>
<td>Writing the equations of vertical and horizontal lines through a given point</td>
<td>alg073</td>
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<tr>
<td>Writing an equation and drawing its graph to model a real-world situation: Advanced</td>
<td>alg701</td>
</tr>
<tr>
<td>Application problem with a linear function: Finding a coordinate given the slope and a point</td>
<td>alg805</td>
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<tr>
<td>Application problem with a linear function: Finding a coordinate given two points</td>
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<tr>
<td>Finding slopes of lines parallel and perpendicular to a line given in the form $Ax + By = C$</td>
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<td>Writing equations of lines parallel and perpendicular to a given line through a point</td>
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<tr>
<td>Sketching the line of best fit</td>
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<td>Scatter plots and correlation</td>
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<td>Choosing a graph to fit a narrative: Advanced</td>
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<tr>
<td>Graphing a linear inequality in the plane: Standard form</td>
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<tr>
<td>Graphing a linear inequality in the plane: Vertical or horizontal line</td>
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<td>Graphing a linear inequality in the plane: Slope-intercept form</td>
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<td>Classifying systems of linear equations from graphs</td>
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<tr>
<td>Graphically solving a system of linear equations</td>
<td>alg725</td>
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<tr>
<td>Solving a system of linear equations using substitution</td>
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<tr>
<td>Solving a system of linear equations using elimination with multiplication and addition</td>
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</tr>
<tr>
<td>Solving a system of linear equations that is inconsistent or consistent dependent</td>
<td>alg752</td>
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<tr>
<td>Solving a system of 3 linear equations in 3 unknowns</td>
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<tr>
<td>Interpreting the graphs of two functions</td>
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<tr>
<td>Solving a word problem involving a sum and another basic relationship using a system of linear equations</td>
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</tr>
<tr>
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<tr>
<td>Solving a word problem using a 3x3 system of linear equations</td>
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<tr>
<td>Graphing a system of two linear inequalities: Basic</td>
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<td>Scalar multiplication of a matrix</td>
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<td>Addition or subtraction of matrices</td>
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<tr>
<td>Linear combination of matrices</td>
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**Systems**

<table>
<thead>
<tr>
<th>Topic</th>
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<tbody>
<tr>
<td>Classifying systems of linear equations from graphs</td>
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**Exponents**

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<td>Evaluating expressions with exponents of zero</td>
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<td>Power of 10: Negative exponent</td>
<td>arith0684</td>
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<td>Evaluating an expression with a negative exponent: Positive fraction base</td>
<td>arith0842</td>
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<td>Evaluating an expression with a negative exponent: Negative integer base</td>
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<tr>
<td>Rewriting an algebraic expression without a negative exponent</td>
<td>alg791</td>
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<tr>
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<td>Introduction to the product rule of exponents</td>
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<tr>
<td>Product rule with positive exponents: Multivariate</td>
<td>alg6300</td>
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<tr>
<td>Product rule with negative exponents</td>
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<tr>
<td>Introduction to the quotient rule of exponents</td>
<td>alg6827</td>
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<tr>
<td>Quotient of expressions involving exponents</td>
<td>alg626</td>
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APPENDIX B. PROGRAMS IN ALEKS

alge755 Quotient rule with negative exponents: Problem type 1
alge826 Understanding the power rules of exponents
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
arith029 Ordering numbers with positive exponents
arith036 Scientific notation with positive exponent
arith037 Scientific notation with negative exponent
scinot002 Multiplying and dividing numbers written in scientific notation
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
alge177 Finding a final amount in a word problem on exponential growth or decay
alge741 Compound interest
alge712 Graphing an exponential function and its asymptote: f(x) = a(b)x
alge807 Finding the next terms of a sequence with whole numbers
alge732 Finding patterns in shapes
pcalc080 Finding the first terms of a sequence using an explicit rule with multiple occurrences of n
pcalc713 Arithmetic and geometric sequences: Identifying and writing an explicit rule
pcalc085 Finding a specified term of an arithmetic sequence given the common difference and first term
pcalc086 Finding a specified term of a geometric sequence given the common ratio and first term

Polynomials and Factoring

alge758 Degree and leading coefficient of a univariate polynomial
alge798 Simplifying a sum or difference of two 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
alge765 Multiplying binomials in two variables
alge032 Squaring a binomial: Univariate
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
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
alge039 Factoring a quadratic with leading coefficient 1
alge040 Factoring a quadratic with leading coefficient greater than 1
alge265 Factoring a quadratic in two variables with leading coefficient greater than 1
alge043 Factoring a perfect square trinomial
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
alge181 Factoring a polynomial by grouping: Problem type 2

Rational and Radical Expressions

alge715 Domain of a rational function
alge710 Simplifying a ratio of polynomials: Problem type 1
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alg0682 Simplifying a ratio of polynomials: Problem type 2
alg0653 Multiplying rational expressions involving multivariate monomials
alg0620 Multiplying rational expressions involving quadratics with leading coefficients of 1
alg0654 Dividing rational expressions involving multivariate monomials
alg0766 Dividing rational expressions involving quadratics with leading coefficients of 1
alg0737 Introduction to the LCM of two monomials
alg0655 Least common multiple of two monomials
alg0656 Adding rational expressions with common denominators and binomial numerators
alg0657 Adding rational expressions with different denominators: ax, bx
alg0626 Adding rational expressions with multivariate monomial denominators: Advanced
alg0622 Adding rational expressions with different denominators: x+a, x+b
alg0661 Adding rational expressions involving different quadratic denominators
arith065 Complex fraction without variables: Problem type 1
arith0696 Complex fraction without variables: Problem type 2
alg0658 Complex fraction involving multivariate monomials
alg0767 Complex fraction: GCF and quadratic factoring
alg0768 Complex fraction made of sums involving rational expressions
alg2272 Solving a proportion of the form x/a = b/c
alg2271 Solving a proportion of the form a/(x+b) = c/x
alg0660 Solving a rational equation that simplifies to linear: Denominator x
alg0605 Solving a rational equation that simplifies to linear: Denominator x+a
alg0626 Solving a rational equation that simplifies to linear: Unlike binomial denominators
alg0769 Solving a rational equation that simplifies to linear: Denominators a, x, or ax
alg2212 Solving a rational equation that simplifies to quadratic: Binomial denominators, constant numerators
alg0662 Solving a rational equation that simplifies to quadratic: Binomial denominators and numerators
arith063 Writing ratios for real-world situations
arith064 Solving a word problem on proportions using a unit rate
arith0610 Word problem on proportions: Problem type 1
arith0611 Word problem on proportions: Problem type 2
geom037 Similar polygons
gem038 Similar right triangles
geom037 Indirect measurement
arith0612 Word problem involving multiple rates
alg0770 Solving a work problem using a rational equation
alg0220 Word problem on inverse proportions
pcalc081 Writing an equation that models variation
alg0175 Word problem on direct variation
alg0176 Word problem on inverse variation
alg0772 Word problem on combined variation
pcalc108 Finding the asymptotes of a rational function: Basic
pcalc108 Graphing a rational function: Problem type 1
alg0213 Domain of a square root function
pcalc108 Graphing a square root function
arith016 Square root of a perfect square
arith060 Estimating a square root
arith0601 Square root of a rational perfect square
arith037 Cube root of an integer
arith093 Simplifying the square root of a whole number less than 100
alg0264 Square root of a perfect square monomial
alg080 Simplifying a radical expression with an even exponent
alg0275 Simplifying a radical expression with two variables
arith032 Square root addition or subtraction
arith039 Square root multiplication: Advanced
alg0276 Simplifying a product involving square roots using the distributive property: Advanced
alg0774 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
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
alg182 Solving a radical equation that simplifies to a quadratic equation: Two radicals
geom044 Pythagorean Theorem
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- `alg277` Finding the x-intercept(s) and the vertex of a parabola
- `pcalc775` Finding the maximum or minimum of a quadratic function
- `alg252` Graphing a parabola of the form \( y = ax^2 \)
- `alg253` Graphing a parabola of the form \( y = (x-a)^2 + c \): Integer coefficients
- `pcalc746` Graphing a parabola of the form \( y = ax^2 + bx + c \)
- `alg702` Classifying the graph of a function
- `alg723` How the leading coefficient affects the shape of a parabola
- `alg185` 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
- `alg262` Graphing a cubic function of the form \( y = ax^3 \)
- `alg681` Solving an equation written in factored form
- `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
- `alg092` Solving a quadratic equation using the square root property: Problem type 1
- `alg227` Solving a quadratic equation using the square root property: Problem type 2
- `alg094` Completing the square
- `alg780` Solving a quadratic equation by completing the square
- `alg095` Applying the quadratic formula: Exact answers
- `alg214` Discriminant of a quadratic equation
- `alg703` Solving a word problem using a quadratic equation with rational roots
- `alg524` Solving a word problem using a quadratic equation with irrational roots

Data Analysis and Probability

- `mstat004` Constructing a histogram for numerical data
- `mstat005` Constructing a bar graph for non-numerical data
- `mstat024` Interpreting a bar graph
- `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
- `mstat006` Constructing a box-and-whisker plot
- `mstat031` Interpreting a stem-and-leaf plot
- `mstat027` Using back-to-back stem-and-leaf plots to compare data sets
- `geom814` Angle measure in a circle graph
- `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
- `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
- `mstat066` Weighted mean
- `mstat025` Finding if a question can be answered by the data
- `stat802` Rejecting unreasonable claims based on average statistics
- `stat805` Making a reasonable inference based on proportion statistics
- `stat021` Population standard deviation
- `mstat042` Interpreting a Venn diagram of 2 sets
- `mstat043` Interpreting a Venn diagram of 3 sets
mstat041 Interpreting a tree diagram
mstat040 Introduction to the counting principle
mstat015 Counting principle
mstat008 Word problem involving permutations
mstat009 Word problem involving combinations
stat790 Permutations, combinations, and the multiplication principle for counting
mstat026 Introduction to the probability of an event
mstat010 Probability of an event
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

Perimeter, Area, and Volume

ggeom353 Perimeter of a piecewise rectangular figure
ggeom078 Sides of polygons having the same perimeter
ggeom350 Distinguishing between area and perimeter
ggeom351 Areas of rectangles with the same perimeter
ggeom344 Area involving rectangles and triangles
ggeom213 Area of a regular polygon
ggeom832 Area of quadrilaterals in the coordinate plane
galg724 Finding an area in terms of variables
ggeom218 Finding the radius or the diameter of a circle given its circumference
ggeom805 Arc length and area of a sector of a circle
ggeom380 Counting the cubes in a solid made of cubes
ggeom505 Volume of a piecewise rectangular prism
ggeom219 Nets of solids
ggeom861 Nets of solids: Advanced
ggeom348 Vertices, edges, and faces of a solid
ggeom816 Side views of a solid made of cubes
ggeom345 Surface area of a piecewise rectangular prism made of unit cubes
ggeom338 Surface area involving prisms or cylinders

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glogic001 Conditional statements and negations
glogic005 The converse, inverse, and contrapositive of a conditional statement
glogic008 Conditional statements and deductive reasoning
ggeom349 Naming segments, rays, and lines
ggeom226 Midpoint of a number line segment
ggeom251 Segment addition and midpoints
ggeom616 Introduction to proofs: Justifying statements
ggeom614 Proofs involving segment congruence
ggeom358 Identifying parallel and perpendicular lines
ggeom835 Introduction to proofs involving parallel lines
ggeom36 Proofs involving parallel lines
ggeom154 Constructing the perpendicular bisector of a line segment
ggeom150 Constructing a pair of perpendicular lines
ggeom157 Constructing a pair of parallel lines
ggeom151 Measuring an angle with the protractor
ggeom152 Drawing an angle with the protractor
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<th>Acute, obtuse, and right angles</th>
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<td>Identifying corresponding and alternate angles</td>
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<td>geom812</td>
<td>Finding an angle measure given extended triangles</td>
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<td>Finding an angle measure given a triangle and parallel lines</td>
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<td>Finding an angle measure for a triangle with an extended side</td>
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<td>Finding an angle measure for a triangle sharing a side with another triangle</td>
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<td>geom844</td>
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<td>Triangle inequality: Problem type 2</td>
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<td>Relationship between angle measures and side lengths in a triangle: Problem type 1</td>
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<td>Relationship between angle measures and side lengths in a triangle: Problem type 2</td>
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<td>Properties of parallelograms: Problem type 1</td>
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<td>Properties of parallelograms: Problem type 2</td>
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<td>The sum of interior angle measures in a convex polygon</td>
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**Polygons, Circles, and Similarity**

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Arithmetic Readiness

arith048 Order of operations with whole numbers
arith051 Order of operations with whole numbers and grouping symbols
arith093 Order of operations with whole numbers and exponents: Basic
arith122 Equivalent fractions
arith067 Simplifying a fraction
arith081 Finding the LCD of two 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
arith088 The reciprocal of a number
arith022 Fraction division
arith015 Writing an improper fraction as a mixed number
arith110 Decimal place value: Tenths and hundredths
arith221 Rounding decimals
arith093 Writing a ratio as a percentage without a calculator
arith030 Finding a percentage of a whole number without a calculator: Basic
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
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
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
unit034 Converting between metric and U.S. Customary unit systems
unit035 Converting between compound units: Basic
unit036 Converting between compound units: Advanced
mstat065 Converting between temperatures in Fahrenheit and Celsius
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
arith116 Signed fraction addition or subtraction: Basic
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
arith822 Signed fraction multiplication: Basic
arith118 Order of operations with integers
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
arith016 Square root of a perfect square
arith602 Estimating a square root
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
arith032 Square root addition or subtraction
arith039 Square root multiplication: Advanced
alge086 Rationalizing the denominator of a radical expression

Equations and Inequalities

alge001 Identifying numbers as integers or non-integers
alge002 Identifying numbers as rational or irrational
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
alge187 Properties of addition
alge188 Properties of real numbers
alge291 Translating a phrase into a two-step expression
alge016 Translating a sentence into a one-step equation
alge010 Additive property of equality with integers
alge266 Additive property of equality with a negative coefficient
alge740 Multiplicative property of equality with integers
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alge820 Multiplicative property of equality with fractions
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
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
alge810 Introduction to algebraic symbol manipulation
alge743 Algebraic symbol manipulation: Problem type 1
alge744 Algebraic symbol manipulation: Problem type 2
alge272 Solving a proportion of the form \( \frac{x}{a} = \frac{b}{c} \)
alge271 Solving a proportion of the form \( \frac{a}{x+b} = \frac{c}{x} \)
alge060 Solving a rational equation that simplifies to linear: Denominator x
alge205 Solving a rational equation that simplifies to linear: Denominator x+a
arith663 Writing ratios for real-world situations
arith610 Word problem on proportions: Problem type 1
arith611 Word problem on proportions: Problem type 2
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
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alge746 Solving a compound linear inequality: Problem type 1

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alge064 Reading a point in the coordinate plane
alge067 Plotting a point in the coordinate plane
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alge216 Determining whether given points lie on one, both, or neither of 2 lines given equations
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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
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
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
mstat030 Sketching the line of best fit
mstat023 Scatter plots and correlation
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
alge076 Solving a system of linear equations using elimination with multiplication and addition
alge752 Solving a system of linear equations that is inconsistent or consistent dependent
Reasoning, Lines, and Angles

alge807 Finding the next terms of a sequence with whole numbers
alge732 Finding patterns in shapes
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
geom349 Naming segments, rays, and lines
geom525 Computing distances between decimals on the number line
geom526 Midpoint of a number line segment
geom521 Segment addition and midpoints
geom616 Introduction to proofs: Justifying statements
geom614 Proofs involving segment congruence
alge132 Distance between two points in the plane
alge191 Midpoint of a line segment in the plane
geom358 Identifying parallel and perpendicular lines
geom835 Introduction to proofs involving parallel lines
geom836 Proofs involving parallel lines
geom154 Constructing the perpendicular bisector of a line segment
geom150 Constructing a pair of perpendicular lines
geom157 Constructing a pair of parallel lines
geom151 Measuring an angle with the protractor
geom152 Drawing an angle with the protractor
geom303 Acute, obtuse, and right angles
geom304 Identifying corresponding and alternate angles
geom305 Identifying supplementary and vertical angles
geom530 Solving equations involving vertical angles
geom531 Solving equations involving angles and parallel lines
geom850 Introduction to angle addition
geom851 Angle addition and angle bisectors
geom611 Proofs involving angle congruence
geom158 Constructing an angle bisector
geom159 Constructing congruent angles

Triangles

ggeom306 Acute, obtuse, and right triangles
ggeom307 Scalene, isosceles, and equilateral triangles
ggeom801 Area of a triangle
ggeom001 Finding an angle measure of a triangle given two angles
ggeom052 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
ggeom099 Finding an angle measure for a triangle sharing a side with another triangle
ggeom812 Finding an angle measure given extended triangles
ggeom813 Finding an angle measure given a triangle and parallel lines
ggeom84 Triangle inequality: Problem type 1
ggeom45 Triangle inequality: Problem type 2
ggeom854 Relationship between angle measures and side lengths in a triangle: Problem type 1
ggeom855 Relationship between angle measures and side lengths in a triangle: Problem type 2
ggeom650 Indirect proof (proof by contradiction)
ggeom59 Identifying congruent shapes on a grid
ggeom320 Identifying and naming congruent triangles
ggeom617 Proofs involving congruent triangles: Problem type 1
ggeom837 Proofs involving congruent triangles: Problem type 2
ggeom840 Proofs involving congruent triangles: Problem type 3
ggeom839 Proofs involving congruent triangles: Problem type 4
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Polygons

geom310 Classifying quadrilaterals
geom323 Classifying quadrilaterals: Advanced problem
geom532 Classifying parallelograms
geom819 Finding coordinates of vertices of polygons
geom818 Finding the coordinates of a point to make a parallelogram
geom863 Congruence in the coordinate plane
geom870 Sum of the angle measures of a quadrilateral
geom528 Properties of parallelograms: Problem type 1
geom527 Properties of parallelograms: Problem type 2
geom833 Properties of rectangles
geom834 Properties of rhombi
geom852 The sum of interior angle measures in a convex polygon
geom853 Interior and exterior angle measures in a regular polygon
geom300 Perimeter of a square or a rectangle
geom339 Perimeter of a polygon
geom221 Finding the missing length in a figure
geom353 Perimeter of a piecewise rectangular figure
geom817 Finding a side length given the perimeter and side lengths with variables
geom878 Sides of polygons having the same perimeter
geom019 Area of a square or a rectangle
geom350 Distinguishing between area and perimeter
geom351 Areas of rectangles with the same perimeter
geom340 Area of a piecewise rectangular figure
geom142 Word problem involving the area between two rectangles
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
geom344 Area involving rectangles and triangles
geom213 Area of a regular polygon
geom832 Area of quadrilaterals in the coordinate plane
alge724 Finding an area in terms of variables

Similarity, Trigonometry, and Transformations

geom360 Identifying similar or congruent shapes on a grid
geom037 Similar polygons
geom038 Similar right triangles
geom337 Indirect measurement
geom510 Triangles and parallel lines
geom507 Right triangles and geometric mean
pcalc600 Sine, cosine, and tangent ratios: Variables for side lengths
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 distances
pcalc608 Using a trigonometric ratio to find an angle measure in a right triangle
pcalc611 Using trigonometry to find angles of elevation or depression
pcalc631 Solving a triangle with the law of sines: Problem type 1
pcalc632 Solving a triangle with the law of sines: Problem type 2
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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
geom034 Surface area of a cylinder: Exact answers in terms of pi
geom338 Surface area involving prisms or cylinders
geom842 Surface area of a sphere
geom846 Similar solids: Problem type 1
geom847 Similar solids: Problem type 2

Statistics and Probability

mstat004 Constructing a histogram for numerical data
mstat005 Constructing a bar graph for non-numerical data
mstat024 Interpreting a bar graph
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
mstat006 Constructing a box-and-whisker plot
mstat031 Interpreting a stem-and-leaf plot
mstat027 Using back-to-back stem-and-leaf plots to compare data sets
geom814 Angle measure in a circle graph
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
mstat041 Interpreting a tree diagram
mstat040 Introduction to the counting principle
mstat015 Counting principle
mstat008 Word problem involving permutations
mstat009 Word problem involving combinations
stat790 Permutations, combinations, and the multiplication principle for counting
mstat026 Introduction to the probability of an event
mstat010 Probability of an event
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

Removed Topics - Arithmetic, Equations, Inequalities

arith056 Factors
arith033 Greatest common factor of 2 numbers
arith123 Rounding to hundreds or thousands
arith233 Introduction to exponents
arith602 Writing expressions using exponents
arith683 Power of 10: Positive exponent
alge731 Evaluating an algebraic expression: Whole numbers with two operations
APPENDIX B. PROGRAMS IN ALEKS

arith0658 Filling in missing operations to make an equation
arith0654 Prime numbers
arith0656 Prime factorization
arith0657 Solving a word problem on proportions using a unit rate
arith0658 Understanding the distributive property
arith0670 Least common multiple of 2 numbers
arith0692 Using a common denominator to order fractions
arith0697 Addition or subtraction of fractions with the same denominator
arith0698 Introduction to addition or subtraction of fractions with different denominators
arith0699 Product of a unit fraction and a whole number
arith0692 Introduction to fraction multiplication
arith0694 Division involving a whole number and a fraction
arith0697 Mixed arithmetic operations with fractions
arith0699 Writing a mixed number as an improper fraction
arith0701 Addition of mixed numbers with the same denominator and carry
arith0702 Subtraction of mixed numbers with the same denominator and borrowing
arith0703 Mixed number multiplication: Problem type 1
arith0704 Mixed number division
arith0706 Decimal place value: Hundreds to ten thousandths
arith0708 Ordering decimals
arith0709 Ordering fractions and decimals
arith0708 Converting a decimal to a proper fraction in simplest form: Advanced
arith0709 Converting a fraction to a terminating decimal
arith0710 Converting a fraction to a repeating decimal
arith0711 Decimal addition with 3 numbers
arith0712 Subtraction of aligned decimals
arith0714 Word problem with one decimal operation: Problem type 1
arith0715 Word problem with one decimal operation: Problem type 2
arith0717 Multiplication of a decimal by a whole number
arith0718 Multiplication of a decimal by a power of ten
arith0719 Decimal multiplication: Problem type 1
arith0720 Division of a decimal by a whole number
arith0721 Division of a decimal by a power of ten
arith0722 Converting between percentages and decimals
arith0723 Converting a fraction to a percentage: Denominator of 20, 25, or 50
arith0724 Converting a percentage to a fraction in simplest form
arith0725 Finding simple interest without a calculator
arith0726 Writing a signed number for a real-world situation
arith0727 Reading the temperature from a thermometer
arith0728 Plotting integers on a number line
arith0729 Ordering integers
arith0730 Fractional position on a number line
arith0731 Plotting rational numbers on a number line
arith0732 Additive property of equality with whole numbers
arith0733 Additive property of equality with decimals
arith0734 Multiplicative property of equality with whole numbers
arith0735 Multiplicative property of equality with decimals
arith0736 Using two steps to solve an equation with whole numbers
arith0737 Solving a two-step equation with signed decimals
arith0738 Solving an equation to find the value of an expression
arith0739 Using a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
arith0740 Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions
arith0741 Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators
arith0742 Solving equations with zero, one, or infinitely many solutions
arith0743 Writing a one-step expression for a real-world situation
arith0744 Writing a one-step variable expression for a real-world situation
arith0745 Writing a multi-step equation for a real-world situation
arith0746 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
alge794 Solving a value mixture problem using a linear equation
alge795 Solving a percent mixture problem using a linear equation
arithmetic228 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
alge015 Translating a sentence by using an inequality symbol
alge186 Translating a sentence into a compound inequality
alge207 Solving a linear inequality: Problem type 4
alge207 Solving a linear inequality: Problem type 5
alge749 Writing an inequality for a real-world situation
alge740 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
algebra103 Solving an absolute value equation of the form $|x| = b$ or $-x = a$
algebra103 Solving an absolute value equation of the form $-ax + b = c$
algebra170 Solving an absolute value inequality: Basic
mathstats025 Finding if a question can be answered by the data
mathstats802 Rejecting unreasonable claims based on average statistics
mathstats805 Making a reasonable inference based on proportion statistics
mathstats021 Population standard deviation

Removed Topics - Advanced Algebra

set004 Set builder and interval notation
functions001 Table for a linear function
pcalc760 Evaluating functions: Linear and quadratic or cubic
functions033 Variable expressions as inputs of functions
functions032 Identifying functions from relations
functions010 Vertical line test
functions016 Domain and range from ordered pairs
functions005 Writing a function rule given a table of ordered pairs: One-step rules
functions006 Writing a function rule given a table of ordered pairs: Two-step rules
mathstats052 Identifying independent and dependent variables from equations or real-world situations
pcalc768 Finding the average rate of change of a function
functions019 Sum, difference, and product of two functions
functions022 Composition of two functions: Basic
functions002 Graphing integer functions
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
functions024 Domain and range from the graph of a continuous function
pcalc114 Even and odd functions
algebra185 Writing an equation for a function after a vertical translation
functions020 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
algebra262 Graphing a cubic function of the form $y = ax^3$
algebra168 Graphing an absolute value equation in the plane: Advanced
algebra712 Graphing an exponential function and its asymptote: $f(x) = a(b)^x$
mathsstats051 Choosing a graph to fit a narrative: Advanced
algebra753 Solving a system of 3 linear equations in 3 unknowns
algebra263 Interpreting the graphs of two functions
algebra078 Solving a word problem involving a sum and another basic relationship using a system of linear equations
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alge780 Solving a quadratic equation by completing the square
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
pcalc037 Scalar multiplication of a matrix
pcalc038 Addition or subtraction of matrices
pcalc740 Linear combination of matrices
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
alge252 Graphing a parabola of the form \( y = ax^2 \)
alge253 Graphing a parabola of the form \( y = (x-a)^2 + c \)
pcalc746 Graphing a parabola of the form \( y = ax^2 + bx + c \): Integer coefficients
alge702 Classifying the graph of a function
alge723 How the leading coefficient affects the shape of a parabola
alge715 Domain of a rational function
alge710 Simplifying a ratio of polynomials: Problem type 1
alge682 Simplifying a ratio of polynomials: Problem type 2
alge053 Multiplying rational expressions involving multivariate monomials
alge620 Multiplying rational expressions involving quadratics with leading coefficients of 1
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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
alge658 Complex fraction involving multivariate monomials
alge767 Complex fraction: GCF and quadratic factoring
alge768 Complex fraction made of sums involving rational expressions
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
pcalc789 Finding the asymptotes of a rational function: Basic
pcalc108 Graphing a rational function: Problem type 1
arith612 Work problem involving multiple rates
alge770 Solving a work problem using a rational equation
alge220 Word problem on inverse proportions
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
alge213 Domain of a square root function
pcalc781 Graphing a square root function
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
alge276 Simplifying a product involving square roots using the distributive property: Advanced
alge774 Special products of radical expressions: Conjugates and squaring
alge088 Rationalizing the denominator of a radical expression using conjugates
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
APPENDIX B. PROGRAMS IN ALEKS

B.44 Prep for IN Algebra 1 ECA

Arithmetic Readiness

arith078 Rounding to tens or hundreds
arith123 Rounding to hundreds or thousands
arith101 Estimating a sum of whole numbers
arith233 Introduction to exponents
arith692 Writing expressions using 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
alge71 Evaluating an algebraic expression: Whole numbers with two operations
alge82 Evaluating an algebraic expression: Whole number operations and exponents
arith66 Factors
arith69 Prime numbers
arith35 Prime factorization
arith63 Greatest common factor of 2 numbers
arith070 Least common multiple of 2 numbers
arith240 Word problem with common multiples
arith212 Equivalent fractions
arith67 Simplifying a fraction
arith692 Using a common denominator to order fractions
arith618 Addition or subtraction of fractions with the same denominator
arith801 Finding the LCD of two fractions
arith64 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
arith8 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
arith694 Division involving a whole number and a fraction
arith92 Fraction division
arith697 Mixed arithmetic operations with fractions
arith695 Multi-step word problem involving fractions and multiplication
arith619 Writing an improper fraction as a mixed number
arith84 Addition of mixed numbers with the same denominator and carry
arith616 Subtraction of mixed numbers with the same denominator and borrowing
arith85 Addition or subtraction of mixed numbers with different denominators
arith620 Mixed number multiplication: Problem type 1
arith68 Mixed number division
arith110 Decimal place value: Tenths and hundredths
Real Numbers

alg001 Identifying numbers as integers or non-integers
alg002 Identifying numbers as rational or irrational
mstat038 Reading the temperature from a thermometer
arith699 Writing a signed number for a real-world situation
alge286 Plotting integers on a number line
arith687 Fractional position on a number line
arith605 Plotting rational numbers on a number line
arith601 Ordering integers
arith712 Ordering real numbers
arith200 Integer addition: Problem type 1
<table>
<thead>
<tr>
<th>Program Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<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>arith701</td>
<td>Word problem with addition or subtraction of integers</td>
</tr>
<tr>
<td>arith116</td>
<td>Signed fraction addition or subtraction: Basic</td>
</tr>
<tr>
<td>arith106</td>
<td>Signed fraction addition or subtraction: Advanced</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>arith231</td>
<td>Integer multiplication and division</td>
</tr>
<tr>
<td>arith800</td>
<td>Multiplication of 3 or 4 integers</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>alge984</td>
<td>Classifying sums and products as rational or irrational</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>
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<tr>
<td>arith600</td>
<td>Order of operations with integers and exponents</td>
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<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>arith104</td>
<td>Absolute value of a number</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>alge187</td>
<td>Properties of addition</td>
</tr>
<tr>
<td>alge188</td>
<td>Properties of real numbers</td>
</tr>
<tr>
<td>arith657</td>
<td>Understanding the distributive property</td>
</tr>
<tr>
<td>alge606</td>
<td>Distributive property: Whole number coefficients</td>
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<tr>
<td>alge604</td>
<td>Distributive property: Integer coefficients</td>
</tr>
<tr>
<td>alge700</td>
<td>Combining like terms: Whole number 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>alge293</td>
<td>Combining like terms in a quadratic expression</td>
</tr>
</tbody>
</table>

**Linear Equations**

<table>
<thead>
<tr>
<th>Program Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>alge009</td>
<td>Additive property of equality with whole numbers</td>
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<tr>
<td>alge801</td>
<td>Additive property of equality with fractions and mixed numbers</td>
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<tr>
<td>alge800</td>
<td>Additive property of equality with decimals</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>alge836</td>
<td>Additive property of equality with signed fractions</td>
</tr>
<tr>
<td>alge008</td>
<td>Multiplicative property of equality with whole numbers</td>
</tr>
<tr>
<td>alge820</td>
<td>Multiplicative property of equality with fractions</td>
</tr>
<tr>
<td>alge825</td>
<td>Multiplicative property of equality with decimals</td>
</tr>
<tr>
<td>alge797</td>
<td>Multiplicative property of equality with integers</td>
</tr>
<tr>
<td>alge012</td>
<td>Multiplicative property of equality with signed fractions</td>
</tr>
<tr>
<td>alge834</td>
<td>Identifying solutions to a linear equation in one variable: Two-step equations</td>
</tr>
<tr>
<td>alge803</td>
<td>Using two steps to solve an equation with whole numbers</td>
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<tr>
<td>alge006</td>
<td>Solving a two-step equation with integers</td>
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<tr>
<td>alge837</td>
<td>Solving a multi-step equation given in fractional form</td>
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<tr>
<td>alge208</td>
<td>Solving a two-step equation with signed fractions</td>
</tr>
<tr>
<td>alge824</td>
<td>Solving a two-step equation with signed decimals</td>
</tr>
<tr>
<td>alge200</td>
<td>Solving an equation to find the value of an expression</td>
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<tr>
<td>alge920</td>
<td>Introduction to solving an equation with parentheses</td>
</tr>
<tr>
<td>alge838</td>
<td>Introduction to solving an equation with variables on the same side</td>
</tr>
<tr>
<td>alge862</td>
<td>Solving a linear equation with several occurrences of the variable: Variables on the same side</td>
</tr>
<tr>
<td>alge863</td>
<td>Solving a linear equation with several occurrences of the variable: Variables on both sides</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>
</tbody>
</table>
APPENDIX B. PROGRAMS IN ALEKS

unit035 Converting between compound units: Basic
unit036 Converting between compound units: Advanced
mstat065 Converting between temperatures in Fahrenheit and Celsius
unit052 Finding the absolute error and percent error of a measurement
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

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
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
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
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: Problem type 1
alge861 Solving a compound linear inequality: Problem type 2
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
alge943 Writing an absolute value inequality given a graph on the number line
alge868 Solving an absolute value inequality: Problem type 1
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

Functions and Lines

set001 Set builder notation
set002 Union and intersection of finite sets
fun001 Table for a linear function
pcalc760 Evaluating functions: Linear and quadratic or cubic
fun033 Variable expressions as inputs of functions
fun016 Domain and range from ordered pairs
alge896 Graphing an integer function and finding its range for a given domain
fun032 Identifying functions from relations
fun010 Vertical line test
pcalc761 Finding inputs and outputs of a function from its graph
alge999 Finding where a function is increasing, decreasing, or constant given the graph
pcalc752 Finding local maxima and minima of a function given the graph
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
alge716 Introduction to the composition of two functions
fun012 Inverse functions: Problem type 1
alge064 Reading a point in the coordinate plane
alge067 Plotting a point in the coordinate plane
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
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
alge197 Graphing a line given its x- and y-intercepts
alge891 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
alge875 Identifying linear equations: Advanced
alge874 Identifying linear functions given ordered pairs
alge891 Rewriting a linear equation in the form Ax + By = C
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
alge888 Finding the coordinate that yields a given slope
alge890 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
alge892 Writing an equation and graphing a line given its slope and y-intercept
alge870 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
alge872 Writing the equation of the line through two given points
alge873 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
alge701 Writing an equation and drawing its graph to model a real-world situation: Advanced
mstat052 Identifying independent and dependent variables from equations or real-world situations
alge990 Domain and range of a linear function that models a real-world situation
alge898 Interpreting the parameters of a linear function that models a real-world situation
alge992 Combining functions to write a new function that models a real-world situation
alge987 Comparing properties of linear functions given in different forms
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
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
g geom808 Writing equations of lines parallel and perpendicular to a given line through a point
alge991 Solving a linear equation by graphing
mstat051 Choosing a graph to fit a narrative: Advanced
alge828 Interpreting direct variation from a graph
alge892 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
alge925 Finding the next terms of an arithmetic sequence with whole numbers
alge986 Finding the next terms of an arithmetic sequence with integers
alge979 Identifying arithmetic sequences and finding the common difference
APPENDIX B. PROGRAMS IN ALEKS

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
alge909 Writing an explicit rule for an arithmetic sequence
alge908 Finding the first terms of a sequence using a recursive rule
alge910 Writing a recursive rule for an arithmetic sequence
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
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
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
fun030 Evaluating a piecewise-defined function
fun031 Graphing a piecewise-defined function

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 system of linear equations that is inconsistent or consistent dependent
alge753 Solving a system of 3 linear equations in 3 unknowns
alge988 Identifying the operations used to create equivalent systems of 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
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
alge912 Identifying solutions to a linear inequality in two variables
alge720 Graphing a linear inequality in the plane: Slope-intercept form
alge918 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
pcalc037 Scalar multiplication of a matrix
pcalc038 Addition or subtraction of matrices
pcalc740 Linear combination of matrices
pcalc712 Gauss-Jordan elimination with a 2x2 matrix
Exponents

- Evaluating expressions with exponents of zero
- Power of 10: Negative exponent
- Evaluating an expression with a negative exponent: Positive fraction base
- Evaluating an expression with a negative exponent: Negative integer base
- Ordering numbers with positive exponents
- Ordering numbers with negative exponents
- Rewriting an algebraic expression without a negative exponent
- Understanding the product rule of exponents
- Introduction to the product rule of exponents
- Product rule with positive exponents: Multivariate
- Introduction to the product rule with negative exponents
- Product rule with negative exponents
- Introduction to the quotient rule of exponents
- Quotient rule with negative exponents: Problem type 1
- Quotient rule with negative exponents: Problem type 2
- Understanding the power rules of exponents
- Introduction to the power rules of exponents
- Power rules with positive exponents
- Power of a power rule with negative exponents
- Power rules with negative exponents
- Power and product rules with positive exponents
- Power and quotient rules with positive exponents
- Power and quotient rules with negative exponents: Problem type 1
- Power and quotient rules with negative exponents: Problem type 2
- Power, product, and quotient rules with negative exponents
- Scientific notation with positive exponent
- Scientific notation with negative exponent
- Multiplying and dividing numbers written in scientific notation
- Converting between radical form and exponent form
- Rational exponents: Non-unit fraction exponent with a whole number base
- Rational exponents and fractional bases
- Rational exponents: Products and quotients with negative exponents
- Powers of powers with negative exponents
- Table for an exponential function
- Evaluating an exponential function that models a real-world situation
- Finding the initial amount and rate of change given an exponential function
- Writing an equation that models exponential growth or decay
- Writing an exponential function rule given a table of ordered pairs
- Solving an exponential equation by finding common bases: Linear exponents
- Finding a final amount in a word problem on exponential growth or decay
- Compound interest
- Graphing an exponential function: \( f(x) = ax \)
- Graphing an exponential function: \( f(x) = a(b)x \)
- Comparing linear, polynomial, and exponential functions
- Finding the next terms of a geometric sequence with whole numbers
- Finding the next terms of a geometric sequence with signed numbers
- Identifying arithmetic and geometric sequences
- Identifying geometric sequences and finding the common ratio
- Finding a specified term of a geometric sequence given the first terms
- Finding a specified term of a geometric sequence given the common ratio and first term
- Arithmetic and geometric sequences: Identifying and writing an explicit rule
- Writing recursive rules for arithmetic and geometric sequences

Polynomials and Factoring

- Degree and leading coefficient of a univariate polynomial
- Degree of a multivariate polynomial
APPENDIX B. PROGRAMS IN ALEKS

alge798 Simplifying a sum or difference of two univariate polynomials
alge629 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
alge033 Multiplying binomials with leading coefficients of 1
alge992 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
alge760 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
alge736 Introduction to the GCF of two monomials
alge037 Greatest common factor of two multivariate monomials
alge930 Greatest common factor of three univariate monomials
alge739 Factoring out a monomial from a polynomial: Univariate
alge949 Factoring out a monomial from a polynomial: Multivariate
alge949 Factoring out a binomial from a polynomial: 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 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
alge941 Factoring a product of a quadratic trinomial and a monomial
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
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

Quadratic Functions and Equations
alge974 Finding the vertex, x-intercepts, and axis of symmetry from the graph of a parabola
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
alge785 Word problem involving the maximum or minimum of a quadratic function
alge975 Domain and range from the graph of a parabola
alge976 Range of a quadratic function
alge996 Comparing properties of quadratic functions given in different forms
alge953 Translating the graph of a parabola: One step
alge253 Graphing a parabola of the form \( y = (x-a)^2 + c \)
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
alge702 Classifying the graph of a function
alge965 Identifying linear, quadratic, and exponential functions given ordered pairs
alge723 How the leading coefficient affects the shape of a parabola
alge965 Writing an equation for a function after a vertical translation
fun020 Writing an equation for a function after a vertical and horizontal translation
pcalc748 Graphing a quadratic inequality: Problem type 1
pcalc749 Graphing a quadratic inequality: Problem type 2
alge957 Solving a quadratic equation by graphing
alge962 Solving an equation of the form \( x^2 = a \) using the square root property
alge958 Solving a quadratic equation using the square root property: Problem type 1
alge959 Solving a quadratic equation using the square root property: Problem type 2
alge094 Completing the square
alge960 Solving a quadratic equation by completing the square
alge963 Applying the quadratic formula: Decimal answers
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
alge994 Graphically solving a system of linear and quadratic equations
alge995 Solving a system of linear and quadratic equations
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

Radicals

alge213 Domain of a square root function
pcalc781 Graphing a square root function
arith016 Square root of a perfect square
arith020 Estimating a square root
arith061 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
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
geom044 Pythagorean Theorem
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alge132 Distance between two points in the plane
alge191 Midpoint of a line segment in the plane
pcalc609 Sine, cosine, and tangent ratios: Numbers for side lengths
pcalc606 Using the Pythagorean Theorem to find a trigonometric ratio
pcalc616 Using a calculator to approximate sine, cosine, and tangent values
pcalc607 Using a trigonometric ratio to find a side length in a right triangle
pcalc610 Using trigonometry to find distances
pcalc608 Using a trigonometric ratio to find an angle measure in a right triangle
pcalc611 Using trigonometry to find angles of elevation or depression
pcalc642 Solving a right triangle

Rational Expressions

alge049 Restriction on a variable in a denominator: Linear
alge715 Domain of a rational function
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
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
alge052 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
alge767 Complex fraction: GCF and quadratic factoring
alge768 Complex fraction made of sums involving rational expressions
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
alge902 Identifying direct and inverse variation from ordered pairs and writing equations
alge903 Identifying direct and inverse variation equations
alge905 Writing an inverse variation equation
alge176 Word problem on inverse variation
alge220 Word problem on inverse proportions
pcalc789 Finding the asymptotes of a rational function: Basic
pcalc108 Graphing a rational function: Problem type 1

Data Analysis and Probability

mstat037 Constructing a line plot
mstat004 Constructing a histogram for numerical data
mstat024 Interpreting a bar graph
mstat044 Interpreting a double bar graph
mstat007 Interpreting a line graph
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Arithmetic Readiness

arith078 Rounding to tens or hundreds
arith123 Rounding to hundreds or thousands
arith101 Estimating a sum of whole numbers
arith233 Introduction to exponents
arith692 Writing expressions using 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
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alg2731 Evaluating an algebraic expression: Whole numbers with two operations
alg2832 Evaluating an algebraic expression: Whole number operations and exponents
arith056 Factors
arith034 Prime numbers
arith035 Prime factorization
arith033 Greatest common factor of 2 numbers
arith070 Least common multiple of 2 numbers
arith240 Word problem with common multiples
arith212 Equivalent fractions
arith067 Simplifying a fraction
arith692 Using a common denominator to order fractions
arith618 Addition or subtraction of fractions with the same denominator
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
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
arith888 The reciprocal of a number
arith694 Division involving a whole number and a fraction
arith022 Fraction division
arith697 Mixed arithmetic operations with fractions
arith095 Multi-step word problem involving fractions and multiplication
arith615 Writing an improper fraction as a mixed number
arith619 Writing a mixed number as an improper fraction
arith808 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
arith129 Introduction to ordering decimals
arith608 Ordering decimals
arith609 Ordering fractions and decimals
arith222 Converting a fraction to a terminating decimal
arith089 Converting a fraction to a repeating decimal
arith087 Converting a decimal to a proper fraction in simplest form: Advanced
arith624 Addition of aligned decimals
arith625 Subtraction of aligned decimals
arith131 Estimating a decimal sum or difference
arith017 Multiplication of a decimal by a whole number
arith082 Multiplication of a decimal by a power of ten
arith055 Decimal multiplication: Problem type 1
arith081 Division of a decimal by a whole number
arith083 Division of a decimal by a power of ten
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
arith628 Word problem with multiple decimal operations: Problem type 1
geom339 Perimeter of a polygon
geom0400 Perimeter of a square or a rectangle
geom019 Area of a square or a rectangle
geom221 Finding the missing length in a figure
geom340 Area of a piecewise rectangular figure
geom142 Word problem involving the area between two rectangles
geom0801 Area of a triangle
geom022 Area of a parallelogram
geom023 Area of a trapezoid
geom016 Circumference of a circle
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geom301 Perimeter involving rectangles and circles
geom383 Circumference ratios
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
geom831 Surface area of a cube or a rectangular prism
geom891 Surface area of a triangular 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
geom890 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
geom886 Volume of a cone: Exact answers in terms of pi
geom841 Volume of a sphere
geom839 Finding supplementary and complementary angles

Real Numbers

alge001 Identifying numbers as integers or non-integers
alge002 Identifying numbers as rational or irrational
mstat038 Reading the temperature from a thermometer
arith699 Writing a signed number for a real-world situation
alge286 Plotting integers on a number line
arith687 Fractional position on a number line
arith605 Plotting rational numbers on a number line
arith691 Ordering integers
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
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
arith231 Integer multiplication and division
arith800 Multiplication of 3 or 4 integers
arith822 Signed fraction multiplication: Basic
arith105 Signed fraction multiplication: Advanced
alge984 Classifying sums and products as rational or irrational
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
arith671 Absolute value of a number
arith104 Operations with absolute value: Problem type 2
geom525 Computing distances between decimals on the number line
alge187 Properties of addition
alge188 Properties of real numbers
arith657 Understanding the distributive property
alge606 Distributive property: Whole number coefficients
alge604 Distributive property: Integer coefficients
### APPENDIX B. PROGRAMS IN ALEKS

<table>
<thead>
<tr>
<th>Program Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>alge700</td>
<td>Combining like terms: Whole number 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>alge293</td>
<td>Combining like terms in a quadratic expression</td>
</tr>
<tr>
<td></td>
<td><strong>Linear Equations</strong></td>
</tr>
<tr>
<td>alge009</td>
<td>Additive property of equality with whole numbers</td>
</tr>
<tr>
<td>alge801</td>
<td>Additive property of equality with fractions and mixed numbers</td>
</tr>
<tr>
<td>alge800</td>
<td>Additive property of equality with decimals</td>
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<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>
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<tr>
<td>alge836</td>
<td>Additive property of equality with signed fractions</td>
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<tr>
<td>alge908</td>
<td>Multiplicative property of equality with whole numbers</td>
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<tr>
<td>alge820</td>
<td>Multiplicative property of equality with fractions</td>
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<tr>
<td>alge825</td>
<td>Multiplicative property of equality with decimals</td>
</tr>
<tr>
<td>alge797</td>
<td>Multiplicative property of equality with integers</td>
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<tr>
<td>alge012</td>
<td>Multiplicative property of equality with signed fractions</td>
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<tr>
<td>alge834</td>
<td>Identifying solutions to a linear equation in one variable: Two-step equations</td>
</tr>
<tr>
<td>alge803</td>
<td>Using two steps to solve an equation with whole numbers</td>
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<tr>
<td>alge006</td>
<td>Solving a two-step equation with integers</td>
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<tr>
<td>alge837</td>
<td>Solving a multi-step equation given in fractional form</td>
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<tr>
<td>alge208</td>
<td>Solving a two-step equation with signed fractions</td>
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<tr>
<td>alge824</td>
<td>Solving a two-step equation with signed decimals</td>
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<tr>
<td>alge200</td>
<td>Solving an equation to find the value of an expression</td>
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<tr>
<td>alge920</td>
<td>Introduction to solving an equation with parentheses</td>
</tr>
<tr>
<td>alge838</td>
<td>Using two steps to solve an equation with whole numbers</td>
</tr>
<tr>
<td>alge862</td>
<td>Solving a linear equation with several occurrences of the variable: Variables on the same side</td>
</tr>
<tr>
<td>alge863</td>
<td>Solving a linear equation with several occurrences of the variable: Variables on both sides</td>
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<tr>
<td>alge011</td>
<td>Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution</td>
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<td>alge013</td>
<td>Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution</td>
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<tr>
<td>alge209</td>
<td>Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions</td>
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<tr>
<td>alge061</td>
<td>Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients</td>
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<tr>
<td>alge179</td>
<td>Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators</td>
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<tr>
<td>alge742</td>
<td>Solving equations with zero, one, or infinitely many solutions</td>
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<tr>
<td>alge986</td>
<td>Identifying properties used to solve a linear equation</td>
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<td>alge810</td>
<td>Introduction to algebraic symbol manipulation</td>
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<td>alge743</td>
<td>Algebraic symbol manipulation: Problem type 1</td>
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<tr>
<td>alge744</td>
<td>Algebraic symbol manipulation: Problem type 2</td>
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<td>alge733</td>
<td>Writing a one-step expression for a real-world situation</td>
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<tr>
<td>alge831</td>
<td>Translating a phrase into a one-step expression</td>
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<tr>
<td>alge291</td>
<td>Translating a phrase into a two-step expression</td>
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<td>alge016</td>
<td>Translating a sentence into a one-step equation</td>
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<td>alge841</td>
<td>Translating a sentence into a multi-step equation</td>
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<tr>
<td>alge730</td>
<td>Writing a multi-step equation for a real-world situation</td>
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<tr>
<td>alge802</td>
<td>Solving a fraction word problem using a linear equation of the form Ax = B</td>
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<tr>
<td>alge014</td>
<td>Solving a word problem with two unknowns using a linear equation</td>
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<td>alge173</td>
<td>Solving a decimal word problem using a linear equation of the form Ax + B = C</td>
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<td>alge219</td>
<td>Solving a decimal word problem using a linear equation with the variable on both sides</td>
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<tr>
<td>alge704</td>
<td>Solving a fraction word problem using a linear equation with the variable on both sides</td>
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<tr>
<td>alge792</td>
<td>Solving a word problem with three unknowns using a linear equation</td>
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<tr>
<td>alge842</td>
<td>Solving a word problem involving consecutive integers</td>
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<tr>
<td>alge794</td>
<td>Solving a value mixture problem using a linear equation</td>
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<tr>
<td>alge795</td>
<td>Solving a percent mixture problem using a linear equation</td>
</tr>
<tr>
<td>arith228</td>
<td>Word problem on unit rates associated with ratios of whole numbers: Decimal answers</td>
</tr>
</tbody>
</table>
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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
geom817 Finding the 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
geom380 Solving equations involving vertical angles
geom901 Finding an angle measure of a triangle given two angles
geom382 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
arith663 Writing ratios for real-world situations
alge272 Solving a proportion of the form \( x/a = b/c \)
alge840 Solving a proportion of the form \( (x+a)/b = c/d \)
alge271 Solving a proportion of the form \( a/(x+b) = c/x \)
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
geom037 Similar polygons
geom038 Similar right triangles
geom337 Indirect measurement
arith226 Converting between percentages and decimals
arith090 Converting a percentage to a fraction in simplest form
arith022 Converting a fraction to a percentage: Denominator of 20, 25, or 50
arith069 Writing a ratio as a percentage without a calculator
arith030 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
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
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
mstat065 Converting between temperatures in Fahrenheit and Celsius
unit052 Finding the absolute error and percent error of a measurement
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

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
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
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
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
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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: Problem type 1
alge861 Solving a compound linear inequality: Problem type 2
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
alge943 Writing an absolute value inequality given a graph on the number line
alge868 Solving an absolute value inequality: Problem type 1
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

Functions and Lines

set001 Set builder notation
set002 Union and intersection of finite sets
fun001 Table for a linear function
pcalc760 Evaluating functions: Linear and quadratic or cubic
fun033 Variable expressions as inputs of functions
fun016 Domain and range from ordered pairs
alge896 Graphing an integer function and finding its range for a given domain
fun032 Identifying functions from relations
fun010 Vertical line test
pcalc761 Finding inputs and outputs of a function from its graph
alge999 Finding where a function is increasing, decreasing, or constant given the graph
pcalc752 Finding local maxima and minima of a function given the graph
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
alge716 Introduction to the composition of two functions
fun012 Inverse functions: Problem type 1
alge064 Reading a point in the coordinate plane
alge067 Plotting a point in the coordinate plane
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
alge877 Graphing a linear equation of the form $y = mx$
alge878 Finding a line given its equation in slope-intercept form: Integer slope
alge879 Finding a line given its equation in slope-intercept form: Fractional slope
alge880 Graphing a line given its equation in standard form
alge197 Graphing a line given its $x$- and $y$-intercepts
alge881 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
alge876 Identifying linear equations: Advanced
alge874 Identifying linear functions given ordered pairs
alge891 Rewriting a linear equation in the form $Ax + By = C$
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
alge888 Finding the coordinate that yields 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 \( Ax + By = C \)
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
alge701 Writing an equation and drawing its graph to model a real-world situation: Advanced
mstat052 Identifying independent and dependent variables from equations or real-world situations
alge990 Domain and range of a linear function that models a real-world situation
alge989 Interpreting the parameters of a linear function that models a real-world situation
alge992 Combining functions to write a new function that models a real-world situation
alge887 Comparing properties of linear functions given in different forms
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
alge991 Solving a linear equation by graphing
mstat051 Choosing a graph to fit a narrative: Advanced
alge828 Interpreting direct variation from a graph
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
alge925 Finding the next terms of an arithmetic sequence with whole numbers
alge906 Finding the next terms of an arithmetic sequence with integers
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
alge909 Writing an explicit rule for an arithmetic sequence
alge908 Finding the first terms of a sequence using a recursive rule
alge910 Writing a recursive rule for an arithmetic sequence
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
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
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 \( y = ax^3 \)
fun030 Evaluating a piecewise-defined function
fun031 Graphing a piecewise-defined function

Systems

alge914 Identifying solutions to a system of linear equations
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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 system of linear equations that is inconsistent or consistent dependent
alge753 Solving a system of 3 linear equations in 3 unknowns
alge988 Identifying the operations used to create equivalent systems of 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
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
alge703 Solving a word problem using a 3x3 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
pcalc037 Scalar multiplication of a matrix
pcalc038 Addition or subtraction of matrices
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alge790 Evaluating expressions with exponents of zero
arith684 Power of 10: Negative exponent
arith642 Evaluating an expression with a negative exponent: Positive fraction base
arith643 Evaluating an expression with a negative exponent: Negative integer base
arith629 Ordering numbers with positive exponents
arith624 Ordering numbers with negative exponents
arith791 Rewriting an algebraic expression without a negative exponent
alge821 Understanding the product rule of exponents
alge024 Introduction to the product rule of exponents
alge030 Product rule with positive exponents: Multivariate
alge961 Introduction to the product rule with negative exponents
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
alge926 Quotient rule with negative exponents: Problem type 2
alge826 Understanding the power rules of exponents
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
alge927 Power and quotient rules with positive 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
### B.45. PREP FOR LA ALGEBRA 1 EOC ASSESSMENT

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alge950 Factoring a univariate polynomial by grouping: Problem type 2
alge951 Factoring a multivariate polynomial by grouping: Problem type 1
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alge039 Factoring a quadratic with leading coefficient 1
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alge936 Factoring out a constant before factoring a quadratic
alge941 Factoring a quadratic with leading coefficient greater than 1: Problem type 1
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
alge947 Factoring a difference of squares in one variable: Advanced
alge041 Factoring a product of a quadratic trinomial and a monomial
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
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
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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
alge976 Range of a quadratic function
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alge953 Translating the graph of a parabola: One step
alge253 Graphing a parabola of the form $y = (x-a)^2 + c$
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pcalc747 Graphing a parabola of the form $y = ax^2 + bx + c$: Rational coefficients
alge702 Classifying the graph of a function
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alge723 How the leading coefficient affects the shape of a parabola
alge185 Writing an equation for a function after a vertical translation
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pcalc748 Graphing a quadratic inequality: Problem type 1
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alge957 Solving a quadratic equation by graphing
alge962 Solving an equation of the form $x^2 = a$ using the square root property
alge958 Solving a quadratic equation using the square root property: Problem type 1
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alge964 Completing the square
alge960 Solving a quadratic equation by completing the square
alge963 Applying the quadratic formula: Decimal answers
alge965 Applying the quadratic formula: Exact answers
alge214 Discriminant of a quadratic equation
alge524 Solving a word problem using a quadratic equation with irrational roots
alge994 Graphically solving a system of linear and quadratic equations
alge995 Solving a system of linear and quadratic equations
alge997 Finding the average rate of change of a function given its equation
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alge213 Domain of a square root function
pcalc781 Graphing a square root function
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arith602 Estimating a square root
arith601 Square root of a rational perfect square
arith694 Cube root of an integer
arith93 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
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
geom044 Pythagorean Theorem
alge132 Distance between two points in the plane
alge191 Midpoint of a line segment in the plane
pcalc609 Sine, cosine, and tangent ratios: Numbers for side lengths
pcalc606 Using the Pythagorean Theorem to find a trigonometric ratio
pcalc616 Using a calculator to approximate sine, cosine, and tangent values
pcalc607 Using a trigonometric ratio to find a side length in a right triangle
pcalc610 Using trigonometry to find distances
pcalc608 Using a trigonometric ratio to find an angle measure in a right triangle
pcalc611 Using trigonometry to find angles of elevation or depression
pcalc642 Solving a right triangle

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alge049 Restriction on a variable in a denominator: Linear
alge715 Domain of a rational function
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
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
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alg057 Adding rational expressions with different denominators: ax, bx
alg026 Adding rational expressions with multivariate monomial denominators: Advanced
alg622 Adding rational expressions with different denominators: x+a, x+b
alg061 Adding rational expressions involving different quadratic denominators
arit065 Complex fraction without variables: Problem type 1
arit066 Complex fraction without variables: Problem type 2
alg058 Complex fraction involving multivariate monomials
alg067 Complex fraction: GCF and quadratic factoring
alg068 Complex fraction made of sums involving rational expressions
alg069 Solving a rational equation that simplifies to linear: Denominator x
alg025 Solving a rational equation that simplifies to linear: Denominator x+a
alg026 Solving a rational equation that simplifies to linear: Unlike binomial denominators
alg070 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
arit061 Word problem involving multiple rates
alg070 Solving a work problem using a rational equation
alg092 Identifying direct and inverse variation from ordered pairs and writing equations
alg093 Identifying direct and inverse variation equations
alg095 Writing an inverse variation equation
alg176 Word problem on inverse variation
alg220 Word problem on inverse proportions
pcalc789 Finding the asymptotes of a rational function: Basic
pcalc108 Graphing a rational function: Problem type 1

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mstat037 Constructing a line plot
mstat004 Constructing a histogram for numerical data
mstat024 Interpreting a bar graph
mstat044 Interpreting a double bar graph
mstat007 Interpreting a line graph
stat084 Interpreting a circle graph or pie chart
stat081 Computations from a circle graph
geom014 Angle measure in a circle graph
mstat031 Interpreting a stem-and-leaf plot
mstat027 Using back-to-back stem-and-leaf plots to compare data sets
mstat006 Constructing a box-and-whisker plot
mstat073 Using box-and-whisker plots to compare data sets
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
mstat066 Weighted 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
mstat025 Finding if a question can be answered by the data
mstat049 Computing a percentage from a table of values
stat020 Calculating relative frequencies in a contingency table
stat085 Making a reasonable inference based on proportion statistics
stat009 Percentiles
mstat072 Five-number summary and interquartile range
stat021 Population standard deviation
mstat042 Interpreting a Venn diagram of 2 sets
mstat043 Interpreting a Venn diagram of 3 sets
mstat041 Interpreting a tree diagram
mstat040 Introduction to the counting principle
mstat015 Counting principle
B.46 Prep for LA Geometry EOC Assessment

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arith048 Order of operations with whole numbers
arith051 Order of operations with whole numbers and grouping symbols
arith053 Order of operations with whole numbers and exponents: Basic
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arith056 Factors
arith070 Least common multiple of 2 numbers
arith212 Equivalent fractions
arith067 Simplifying a fraction
arith081 Finding the LCD of two 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
arith088 The reciprocal of a number
arith022 Fraction division
arith015 Writing an improper fraction as a mixed number
arith110 Decimal place value: Tenths and hundredths
arith221 Rounding decimals
arith069 Writing a ratio as a percentage without a calculator
arith030 Finding a percentage of a whole number without a calculator: Basic
alge286 Plotting integers on a number line
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
arith701 Word problem with addition or subtraction of integers
arith116 Signed fraction addition or subtraction: Basic
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
arith322 Signed fraction multiplication: Basic
arith118 Order of operations with integers
arith702 Exponents and integers: Problem type 1
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arith704 Exponents and signed fractions
arith600 Order of operations with integers and exponents
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alge004 Evaluating a quadratic expression: Integers
arith601 Absolute value of a number
arith104 Operations with absolute value: Problem type 2
arith616 Square root of a perfect square
arith602 Estimating a square root
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
arith632 Square root addition or subtraction
arith039 Square root multiplication: Advanced
alge086 Rationalizing the denominator of a radical expression

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alge002 Identifying numbers as rational or irrational
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
alge187 Properties of addition
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alge016 Translating a sentence into a one-step equation
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alge266 Additive property of equality with a negative coefficient
alge820 Multiplicative property of equality with fractions
alge271 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
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
alge810 Introduction to algebraic symbol manipulation
alge743 Algebraic symbol manipulation: Problem type 1
alge744 Algebraic symbol manipulation: Problem type 2
alge272 Solving a proportion of the form \( x/a = b/c \)
alge271 Solving a proportion of the form \( a/(x+b) = c/x \)
alge060 Solving a rational equation that simplifies to linear: Denominator x
arith663 Writing ratios for real-world situations
arith610 Word problem on proportions: Problem type 1
arith611 Word problem on proportions: Problem type 2
unit034 Converting between metric and U.S. Customary unit systems
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
alge616 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
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**B.46. PREP FOR LA GEOMETRY EOC ASSESSMENT**

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- 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
- alge194 Graphing a line given its x- and y-intercepts
- alge215 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
- 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
- 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
- mstat051 Choosing a graph to fit a narrative: Advanced
- mstat030 Sketching the line of best fit
- mstat023 Scatter plots and correlation

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- pcalc085 Finding a specified term of an arithmetic sequence given the common difference and first term
- alge732 Finding patterns in shapes
- 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
- geom349 Naming segments, rays, and lines
- geom525 Computing distances between decimals on the number line
- geom526 Midpoint of a number line segment
- geom521 Segment addition and midpoints
- geom616 Introduction to proofs: Justifying statements
- geom614 Proofs involving segment congruence
- alge132 Distance between two points in the plane
- alge191 Midpoint of a line segment in the plane
- geom358 Identifying parallel and perpendicular lines
- geom835 Introduction to proofs involving parallel lines
- geom836 Proofs involving parallel lines
- geom154 Constructing the perpendicular bisector of a line segment
- geom150 Constructing a pair of perpendicular lines
- geom157 Constructing a pair of parallel lines
- geom151 Measuring an angle with the protractor
- geom152 Drawing an angle with the protractor
- geom303 Acute, obtuse, and right angles
- geom339 Finding supplementary and complementary angles
- geom304 Identifying corresponding and alternate angles
- geom305 Identifying supplementary and vertical angles
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geom307  Solving equations involving angles and parallel lines
geom308  Introduction to angle addition
geom309  Angle addition and angle bisectors
geom310  Proofs involving angle congruence
geom311  Constructing an angle bisector
geom312  Constructing congruent angles

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geom307  Scalene, isosceles, and equilateral triangles
geom308  Area of a triangle
geom309  Finding an angle measure of a triangle given two angles
geom310  Finding angle measures of a right or isosceles triangle given angles with variables
geom311  Finding an angle measure for a triangle with an extended side
geom312  Finding an angle measure for a triangle sharing a side with another triangle
geom313  Finding an angle measure given extended triangles
geom314  Finding an angle measure given a triangle and parallel lines
geom315  Triangle inequality: Problem type 1
geom316  Triangle inequality: Problem type 2
geom317  Relationship between angle measures and side lengths in a triangle: Problem type 1
geom318  Relationship between angle measures and side lengths in a triangle: Problem type 2
geom319  Indirect proof (proof by contradiction)
geom320  Identifying congruent shapes on a grid
geom321  Identifying and naming congruent triangles
geom322  Proofs involving congruent triangles: Problem type 1
geom323  Proofs involving congruent triangles: Problem type 2
geom324  Proofs involving congruent triangles: Problem type 3
geom325  Proofs involving congruent triangles: Problem type 4
geom326  Proofs involving congruent triangles: Problem type 5
geom327  Pythagorean Theorem
geom328  Computing an area using the Pythagorean Theorem
geom329  Using the Pythagorean Theorem repeatedly
geom330  Special right triangles

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geom300  Perimeter of a square or a rectangle
geom301  Perimeter of a polygon
geom302  Finding the missing length in a figure
geom303  Perimeter of a piecewise rectangular figure
geom304  Finding a side length given the perimeter and side lengths with variables
geom305  Sides of polygons having the same perimeter
geom306  Area of a square or a rectangle
B.46. PREP FOR LA GEOMETRY EOC ASSESSMENT

geom350 Distinguishing between area and perimeter
geom351 Areas of rectangles with the same perimeter
geom340 Area of a piecewise rectangular figure
geom142 Word problem involving the area between two rectangles
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
geom344 Area involving rectangles and triangles
geom213 Area of a regular polygon
geom832 Area of quadrilaterals in the coordinate plane
alge724 Finding an area in terms of variables

Similarity, Trigonometry, and Transformations

geom360 Identifying similar or congruent shapes on a grid
geom037 Similar polygons
geom038 Similar right triangles
geom037 Indirect measurement
geom510 Triangles and parallel lines
geom507 Right triangles and geometric mean
pcalc600 Sine, cosine, and tangent ratios: Variables for side lengths
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 distances
pcalc608 Using a trigonometric ratio to find an angle measure in a right triangle
pcalc611 Using trigonometry to find angles of elevation or depression
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
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
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
pcalc060 Magnitude of a vector
pcalc063 Translation of a vector
geom858 Scalar multiplication of a vector: Geometric Approach
geom857 Vector addition: Geometric approach
geom556 Vector addition and scalar multiplication
vector008 Linear combination of vectors: Algebraic approach
vector002 Calculating the magnitude and direction of a vector
vector005 Finding the components of a vector

Circles

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
APPENDIX B. PROGRAMS IN ALEKS

geom513 Angles of intersecting secants and tangents
geom016 Circumference of a circle
geom218 Finding the radius or the diameter of a circle given its circumference
geom301 Perimeter involving rectangles and circles
geom838 Circumference ratios
geom802 Circumference and area of a circle
geom805 Arc length and area of a sector of a circle
geom802 Area involving rectangles and circles
geom836 Word problem involving the area between two concentric circles
geom214 Area involving inscribed figures
geom212 Circles inscribed in and circumscribed about regular polygons
pcalc605 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

Volumes and Surface Areas

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
geom092 Word problem involving the rate of filling or emptying a cylinder
geom886 Volume of a cone: Exact answers in terms of pi
geom841 Volume of a sphere
geom348 Vertices, edges, and faces of a solid
geom219 Nets of solids
geom861 Nets of solids: Advanced
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
geom991 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
geom846 Similar solids: Problem type 1
geom847 Similar solids: Problem type 2

Statistics and Probability

mstat005 Constructing a bar graph for non-numerical data
mstat024 Interpreting a bar graph
mstat044 Interpreting a double bar graph
mstat007 Interpreting a line graph
mstat049 Computing a percentage from a table of values
stat804 Interpreting a circle graph or pie chart
stat801 Computations from a circle graph
geom814 Angle measure in a circle graph
mstat041 Interpreting a tree diagram
mstat040 Introduction to the counting principle
mstat015 Counting principle
mstat008 Word problem involving permutations
mstat009 Word problem involving combinations
stat790 Permutations, combinations, and the multiplication principle for counting
mstat026 Introduction to the probability of an event
mstat010 Probability of an event
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

Removed Topics - Arithmetic, Equations, Inequalities

arith033 Greatest common factor of 2 numbers
arith123 Rounding to hundreds or thousands
arith652 Writing expressions using exponents
arith683 Power of 10: Positive exponent
arith658 Filling in missing operations to make an equation
arith034 Prime numbers
arith635 Prime factorization
arith644 Solving a word problem on proportions using a unit rate
arith657 Understanding the distributive property
arith692 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
arith679 Product of a unit fraction and a whole number
arith119 Introduction to fraction multiplication
arith694 Division involving a whole number and a fraction
arith697 Mixed arithmetic operations with fractions
arith619 Writing a mixed number as an improper fraction
arith684 Addition of mixed numbers with the same denominator and carry
arith216 Subtraction of mixed numbers with the same denominator and borrowing
arith620 Mixed number multiplication: Problem type 1
arith668 Mixed number division
arith220 Decimal place value: Hundreds to ten thousandths
arith608 Ordering decimals
arith609 Ordering fractions and decimals
arith687 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
arith613 Decimal addition with 3 numbers
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
arith617 Multiplication of a decimal by a whole number
arith682 Multiplication of a decimal by a power of ten
arith655 Decimal multiplication: Problem type 1
arith681 Division of a decimal by a whole number
arith683 Division of a decimal by a power of ten
mstat034 Measuring length to the nearest quarter or half inch
mstat035 Conversions involving 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
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
unit035 Converting between compound units: Basic
APPENDIX B. PROGRAMS IN ALEKS

unit036 Converting between compound units: Advanced
mstat065 Converting between temperatures in Fahrenheit and Celsius
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
arith232 Finding simple interest without a calculator
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
arith225 Finding the percentage increase or decrease: Advanced
arith699 Writing a signed number for a real-world situation
mstat038 Reading the temperature from a thermometer
arith687 Fractional position on a number line
arith605 Plotting rational numbers on a number line
alg009 Additive property of equality with whole numbers
alg000 Additive property of equality with decimals
alg008 Multiplicative property of equality with whole numbers
alg232 Multiplicative property of equality with decimals
alg234 Solving a two-step equation with signed decimals
alg200 Solving an equation to find the value of an expression
alg201 Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
alg209 Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions
alg179 Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators
alg242 Solving equations with zero, one, or infinitely many solutions
alg233 Writing a one-step expression for a real-world situation
alg202 Writing a one-step variable expression for a real-world situation
alg230 Writing a multi-step equation for a real-world situation
alg202 Solving a fraction word problem using a linear equation of the form Ax = B
alg204 Solving a word problem with two unknowns using a linear equation
alg219 Solving a decimal word problem using a linear equation with the variable on both sides
alg213 Solving a decimal word problem using a linear equation of the form Ax + B = C
alg204 Solving a fraction word problem using a linear equation with the variable on both sides
alg204 Solving a value mixture problem using a linear equation
alg205 Solving a percent mixture problem using a linear equation
arith228 Word problem on unit rates associated with ratios of whole numbers: Decimal answers
alg203 Solving a one-step word problem using the formula d = rt
alg215 Solving a word problem involving rates and time conversion
alg279 Solving a distance, rate, time problem using a linear equation
alg216 Translating a sentence into a compound inequality
alg205 Solving a linear inequality: Problem type 4
alg245 Solving a linear inequality: Problem type 5
alg248 Writing an inequality for a real-world situation
alg249 Solving a decimal word problem using a two-step linear inequality
alg250 Solving a decimal word problem using a linear inequality with the variable on both sides
alg270 Solving an absolute value equation of the form a—x— = b or —x— + a = b
alg203 Solving an absolute value equation of the form —ax+b— = c
alg217 Solving an absolute value inequality: Basic
mstat004 Constructing a histogram for numerical data
mstat006 Constructing a box-and-whisker plot
mstat031 Interpreting a stem-and-leaf plot
mstat027 Using back-to-back stem-and-leaf plots to compare data sets
mstat025 Finding if a question can be answered by the data
stat802 Rejecting unreasonable claims based on average statistics
stat805 Making a reasonable inference based on proportion statistics
stat021 Population standard deviation
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
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  
mstat066 Weighted mean

Removed Topics - Advanced Algebra

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  
set004 Set builder and interval notation  
fun001 Table for a linear function  
pcalc760 Evaluating functions: Linear and quadratic or cubic  
fun033 Variable expressions as inputs of functions  
fun032 Identifying functions from relations  
fun010 Vertical line test  
fun016 Domain and range from ordered pairs  
mstat052 Identifying independent and dependent variables from equations or real-world situations  
pcalc768 Finding the average rate of change of a function  
fun019 Sum, difference, and product of two functions  
fun022 Composition of two functions: Basic  
fun002 Graphing integer functions  
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  
pcalc114 Even and odd functions  
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  
alge262 Graphing a cubic function of the form \( y = ax^3 \)  
alge168 Graphing an absolute value equation in the plane: Advanced  
alge712 Graphing an exponential function and its asymptote: \( f(x) = a(b)^x \)  
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  
alge076 Solving a system of linear equations using elimination with multiplication and addition  
alge752 Solving a system of linear equations that is inconsistent or consistent dependent  
alge753 Solving a system of 3 linear equations in 3 unknowns  
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  
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  
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  
alge079 Graphing a system of two linear inequalities: Basic  
arith036 Scientific notation with positive exponent  
arith037 Scientific notation with negative exponent  
scinot002 Multiplying and dividing numbers written in scientific notation  
alge790 Evaluating expressions with exponents of zero  
arith084 Power of 10: Negative exponent  
arith042 Evaluating an expression with a negative exponent: Positive fraction base
APPENDIX B. PROGRAMS IN ALEKS

arith043 Evaluating an expression with a negative exponent: Negative integer base
alge791 Rewriting an algebraic expression without a negative exponent
alge821 Understanding the product rule of exponents
alge024 Introduction to the product rule of exponents
alge630 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
alge826 Understanding the power rules of exponents
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
arith029 Ordering numbers with positive exponents
alge758 Degree and leading coefficient of a univariate polynomial
alge759 Simplifying a sum or difference of two univariate polynomials
alge745 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
alge765 Multiplying binomials in two variables
alge032 Squaring a binomial: Univariate
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
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
alge039 Factoring a quadratic with leading coefficient 1
alge043 Factoring a perfect square trinomial
alge040 Factoring a quadratic with leading coefficient greater than 1
alge265 Factoring a quadratic in two variables 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
alge181 Factoring a polynomial by grouping: Problem type 2
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
alge092 Solving a quadratic equation using the square root property: Problem type 1
alge227 Solving a quadratic equation using the square root property: Problem type 2
alge094 Completing the square
alge780 Solving a quadratic equation by completing the square
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
pcalc037 Scalar multiplication of a matrix
pcalc038 Addition or subtraction of matrices
pcalc740 Linear combination of matrices
pcalc277 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
alge252 Graphing a parabola of the form y = ax^2
alge253 Graphing a parabola of the form y = (x-a)^2 + c
pcalc746 Graphing a parabola of the form y = ax^2 + bx + c: Integer coefficients
alge702 Classifying the graph of a function
alge723 How the leading coefficient affects the shape of a parabola
alge715 Domain of a rational function
alge710 Multiplying rational expressions involving multivariate monomials
alge682 Multiplying rational expressions involving quadratics with leading coefficients of 1
alge654 Dividing rational expressions involving multivariate monomials
alge766 Dividing rational expressions involving quadratics with leading coefficients of 1
alge747 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
alge767 Complex fraction: GCF and quadratic factoring
alge768 Complex fraction made of sums involving rational expressions
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
pcalc789 Finding the asymptotes of a rational function: Basic
pcalc108 Graphing a rational function: Problem type 1
arith612 Word problem involving multiple rates
alge220 Word problem on inverse proportions
pcalc081 Writing an equation that models variation
alge175 Word problem on direct variation
alge176 Word problem on inverse variation
alge772 Word problem on combined variation
alge213 Domain of a square root function
pcalc781 Graphing a square root function
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
alge276 Simplifying a product involving square roots using the distributive property: Advanced
alge774 Special products of radical expressions: Conjugates and squaring
alge088 Rationalizing the denominator of a radical expression using conjugates
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
alge182 Solving a radical equation that simplifies to a quadratic equation: Two radicals
pcalc080 Finding the first terms of a sequence using an explicit rule with multiple occurrences of n
pcalc713 Arithmetic and geometric sequences: Identifying and writing an explicit rule
pcalc086 Finding a specified term of a geometric sequence given the common ratio and first term
alge177 Finding a final amount in a word problem on exponential growth or decay
alge741 Compound interest
APPENDIX B. PROGRAMS IN ALEKS

B.47 Prep for MN Mathematics GRAD

Arithmetic Readiness

arith078 Rounding to tens or hundreds
arith123 Rounding to hundreds or thousands
arith101 Estimating a sum of whole numbers
arith233 Introduction to exponents
arith692 Writing expressions using 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
alge731 Evaluating an algebraic expression: Whole numbers with two operations
alge832 Evaluating an algebraic expression: Whole number operations and exponents
arith056 Factors
arith034 Prime numbers
arith035 Prime factorization
arith033 Greatest common factor of 2 numbers
arith070 Least common multiple of 2 numbers
arith240 Word problem with common multiples
arith072 Equivalent fractions
arith067 Simplifying a fraction
arith092 Using a common denominator to order fractions
arith618 Addition or subtraction of fractions with the same denominator
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
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
arith022 Fraction division
arith089 Converting a fraction to a repeating decimal
arith694 Division involving a whole number and a fraction
arith022 Fraction division
arith067 Mixed arithmetic operations with fractions
arith095 Multi-step word problem involving fractions and multiplication
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
arith10 Decimal place value: Tenths and hundredths
arith221 Rounding decimals
arith129 Introduction to ordering decimals
arith608 Ordering decimals
arith090 Ordering fractions and decimals
arith222 Converting a fraction to a terminating decimal
arith089 Converting a fraction to a repeating decimal
arith087 Converting a decimal to a proper fraction in simplest form: Advanced
arith624 Addition of aligned decimals
arith625 Subtraction of aligned decimals
arith131 Estimating a decimal sum or difference
arith017 Multiplication of a decimal by a whole number
arith082 Multiplication of a decimal by a whole power of ten
arith055 Decimal multiplication: Problem type 1
arith081 Division of a decimal by a whole number
B.47. PREP FOR MN MATHEMATICS GRAD

arith083 Division of a decimal by a power of ten
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
arith628 Word problem with multiple decimal operations: Problem type 1
geom339 Perimeter of a polygon
geom300 Perimeter of a square or a rectangle
geom019 Area of a square or a rectangle
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
geom838 Circumference ratios
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
geom031 Surface area of a cube or a rectangular prism
geom991 Surface area of a triangular prism
geom034 Surface area of a cylinder: Exact answers in terms of pi
geom842 Surface area of a sphere
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
geom086 Volume of a cone: Exact answers in terms of pi
geom841 Volume of a sphere
geom039 Finding supplementary and complementary angles

Real Numbers

alge001 Identifying numbers as integers or non-integers
alge002 Identifying numbers as rational or irrational
mstat038 Reading the temperature from a thermometer
arith699 Writing a signed number for a real-world situation
alge286 Plotting integers on a number line
arith687 Fractional position on a number line
arith605 Plotting rational numbers on a number line
arith691 Ordering integers
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
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
arith231 Integer multiplication and division
arith800 Multiplication of 3 or 4 integers
arith822 Signed fraction multiplication: Basic
arith105 Signed fraction multiplication: Advanced
alge984 Classifying sums and products as rational or irrational
APPENDIX B. PROGRAMS IN ALEKS

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
arith701 Absolute value of a number
arith104 Operations with absolute value: Problem type 2
geom255 Computing distances between decimals on the number line
alge187 Properties of addition
alge188 Properties of real numbers
arith657 Understanding the distributive property
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

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
alge266 Additive property of equality with a negative coefficient
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
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 two distributions
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
alge810 Introduction to algebraic symbol manipulation
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
Linear Inequalities

alg815 Translating a sentence by using an inequality symbol
alg845 Translating a sentence into a one-step inequality
APPENDIX B. PROGRAMS IN ALEKS

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
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
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: Problem type 1
alge861 Solving a compound linear inequality: Problem type 2
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
alge943 Writing an absolute value inequality given a graph on the number line
alge868 Solving an absolute value inequality: Problem type 1
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

Functions and Lines

set001 Set builder notation
set002 Union and intersection of finite sets
fun001 Table for a linear function
pcalc760 Evaluating functions: Linear and quadratic or cubic
fun033 Variable expressions as inputs of functions
fun016 Domain and range from ordered pairs
alge896 Graphing an integer function and finding its range for a given domain
fun032 Identifying functions from relations
fun010 Vertical line test
pcalc761 Finding inputs and outputs of a function from its graph
alge999 Finding where a function is increasing, decreasing, or constant given the graph
pcalc752 Finding local maxima and minima of a function given the graph
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
alge716 Introduction to the composition of two functions
fun012 Inverse functions: Problem type 1
alg064 Reading a point in the coordinate plane
alg067 Plotting a point in the coordinate plane
alg873 Identifying solutions to a linear equation in two variables
alg850 Table for a linear equation
alg066 Finding a solution to a linear equation in two variables
alg877 Graphing a linear equation of the form $y = mx$
alg878 Graphing a line given its equation in slope-intercept form: Integer slope
alg879 Graphing a line given its equation in slope-intercept form: Fractional slope
alg880 Graphing a line given its equation in standard form
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alge197 Graphing a line given its x- and y-intercepts
alge881 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
alge876 Identifying linear equations: Advanced
alge874 Identifying linear functions given ordered pairs
alge891 Rewriting a linear equation in the form Ax + By = C
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
alge888 Finding the coordinate that yields 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
alge892 Writing an equation and graphing a line given its slope and y-intercept
alge902 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
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
alge807 Finding slopes of lines parallel and perpendicular to a line given in the form Ax + By = C
gem808 Writing equations of lines parallel and perpendicular to a given line through a point
alge991 Solving a linear equation by graphing
mstat052 Identifying independent and dependent variables from equations or real-world situations
alge890 Domain and range of a linear function that models a real-world situation
alge989 Interpreting the parameters of a linear function that models a real-world situation
alge992 Combining functions to write a new function that models a real-world situation
alge987 Comparing properties of linear functions given in different forms
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
gem808 Finding slopes of lines parallel and perpendicular to a line given in the form Ax + By = C
alge902 Writing an equation of a line given the y-intercept and another point
alge910 Writing a recursive rule for an arithmetic sequence
alge908 Finding the next terms of an arithmetic sequence with whole numbers
alge906 Finding the next terms of an arithmetic sequence with integers
alge979 Identifying arithmetic sequences and finding the common difference
alge931 Finding a specified term of an arithmetic sequence given the first terms
pcalc985 Finding a specified term of an arithmetic sequence given the common difference and first term
alge909 Writing an explicit rule for an arithmetic sequence
alge908 Finding the first terms of a sequence using a recursive rule
alge910 Writing a recursive rule for an arithmetic sequence
mstat024 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
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
APPENDIX B. PROGRAMS IN ALEKS

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
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 $y = ax^3$
fun030 Evaluating a piecewise-defined function
fun031 Graphing a piecewise-defined function

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 system of linear equations that is inconsistent or consistent dependent
alge753 Solving a system of 3 linear equations in 3 unknowns
alge988 Identifying the operations used to create equivalent systems of 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
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
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
pcalc037 Scalar multiplication of a matrix
pcalc038 Addition or subtraction of matrices
pcalc740 Linear combination of matrices
pcalc712 Gauss-Jordan elimination with a 2x2 matrix

Exponents

alge790 Evaluating expressions with exponents of zero
arith684 Power of 10: Negative exponent
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
alge821 Understanding the product rule of exponents
alge024 Introduction to the product rule of exponents
alo030 Product rule with positive exponents: Multivariate
alge961 Introduction to the product rule with negative exponents
alge028 Product rule with negative exponents
alge27 Product rule with negative exponents
alge755 Quotient rule with negative exponents: Problem type 1
alge926 Quotient rule with negative exponents: Problem type 2
alge826 Understanding the power rules of exponents
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
alge927 Power and quotient rules with positive 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
scinot002 Multiplying and dividing numbers written in scientific notation
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
alge971 Table for an exponential function
alge830 Evaluating an exponential function that models a real-world situation
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
alge301 Solving an exponential equation by finding common bases: Linear exponents
alge177 Finding a final amount in a word problem on exponential growth or decay
alge741 Compound interest
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
alge996 Finding the next terms of a geometric sequence with whole numbers
alge907 Finding the next terms of a geometric sequence with negative exponents
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
pcalc713 Arithmetic and geometric sequences: Identifying and writing an explicit rule
alge911 Writing recursive rules for arithmetic and geometric sequences

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 univariate polynomial by a monomial
alge933 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
APPENDIX B. PROGRAMS IN ALEKS

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
alge746 Introduction to the GCF of two monomials
alge037 Greatest common factor of two multivariate monomials
alge930 Greatest common factor of three univariate monomials
alge735 Introduction to the GCF of two monomials
alge738 Factoring out a monomial from a polynomial: Univariate
alge759 Factoring out a monomial from a polynomial: Multivariate
alge949 Factoring out a binomial from a polynomial: 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
alge041 Factoring a product of a quadratic trinomial and a monomial
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
alge947 Factoring a difference of squares in one variable: Basic
alge948 Factoring a difference of squares in one variable: Advanced
alge939 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
alge042 Factoring with repeated use of the difference of squares formula
alge043 Factoring a sum or difference of two cubes
alge681 Solving an equation written in factored form
alge936 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

Quadratic Functions and Equations

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
alge975 Domain and range from the graph of a parabola
alge976 Range of a quadratic function
alge996 Comparing properties of quadratic functions given in different forms
alge953 Translating the graph of a parabola: One step
alge253 Graphing a parabola of the form \( y = (x-a)^2 + c \)
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
alge702 Classifying the graph of a function
alge965 Identifying linear, quadratic, and exponential functions given ordered pairs
alge723 How the leading coefficient affects the shape of a parabola
alge185 Writing an equation for a function after a vertical translation
fun020 Writing an equation for a function after a vertical and horizontal translation
pcalc748 Graphing a quadratic inequality: Problem type 1
pcalc749 Graphing a quadratic inequality: Problem type 2
alge957 Solving a quadratic equation by graphing
alge962 Solving an equation of the form \( x^2 = a \) using the square root property
alge958 Solving a quadratic equation using the square root property: Problem type 1
alge959 Solving a quadratic equation using the square root property: Problem type 2
alge094 Completing the square
alge960 Solving a quadratic equation by completing the square
alge963 Applying the quadratic formula: Decimal answers
alge995 Applying the quadratic formula: Exact answers
alge214 Discriminant of a quadratic equation
alge524 Solving a word problem using a quadratic equation with irrational roots
alge694 Graphically solving a system of linear and quadratic equations
alge995 Solving a system of linear and quadratic equations
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

Radicals

alge213 Domain of a square root function
pcalc781 Graphing a square root function
arith016 Square root of a perfect square
arith602 Estimating a square root
arith601 Square root of a rational perfect square
arith603 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
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
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
geom944 Pythagorean Theorem
alge132 Distance between two points in the plane
alge191 Midpoint of a line segment in the plane
pcalc609 Sine, cosine, and tangent ratios: Numbers for side lengths
pcalc606 Using the Pythagorean Theorem to find a trigonometric ratio
pcalc616 Using a calculator to approximate sine, cosine, and tangent values
pcalc607 Using a trigonometric ratio to find a side length in a right triangle
pcalc610 Using trigonometry to find distances
pcalc608 Using a trigonometric ratio to find an angle measure in a right triangle
pcalc611 Using trigonometry to find angles of elevation or depression
pcalc642 Solving a right triangle

Rational Expressions
alge049 Restriction on a variable in a denominator: Linear
alge715 Domain of a rational function
alge710 Simplifying a ratio of polynomials: Problem type 1
alge682 Simplifying a ratio of polynomials: Problem type 2
alge634 Simplifying a ratio of multivariate polynomials
alge603 Multiplying rational expressions involving multivariate monomials
alge620 Multiplying rational expressions involving quadratics with leading coefficients of 1
alge684 Dividing rational expressions involving multivariate monomials
alge766 Dividing rational expressions involving quadratics with leading coefficients of 1
alge747 Introduction to the LCM of two monomials
alge655 Least common multiple of two monomials
alge656 Adding rational expressions with common denominators and binomial numerators
alge657 Adding rational expressions with different denominators: ax, bx
alge226 Adding rational expressions with multivariate monomial denominators: Advanced
alge662 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
alge767 Complex fraction: GCF and quadratic factoring
alge768 Complex fraction made of sums involving rational expressions
alge660 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
alge602 Solving a rational equation that simplifies to quadratic: Binomial denominators and numerators
alge647 Solving a rational equation that simplifies to quadratic: Proportional form, advanced
arith612 Word problem involving multiple rates
alge902 Identifying direct and inverse variation from ordered pairs and writing equations
alge903 Identifying direct and inverse variation equations
alge605 Writing an inverse variation equation
alge176 Word problem on inverse variation
alge220 Word problem on inverse proportions
pcalc789 Finding the asymptotes of a rational function: Basic
pcalc108 Graphing a rational function: Problem type 1

Data Analysis and Probability

mstat037 Constructing a line plot
mstat004 Constructing a histogram for numerical data
mstat024 Interpreting a bar graph
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
geom814 Angle measure in a circle graph
mstat031 Interpreting a stem-and-leaf plot
mstat027 Using back-to-back stem-and-leaf plots to compare data sets
mstat006 Constructing a box-and-whisker plot
mstat073 Using box-and-whisker plots to compare data sets
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
mstat066 Weighted 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
mstat025 Finding if a question can be answered by the data
mstat049 Computing a percentage from a table of values
stat020 Calculating relative frequencies in a contingency table
stat805 Making a reasonable inference based on proportion statistics
stat009 Percentiles
mstat072 Five-number summary and interquartile range
stat021 Population standard deviation
mstat042 Interpreting a Venn diagram of 2 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
stat790 Permutations, combinations, and the multiplication principle for counting
mstat026 Introduction to the probability of an event
mstat010 Probability of an event
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

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Arithmetic Readiness

arith078 Rounding to tens or hundreds
arith123 Rounding to hundreds or thousands
arith101 Estimating a sum of whole numbers
arith233 Introduction to exponents
arith692 Writing expressions using 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
alge731 Evaluating an algebraic expression: Whole numbers with two operations
alge832 Evaluating an algebraic expression: Whole number operations and exponents
arith056 Factors
arith034 Prime numbers
arith035 Prime factorization
arith033 Greatest common factor of 2 numbers
arith070 Least common multiple of 2 numbers
arith240 Word problem with common multiples
arith212 Equivalent fractions
arith067 Simplifying a fraction
arith092 Using a common denominator to order fractions
arith018 Addition or subtraction of fractions with the same denominator
arith081 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
APPENDIX B. PROGRAMS IN ALEKS

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
arith088 The reciprocal of a number
arith094 Division involving a whole number and a fraction
arith022 Fraction division
arith097 Mixed arithmetic operations with fractions
arith095 Multi-step word problem involving fractions and multiplication
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
arith129 Introduction to ordering decimals
arith008 Ordering decimals
arith009 Ordering fractions and decimals
arith022 Converting a fraction to a terminating decimal
arith089 Converting a fraction to a repeating decimal
arith087 Converting a decimal to a proper fraction in simplest form: Advanced
arith024 Addition of aligned decimals
arith025 Subtraction of aligned decimals
arith131 Estimating a decimal sum or difference
arith017 Multiplication of a decimal by a whole number
arith082 Multiplication of a decimal by a power of ten
arith055 Decimal multiplication: Problem type 1
arith081 Division of a decimal by a whole number
arith083 Division of a decimal by a power of ten
arith019 Division of a decimal by a 2-digit decimal
arith026 Word problem with one decimal operation: Problem type 1
arith027 Word problem with one decimal operation: Problem type 2
arith028 Word problem with multiple decimal operations: Problem type 1
geom339 Perimeter of a polygon
geom300 Perimeter of a square or a rectangle
geom019 Area of a square or a rectangle
geom021 Finding the missing length in a figure
geom340 Area of a piecewise rectangular figure
geom142 Word problem involving the area between two rectangles
geom081 Area of a triangle
geom092 Area of a parallelogram
geom023 Area of a trapezoid
geom016 Circumference of a circle
geom301 Perimeter involving rectangles and circles
geom388 Circumference ratios
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
geom031 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
geom042 Surface area of a sphere
geom031 Volume of a rectangular prism
geom090 Volume of a triangular prism
geom003 Volume of a pyramid
geom035 Volume of a cylinder
geom092 Word problem involving the rate of filling or emptying a cylinder
Real Numbers

alge001 Identifying numbers as integers or non-integers
alge002 Identifying numbers as rational or irrational
mstat038 Reading the temperature from a thermometer
arith699 Writing a signed number for a real-world situation
alg286 Plotting integers on a number line
arith687 Fractional position on a number line
arith605 Plotting rational numbers on a number line
arith691 Ordering integers
arith712 Ordering real numbers
arith200 Integer addition: Problem type 1
arith108 Integer addition: Problem type 2
arith688 Integer subtraction: Problem type 1
arith690 Integer subtraction: Problem type 2
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
arith231 Integer multiplication and division
arith800 Multiplication of 3 or 4 integers
arith822 Signed fraction multiplication: Basic
arith105 Signed fraction multiplication: Advanced
alg984 Classifying sums and products as rational or irrational
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
alg805 Evaluating a linear expression: Integer multiplication with addition or subtraction
alg804 Evaluating a quadratic expression: Integers
arith071 Absolute value of a number
arith104 Operations with absolute value: Problem type 2
geom525 Computing distances between decimals on the number line
alg187 Properties of addition
alg188 Properties of real numbers
arith657 Understanding the distributive property
alg606 Distributive property: Whole number coefficients
alg604 Distributive property: Integer coefficients
alg700 Combining like terms: Whole number coefficients
alg607 Combining like terms: Integer coefficients
alg663 Combining like terms: Advanced
alg293 Combining like terms in a quadratic expression

Linear Equations

alg099 Additive property of equality with whole 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
alg266 Additive property of equality with a negative coefficient
alg836 Additive property of equality with signed fractions
APPENDIX B. PROGRAMS IN ALEKS

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
alge096 Solving a two-step equation with integers
alge824 Solving a two-step equation given in fractional form
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
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
alge810 Introduction to algebraic symbol manipulation
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
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
alge730 Writing a multi-step equation for a real-world situation
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
alge794 Solving a value mixture problem using a linear equation
alge795 Solving a percent mixture problem using a linear equation
arith28 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
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
geom530 Solving equations involving vertical angles
geom001 Finding an angle measure of a triangle given two angles
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
arith663 Writing ratios for real-world situations
alge272 Solving a proportion of the form \( \frac{x}{a} = \frac{b}{c} \)
alge840 Solving a proportion of the form \( \frac{x+a}{b} = \frac{c}{d} \)
alge271 Solving a proportion of the form \( \frac{a}{x+b} = \frac{c}{x} \)
arith064 Solving a word problem on proportions using a unit rate
Linear Inequalities

- **alg015**: Translating a sentence by using an inequality symbol
- **alg045**: Translating a sentence into a one-step inequality
- **alg046**: Translating a sentence into a multi-step inequality
- **alg048**: Writing an inequality for a real-world situation
- **alg029**: Writing a multi-step inequality for a real-world situation
- **alg017**: Graphing a linear inequality on the number line
- **alg022**: 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
- **alg047**: Writing a compound inequality given a graph on the number line
- **alg044**: Identifying solutions to a two-step linear inequality in one variable
- **alg048**: Additive property of inequality with whole numbers
- **alg049**: Additive property of inequality with integers
- **alg052**: Additive property of inequality with signed fractions
- **alg053**: Additive property of inequality with signed decimals
- **alg054**: Multiplicative property of inequality with integers
- **alg064**: Multiplicative property of inequality with signed fractions
- **alg055**: Solving a two-step linear inequality: Problem type 1
- **alg056**: Solving a two-step linear inequality: Problem type 2
- **alg057**: Solving a two-step linear inequality with a fractional coefficient
- **alg077**: Solving a linear inequality with multiple occurrences of the variable: Problem type 1
- **alg058**: Solving a linear inequality with multiple occurrences of the variable: Problem type 2
- **alg059**: Solving a linear inequality with multiple occurrences of the variable: Problem type 3
- **alg060**: Solving inequalities with no solution or all real numbers as solutions
- **alg076**: Solving a compound linear inequality: Problem type 1
- **alg086**: Solving a compound linear inequality: Problem type 2
- **alg074**: Solving a compound linear inequality: Problem type 1
- **alg081**: Solving a compound linear inequality: Problem type 2
- **alg074**: Solving a word problem using a two-step linear inequality
- **alg075**: Solving a word problem using a linear inequality with the variable on both sides
- **alg043**: Writing an absolute value inequality given a graph on the number line
- **alg068**: Solving an absolute value inequality: Problem type 1
- **alg069**: Solving an absolute value inequality: Problem type 2
Functions and Lines

set001 Set builder notation
set002 Union and intersection of finite sets
fun001 Table for a linear function
pcalc760 Evaluating functions: Linear and quadratic or cubic
fun033 Variable expressions as inputs of functions
fun016 Domain and range from ordered pairs
alge896 Graphing an integer function and finding its range for a given domain
fun032 Identifying functions from relations
fun010 Vertical line test
pcalc761 Finding inputs and outputs of a function from its graph
alge999 Finding where a function is increasing, decreasing, or constant given the graph
pcalc752 Finding local maxima and minima of a function given the graph
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
alge716 Introduction to the composition of two functions
fun012 Inverse functions: Problem type 1
alge064 Reading a point in the coordinate plane
alge067 Plotting a point in the coordinate plane
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
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
alge197 Graphing a line given its \( x \)- and \( y \)-intercepts
alge881 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
alge876 Identifying linear equations: Advanced
alge874 Identifying linear functions given ordered pairs
alge891 Rewriting a linear equation in the form \( Ax + By = C \)
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
alge888 Finding the coordinate that yields 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 \( Ax + By = C \)
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
alge701 Writing an equation and drawing its graph to model a real-world situation: Advanced
mstat052 Identifying independent and dependent variables from equations or real-world situations
alge990 Domain and range of a linear function that models a real-world situation
alge989 Interpreting the parameters of a linear function that models a real-world situation
alge992 Combining functions to write a new function that models a real-world situation
alge987 Comparing properties of linear functions given in different forms
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
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
alge991 Solving a linear equation by graphing
mstat051 Choosing a graph to fit a narrative: Advanced
alge828 Interpreting direct variation from a graph
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
alge925 Finding the next terms of an arithmetic sequence with whole numbers
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
pcalc085 Finding a specified term of an arithmetic sequence given the common difference and first term
alge909 Writing an explicit rule for an arithmetic sequence
alge908 Finding the first terms of a sequence using a recursive rule
alge910 Writing a recursive rule for an arithmetic sequence
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
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
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 $y = ax^3$
fun030 Evaluating a piecewise-defined function
fun031 Graphing a piecewise-defined function

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 system of linear equations that is inconsistent or consistent dependent
alge753 Solving a system of 3 linear equations in 3 unknowns
alge988 Identifying the operations used to create equivalent systems of 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 $y = mx + b$
APPENDIX B. PROGRAMS IN ALEKS

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
alge912 Identifying solutions to a linear inequality in two variables
alge720 Graphing a linear inequality in the plane: Slope-intercept form
alge618 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
pcalc037 Scalar multiplication of a matrix
pcalc038 Addition or subtraction of matrices
pcalc740 Linear combination of matrices
pcalc712 Gauss-Jordan elimination with a 2x2 matrix

Exponents

alge790 Evaluating expressions with exponents of zero
arith064 Power of 10: Negative exponent
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
alge821 Understanding the product rule of exponents
alge024 Introduction to the product rule of exponents
alge030 Product rule with positive exponents: Multivariate
alge961 Introduction to the product rule with negative exponents
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
alge926 Quotient rule with negative exponents: Problem type 2
alge826 Understanding the power rules of exponents
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
alge927 Power and quotient rules with positive 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
scinot002 Multiplying and dividing numbers written in scientific notation
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
alge971 Table for an exponential function
alge830 Evaluating an exponential function that models a real-world situation
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
alge301 Solving an exponential equation by finding common bases: Linear exponents
alge177 Finding a final amount in a word problem on exponential growth or decay
alge741 Compound interest
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
alge933 Finding the next terms of a geometric sequence with whole numbers
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
pcalc713 Arithmetic and geometric sequences: Identifying and writing an explicit rule
alge911 Writing recursive rules for arithmetic and geometric sequences

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
alge902 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
alge855 Multiplying a multivariate polynomial by a monomial
alge003 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
alge908 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
alge986 Closure properties of integers and polynomials
alge735 Introduction to the GCF of two monomials
alge037 Greatest common factor of two multivariate monomials
alge9930 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: 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
alge003 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
alge041 Factoring a product of a quadratic trinomial and a monomial
APPENDIX B. PROGRAMS 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
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

Quadratic Functions and Equations

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
alge975 Domain and range from the graph of a parabola
alge976 Range of a quadratic function
alge996 Comparing properties of quadratic functions given in different forms
alge953 Translating the graph of a parabola: One step
alge253 Graphing a parabola of the form $y = (x-a)^2 + c$
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
alge702 Classifying the graph of a function
alge965 Identifying linear, quadratic, and exponential functions given ordered pairs
alge723 How the leading coefficient affects the shape of a parabola
alge985 Writing an equation for a function after a vertical translation
fun020 Writing an equation for a function after a vertical and horizontal translation
pcalc748 Graphing a quadratic inequality: Problem type 1
pcalc749 Graphing a quadratic inequality: Problem type 2
alge957 Solving a quadratic equation by graphing
alge962 Solving an equation of the form $x^2 = a$ using the square root property
alge958 Solving a quadratic equation using the square root property: Problem type 1
alge959 Solving a quadratic equation using the square root property: Problem type 2
alge994 Completing the square
alge960 Solving a quadratic equation by completing the square
alge963 Applying the quadratic formula: Decimal answers
alge995 Applying the quadratic formula: Exact answers
alge214 Discriminant of a quadratic equation
alge524 Solving a word problem using a quadratic equation with irrational roots
alge994 Graphically solving a system of linear and quadratic equations
alge995 Solving a system of linear and quadratic equations
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

Radicals

alge213 Domain of a square root function
pcalc781 Graphing a square root function
arith016 Square root of a perfect square
arith602 Estimating a square root
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
arith082 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
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
geom044 Pythagorean Theorem
alge132 Distance between two points in the plane
alge775 Midpoint of a line segment in the plane
pcalc609 Sine, cosine, and tangent ratios: Numbers for side lengths
pcalc606 Using the Pythagorean Theorem to find a trigonometric ratio
pcalc616 Using a calculator to approximate sine, cosine, and tangent values
pcalc607 Using a trigonometric ratio to find a side length in a right triangle
pcalc610 Using trigonometry to find distances
pcalc608 Using a trigonometric ratio to find an angle measure in a right triangle
pcalc611 Using trigonometry to find angles of elevation or depression
pcalc642 Solving a right triangle

Rational Expressions

alge049 Restriction on a variable in a denominator: Linear
alge715 Domain of a rational function
alge682 Simplifying a ratio of polynomials: Problem type 1
alge683 Simplifying a ratio of polynomials: Problem type 2
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
arith060 Complex fraction without variables: Problem type 2
alge696 Complex fraction involving multivariate monomials
alge767 Complex fraction: GCF and quadratic factoring
alge768 Complex fraction made of sums involving rational expressions
alge060 Solving a rational equation that simplifies to linear: Denominator x
alge205 Solving a rational equation that simplifies to linear: Denominator x+a
alge066 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
APPENDIX B. PROGRAMS IN ALEKS

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
alge902 Identifying direct and inverse variation from ordered pairs and writing equations
alge903 Identifying direct and inverse variation equations
alge905 Writing an inverse variation equation
alge176 Word problem on inverse variation
alge220 Word problem on inverse proportions
pcalc789 Finding the asymptotes of a rational function: Basic
pcalc108 Graphing a rational function: Problem type 1

Data Analysis and Probability

mstat037 Constructing a line plot
mstat004 Constructing a histogram for numerical data
mstat024 Interpreting a bar graph
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
geom814 Angle measure in a circle graph
mstat031 Interpreting a stem-and-leaf plot
mstat027 Using back-to-back stem-and-leaf plots to compare data sets
mstat006 Constructing a box-and-whisker plot
mstat073 Using box-and-whisker plots to compare data sets
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
mstat066 Weighted 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
mstat025 Finding if a question can be answered by the data
mstat049 Computing a percentage from a table of values
stat020 Calculating relative frequencies in a contingency table
stat805 Making a reasonable inference based on proportion statistics
stat009 Percentiles
mstat072 Five-number summary and interquartile range
stat021 Population standard deviation
mstat042 Interpreting a Venn diagram of 2 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
stat790 Permutations, combinations, and the multiplication principle for counting
mstat026 Introduction to the probability of an event
mstat010 Probability of an event
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

B.49 Prep for SC Algebra 1 EOC Examination

Arithmetic Readiness

arith078 Rounding to tens or hundreds
arith123 Rounding to hundreds or thousands
arith101 Estimating a sum of whole numbers
arith233 Introduction to exponents
arith692 Writing expressions using 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
alge731 Evaluating an algebraic expression: Whole numbers with two operations
alge832 Evaluating an algebraic expression: Whole number operations and exponents
arith050 Factors
arith034 Prime numbers
arith035 Prime factorization
arith033 Greatest common factor of 2 numbers
arith070 Least common multiple of 2 numbers
arith240 Word problem with common multiples
arith212 Equivalent fractions
arith067 Simplifying a fraction
arith092 Using a common denominator to order fractions
arith18 Addition or subtraction of fractions with the same denominator
arith501 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
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
arith888 The reciprocal of a number
arith694 Division involving a whole number and a fraction
arith022 Fraction division
arith697 Mixed arithmetic operations with fractions
arith695 Multi-step word problem involving fractions and multiplication
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
arith685 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
arith129 Introduction to ordering decimals
arith608 Ordering decimals
arith609 Ordering fractions and decimals
arith222 Converting a fraction to a terminating decimal
arith689 Converting a fraction to a repeating decimal
arith687 Converting a decimal to a proper fraction in simplest form: Advanced
arith624 Addition of aligned decimals
APPENDIX B. PROGRAMS IN ALEKS

arith625 Subtraction of aligned decimals
arith131 Estimating a decimal sum or difference
arith017 Multiplication of a decimal by a whole number
arith082 Multiplication of a decimal by a power of ten
arith055 Decimal multiplication: Problem type 1
arith081 Division of a decimal by a whole number
arith083 Division of a decimal by a power of ten
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
arith628 Word problem with multiple decimal operations: Problem type 1
geom339 Perimeter of a polygon
geom300 Perimeter of a square or a rectangle
geom019 Area of a square or a rectangle
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
geom922 Area of a parallelogram
geom923 Area of a trapezoid
geom016 Circumference of a circle
geom301 Perimeter involving rectangles and circles
geom838 Circumference ratios
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
geom031 Surface area of a cube or a rectangular prism
geom034 Surface area of a triangular prism
geom036 Surface area of a cylinder: Exact answers in terms of pi
geom842 Surface area of a sphere
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
geom086 Volume of a cone: Exact answers in terms of pi
geom841 Volume of a sphere
geom039 Finding supplementary and complementary angles

Real Numbers

alg001 Identifying numbers as integers or non-integers
alg002 Identifying numbers as rational or irrational
mstat038 Reading the temperature from a thermometer
arith699 Writing a signed number for a real-world situation
alge286 Plotting integers on a number line
arith687 Fractional position on a number line
arith605 Plotting rational numbers on a number line
arith691 Ordering integers
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
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
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arith234 Signed decimal addition and subtraction with 3 numbers
arith231 Integer multiplication and division
arith800 Multiplication of 3 or 4 integers
arith822 Signed fraction multiplication: Basic
arith105 Signed fraction multiplication: Advanced
alge984 Classifying sums and products as rational or irrational
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
arith671 Absolute value of a number
arith104 Operations with absolute value: Problem type 2
gem525 Computing distances between decimals on the number line
alge187 Properties of addition
alge188 Properties of real numbers
arith657 Understanding the distributive property
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

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
alge266 Additive property of equality with a negative coefficient
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
alge834 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 two distributions
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
APPENDIX B. PROGRAMS IN ALEKS

alge742 Solving equations with zero, one, or infinitely many solutions
alge986 Identifying properties used to solve a linear equation
alge810 Introduction to algebraic symbol manipulation
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
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
alge730 Writing a multi-step equation for a real-world situation
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
alge794 Solving a value mixture problem using a linear equation
alge795 Solving a percent 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
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
geom530 Solving equations involving vertical angles
geom001 Finding an angle measure of a triangle given two angles
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
arith663 Writing ratios for real-world situations
alge272 Solving a proportion of the form x/a = b/c
alge840 Solving a proportion of the form (x+a)/b = c/d
alge721 Solving a proportion of the form a/(x+b) = c/x
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
geom037 Similar polygons
geom038 Similar right triangles
geom337 Indirect measurement
arith022 Converting between percentages and decimals
arith090 Converting a percentage to a fraction in simplest form
arith092 Converting a fraction to a percentage: Denominator of 20, 25, or 50
arith069 Writing a ratio as a percentage without a calculator
arith030 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
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
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
mstat065 Converting between temperatures in Fahrenheit and Celsius
unit052 Finding the absolute error and percent error of a measurement
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
Linear Inequalities

- Translating a sentence by using an inequality symbol
- Translating a sentence into a one-step inequality
- Translating a sentence into a multi-step inequality
- Writing an inequality for a real-world situation
- Writing a multi-step inequality for a real-world situation
- Graphing a linear inequality on the number line
- Writing a multi-step inequality for a compound inequality
- Graphing a compound inequality on the number line
- Writing a compound inequality given a graph on the number line
- Identifying solutions to a two-step linear inequality in one variable
- Additive property of inequality with whole numbers
- Additive property of inequality with integers
- Additive property of inequality with signed fractions
- Additive property of inequality with signed decimals
- Multiplicative property of inequality with integers
- Multiplicative property of inequality with signed fractions
- Solving a two-step linear inequality: Problem type 1
- Solving a two-step linear inequality: Problem type 2
- Solving a two-step linear inequality with a fractional coefficient
- Solving a linear inequality with multiple occurrences of the variable: Problem type 1
- Solving a linear inequality with multiple occurrences of the variable: Problem type 2
- Solving a linear inequality with multiple occurrences of the variable: Problem type 3
- Solving inequalities with no solution or all real numbers as solutions
- Solving a compound linear inequality: Problem type 1
- Solving a compound linear inequality: Problem type 2
- Solving a compound linear inequality: Problem type 2
- Solving a decimal word problem using a two-step linear inequality
- Solving a decimal word problem using a linear inequality with the variable on both sides
- Writing an absolute value inequality given a graph on the number line
- Solving an absolute value inequality: Problem type 1
- Solving an absolute value inequality: Problem type 2
- Solving an absolute value inequality: Problem type 3
- Solving an absolute value inequality: Problem type 4
- Solving an absolute value inequality: Problem type 5

Functions and Lines

- Set builder notation
- Union and intersection of finite sets
- Table for a linear function
- Evaluating functions: Linear and quadratic or cubic
- Variable expressions as inputs of functions
- Domain and range from ordered pairs
- Graphing an integer function and finding its range for a given domain
- Identifying functions from relations
- Vertical line test
- Finding inputs and outputs of a function from its graph
- Finding where a function is increasing, decreasing, or constant given the graph
- Finding local maxima and minima of a function given the graph
- Writing a function rule given a table of ordered pairs: One-step rules
- Writing a function rule given a table of ordered pairs: Two-step rules
- Introduction to the composition of two functions
- Inverse functions: Problem type 1
- Reading a point in the coordinate plane
- Plotting a point in the coordinate plane
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
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
alge197 Graphing a line given its \( x \)- and \( y \)-intercepts
alge881 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
alge876 Identifying linear equations: Advanced
alge874 Identifying linear functions given ordered pairs
alge891 Rewriting a linear equation in the form \( Ax + By = C \)
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
alge888 Finding the coordinate that yields 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 \( Ax + By = C \)
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
alge701 Writing an equation and drawing its graph to model a real-world situation: Advanced
mstat052 Identifying independent and dependent variables from equations or real-world situations
alge990 Domain and range of a linear function that models a real-world situation
alge989 Interpreting the parameters of a linear function that models a real-world situation
alge992 Combining functions to write a new function that models a real-world situation
alge987 Comparing properties of linear functions given in different forms
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
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
alge991 Solving a linear equation by graphing
mstat051 Choosing a graph to fit a narrative: Advanced
alge828 Interpreting direct variation from a graph
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
alge925 Finding the next terms of an arithmetic sequence with whole numbers
alge906 Finding the next terms of an arithmetic sequence with integers
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
alge909 Writing an explicit rule for an arithmetic sequence
alge908 Finding the first terms of a sequence using a recursive rule
alge910 Writing a recursive rule for an arithmetic sequence
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
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 \( y = A - x \) —
alge960 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
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 \( y = ax^3 \)
alge168 Graphing an absolute value equation in the plane: Advanced
alge901 How the leading coefficient affects the graph of an absolute value function
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 \( y = ax^3 \)
fun030 Evaluating a piecewise-defined function
fun031 Graphing a piecewise-defined function

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 Graphing a system of linear equations that is inconsistent or consistent dependent
alge753 Solving a system of 3 linear equations in 3 unknowns
alge988 Identifying the operations used to create equivalent systems of 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
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
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
pcalc037 Scalar multiplication of a matrix
pcalc038 Addition or subtraction of matrices
pcalc740 Linear combination of matrices
pcalc712 Gauss-Jordan elimination with a 2x2 matrix

Exponents

alge790 Evaluating expressions with exponents of zero
arith084 Power of 10: Negative exponent
arith042 Evaluating an expression with a negative exponent: Positive fraction base
arith043 Evaluating an expression with a negative exponent: Negative integer base
### APPENDIX B. PROGRAMS IN ALEKS

<table>
<thead>
<tr>
<th>Program Id</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>arith029</td>
<td>Ordering numbers with positive exponents</td>
</tr>
<tr>
<td>arith024</td>
<td>Ordering numbers with negative exponents</td>
</tr>
<tr>
<td>alge791</td>
<td>Rewriting an algebraic expression without a negative exponent</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>alge030</td>
<td>Product rule with positive exponents: Multivariate</td>
</tr>
<tr>
<td>alge961</td>
<td>Introduction to the product rule with negative exponents</td>
</tr>
<tr>
<td>alge028</td>
<td>Product rule with negative exponents</td>
</tr>
<tr>
<td>alge827</td>
<td>Introduction to the quotient rule of exponents</td>
</tr>
<tr>
<td>alge026</td>
<td>Quotient of expressions involving exponents</td>
</tr>
<tr>
<td>alge755</td>
<td>Quotient rule with negative exponents: Problem type 1</td>
</tr>
<tr>
<td>alge926</td>
<td>Quotient rule with negative exponents: Problem type 2</td>
</tr>
<tr>
<td>alge826</td>
<td>Understanding the power rules of exponents</td>
</tr>
<tr>
<td>alge754</td>
<td>Introduction to the power rules of exponents</td>
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<tr>
<td>alge027</td>
<td>Power rules with positive exponents</td>
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<tr>
<td>alge025</td>
<td>Power of a power rule with negative exponents</td>
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<tr>
<td>alge799</td>
<td>Power rules with negative exponents</td>
</tr>
<tr>
<td>alge756</td>
<td>Power and product rules with positive exponents</td>
</tr>
<tr>
<td>alge927</td>
<td>Power and quotient rules with positive exponents</td>
</tr>
<tr>
<td>alge029</td>
<td>Power and quotient rules with negative exponents: Problem type 1</td>
</tr>
<tr>
<td>alge929</td>
<td>Power and quotient rules with negative exponents: Problem type 2</td>
</tr>
<tr>
<td>alge757</td>
<td>Power, product, and quotient rules with negative exponents</td>
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<tr>
<td>arith036</td>
<td>Scientific notation with positive exponent</td>
</tr>
<tr>
<td>arith037</td>
<td>Scientific notation with negative exponent</td>
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<tr>
<td>scinot002</td>
<td>Multiplying and dividing numbers written in scientific notation</td>
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<tr>
<td>alge812</td>
<td>Converting between radical form and exponent form</td>
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<tr>
<td>alge250</td>
<td>Rational exponents: Non-unit fraction exponent with a whole number base</td>
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<tr>
<td>alge251</td>
<td>Rational exponents: Negative exponents and fractional bases</td>
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<tr>
<td>alge773</td>
<td>Rational exponents: Products and quotients with negative exponents</td>
</tr>
<tr>
<td>alge249</td>
<td>Rational exponents: Powers of powers with negative exponents</td>
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<tr>
<td>alge971</td>
<td>Table for an exponential function</td>
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<tr>
<td>alge830</td>
<td>Evaluating an exponential function that models a real-world situation</td>
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<tr>
<td>alge966</td>
<td>Finding the initial amount and rate of change given an exponential function</td>
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<tr>
<td>alge968</td>
<td>Writing an equation that models exponential growth or decay</td>
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<tr>
<td>alge967</td>
<td>Writing an exponential function given in a table of ordered pairs</td>
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<tr>
<td>alge301</td>
<td>Solving an exponential equation by finding common bases: Linear exponents</td>
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<tr>
<td>alge177</td>
<td>Finding a final amount in a word problem on exponential growth or decay</td>
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<tr>
<td>alge741</td>
<td>Compound interest</td>
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<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>alge993</td>
<td>Comparing linear, polynomial, and exponential functions</td>
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<tr>
<td>alge933</td>
<td>Finding the next terms of a geometric sequence with whole numbers</td>
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<tr>
<td>alge907</td>
<td>Finding the next terms of a geometric sequence with signed numbers</td>
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<tr>
<td>alge981</td>
<td>Identifying arithmetic and geometric sequences</td>
</tr>
<tr>
<td>alge980</td>
<td>Identifying geometric sequences and finding the common ratio</td>
</tr>
<tr>
<td>alge934</td>
<td>Finding a specified term of a geometric sequence given the first terms</td>
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<tr>
<td>pcalc086</td>
<td>Finding a specified term of a geometric sequence given the common ratio and first term</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>
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</table>

### Polynomials and Factoring

<table>
<thead>
<tr>
<th>Program Id</th>
<th>Description</th>
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<tbody>
<tr>
<td>alge758</td>
<td>Degree and leading coefficient of a univariate polynomial</td>
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<tr>
<td>alge031</td>
<td>Degree of a multivariate polynomial</td>
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<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>alge932</td>
<td>Simplifying a sum or difference of multivariate polynomials</td>
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<tr>
<td>alge745</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>
</tbody>
</table>
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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
alge736 Introduction to the GCF of two monomials
alge037 Greatest common factor of two multivariate monomials
alge900 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: 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
alge909 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
alge941 Factoring a product of a quadratic trinomial and a monomial
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
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
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

Quadratic Functions and Equations

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
alge975 Domain and range from the graph of a parabola
alge976 Range of a quadratic function
alge996 Comparing properties of quadratic functions given in different forms
alge953 Translating the graph of a parabola: One step
alge253 Graphing a parabola of the form \( y = (x-a)^2 + c \)
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
alge702 Classifying the graph of a function
alge965 Identifying linear, quadratic, and exponential functions given ordered pairs
alge723 How the leading coefficient affects the shape of a parabola
alge185 Writing an equation for a function after a vertical translation
fun020 Writing an equation for a function after a vertical and horizontal translation
pcalc748 Graphing a quadratic inequality: Problem type 1
pcalc749 Graphing a quadratic inequality: Problem type 2
alge957 Solving a quadratic equation by graphing
alge958 Solving a quadratic equation using the square root property: Problem type 1
alge959 Solving a quadratic equation using the square root property: Problem type 2
alge960 Completing the square
alge961 Solving a quadratic equation by completing the square
alge963 Applying the quadratic formula: Decimal answers
alge995 Applying the quadratic formula: Exact answers
alge214 Discriminant of a quadratic equation
alge624 Solving a word problem using a quadratic equation with irrational roots
alge994 Graphically solving a system of linear and quadratic equations
alge995 Solving a system of linear and quadratic equations
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

Radicals

alge213 Domain of a square root function
pcalc781 Graphing a square root function
arith016 Square root of a perfect square
arith602 Estimating a square root
arith601 Square root of a rational perfect square
arith604 Cube root of an integer
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
alge277 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
arith084 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
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
geom044 Pythagorean Theorem
alge132 Distance between two points in the plane
alge191 Midpoint of a line segment in the plane
pcalc609 Sine, cosine, and tangent ratios: Numbers for side lengths
pcalc606 Using the Pythagorean Theorem to find a trigonometric ratio
pcalc616 Using a calculator to approximate sine, cosine, and tangent values
Rational Expressions

- **alge049** Restriction on a variable in a denominator: Linear
- **alge715** Domain of a rational function
- **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
- **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
- **alge767** Complex fraction: GCF and quadratic factoring
- **alge768** Complex fraction made of sums involving rational expressions
- **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
- **arith712** Word problem involving multiple rates
- **alge770** Solving a work problem using a rational equation
- **alge902** Identifying direct and inverse variation from ordered pairs and writing equations
- **alge903** Identifying direct and inverse variation equations
- **alge905** Writing an inverse variation equation
- **alge176** Word problem on inverse variation
- **alge220** Word problem on inverse proportions
- **pcalc789** Finding the asymptotes of a rational function: Basic
- **pcalc108** Graphing a rational function: Problem type 1

Data Analysis and Probability

- **mstat037** Constructing a line plot
- **mstat004** Constructing a histogram for numerical data
- **mstat024** Interpreting a bar graph
- **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
- **geom814** Angle measure in a circle graph
- **mstat031** Interpreting a stem-and-leaf plot
- **mstat027** Using back-to-back stem-and-leaf plots to compare data sets
mstat006 Constructing a box-and-whisker plot
mstat073 Using box-and-whisker plots to compare data sets
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
mstat066 Weighted 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
mstat025 Finding if a question can be answered by the data
mstat049 Computing a percentage from a table of values
stat020 Calculating relative frequencies in a contingency table
stat805 Making a reasonable inference based on proportion statistics
stat009 Percentiles
mstat072 Five-number summary and interquartile range
stat021 Population standard deviation
mstat042 Interpreting a Venn diagram of 2 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
stat790 Permutations, combinations, and the multiplication principle for counting
mstat026 Introduction to the probability of an event
mstat010 Probability of an event
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

B.50  Prep for SC HSAP Mathematics

Arithmetic Readiness

arith123 Rounding to hundreds or thousands
arith233 Introduction to exponents
arith692 Writing expressions using exponents
arith683 Power of 10: Positive exponent
arith048 Order of operations with whole numbers
arith051 Order of operations with whole numbers and grouping symbols
arith093 Order of operations with whole numbers and exponents: Basic
alge731 Evaluating an algebraic expression: Whole numbers with two operations
arith658 Filling in missing operations to make an equation
arith656 Factors
arith034 Prime numbers
arith035 Prime factorization
arith032 Greatest common factor of 2 numbers
arith070 Least common multiple of 2 numbers
arith212 Equivalent fractions
B.50. PREP FOR SC HSAP MATHEMATICS

arith067 Simplifying a fraction
arith092 Using a common denominator to order fractions
arith618 Addition or subtraction of fractions with the same denominator
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
arith079 Product of a unit fraction and a whole number
arith801 Finding the LCD of two fractions
arith619 Introduction to fraction multiplication
arith053 Fraction multiplication
arith088 The reciprocal of a number
arith694 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
arith020 Mixed number multiplication: Problem type 1
arith068 Mixed number division
arith110 Decimal place value: Tenths and hundredths
arith220 Decimal place value: Hundreds to ten thousandths
arith221 Rounding decimals
arith068 Ordering 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
arith013 Decimal addition with 3 numbers
arith625 Subtraction of aligned decimals
arith026 Word problem with one decimal operation: Problem type 1
arith027 Word problem with one decimal operation: Problem type 2
arith017 Multiplication of a decimal by a whole number
arith082 Multiplication of a decimal by a power of ten
arith055 Decimal multiplication: Problem type 1
arith081 Division of a decimal by a whole number
arith083 Division of a decimal by a power of ten
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
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
unit034 Converting between metric and U.S. Customary unit systems
unit035 Converting between compound units: Basic
unit036 Converting between compound units: Advanced
mstat065 Converting between temperatures in Fahrenheit and Celsius

Real Numbers

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
mstat038 Reading the temperature from a thermometer
alge286 Plotting integers on a number line
APPENDIX B. PROGRAMS IN ALEKS

arith691 Ordering integers
arith687 Fractional position on a number line
arith605 Plotting rational numbers on a number line
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
arith116 Signed fraction addition or subtraction: Basic
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
arith822 Signed fraction multiplication: Basic
arith118 Order of operations with integers
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
arith671 Absolute value of a number
arith104 Operations with absolute value: Problem type 2
alge187 Properties of addition
alge188 Properties of real numbers
arith657 Understanding the distributive property
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

Linear Equations and Inequalities

alge009 Additive property of equality with whole numbers
alge800 Additive property of equality with decimals
alge010 Additive property of equality with integers
alge266 Additive property of equality with a negative coefficient
alge061 Multiplicative property of equality with whole numbers
alge820 Multiplicative property of equality with fractions
alge825 Multiplicative property of equality with decimals
alge740 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
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
B.50. PREP FOR SC HSAP MATHEMATICS

alge742 Solving equations with zero, one, or infinitely many solutions
alge810 Introduction to algebraic symbol manipulation
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
alge602 Writing a one-step variable 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 Writing 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
alge794 Solving a value mixture problem using a linear equation
alge795 Solving a percent 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
arith663 Writing ratios for real-world situations
alge272 Solving a proportion of the form x/a = b/c
alge271 Solving a proportion of the form a/(x+b) = c/x
arith604 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
arith226 Converting between percentages and decimals
arith602 Converting a fraction to a percentage: Denominator of 20, 25, or 50
arith609 Converting a percentage to a fraction in simplest form
arith606 Writing a ratio as a percentage without a calculator
mstat049 Computing a percentage from a table of values
arith630 Finding a percentage of a whole number without a calculator: Basic
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
arith225 Finding the percentage increase or decrease: Advanced
arith323 Finding simple interest without a calculator
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
alge186 Translating a sentence into a compound inequality
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
alge207 Solving a linear inequality: Problem type 4
alge745 Solving a linear inequality: Problem type 5
alge746 Solving a compound linear inequality: Problem type 1
alge748 Writing an 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
alge170 Solving an absolute value inequality: Basic

Lines and Systems 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
APPENDIX B. PROGRAMS IN ALEKS

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
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
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
mstat030 Sketching the line of best fit
mstat023 Scatter plots and correlation
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
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
alge076 Solving a system of linear equations using elimination with multiplication and addition
alge752 Solving a system of linear equations that is inconsistent or consistent dependent
alge753 Solving a system of 3 linear equations in 3 unknowns
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
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
alge079 Graphing a system of two linear inequalities: Basic
pcalc037 Scalar multiplication of a matrix
pcalc038 Addition or subtraction of matrices
pcalc740 Linear combination of matrices

Exponents, Polynomials, and Quadratics

alge790 Evaluating expressions with exponents of zero
arith684 Power of 10: Negative exponent
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
alge821 Understanding the product rule of exponents
alge024 Introduction to the product rule of exponents
alge603 Product rule with positive exponents: Multivariate
alge608 Product rule with negative exponents
alge827 Understanding the quotient rule of exponents
alge026 Quotient of expressions involving exponents
alge755 Quotient rule with negative exponents: Problem type 1
alge826 Understanding the power rules of exponents
alge754 Introduction to the power rules of exponents
Functions and Sequences

set004 Set builder and interval notation
fun001 Table for a linear function
pcalc760 Evaluating functions: Linear and quadratic or cubic
fun033 Variable expressions as inputs of functions

alge027 Power rules with positive exponents
alge025 Power of a power rule with negative exponents
alge799 Power rules with negative exponents
arith029 Ordering numbers with positive 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
alge798 Simplifying a sum or difference of two univariate polynomials
alge775 Multiplying a univariate polynomial by a monomial with a positive coefficient
alge805 Multiplying a multivariate polynomial by a monomial
alge033 Multiplying binomials with leading coefficients of 1
alge764 Multiplying conjugate binomials: Univariate
alge765 Multiplying binomials in two variables
alge032 Squaring a binomial: Univariate
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
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
alge039 Factoring a quadratic with leading coefficient 1
alge043 Factoring a perfect square trinomial
alge040 Factoring a quadratic with leading coefficient greater than 1
alge265 Factoring a quadratic in two variables 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
alge181 Factoring a polynomial by grouping: Problem type 2
alge039 Solving an equation written in factored form
alge048 Finding the roots of a quadratic equation with leading coefficient greater than 1
alge211 Solving a quadratic equation needing simplification
alge092 Solving a quadratic equation using the square root property: Problem type 1
alge227 Solving a quadratic equation using the square root property: Problem type 2
alge094 Completing the square
alge780 Solving a quadratic equation by completing the square
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
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
alge252 Graphing a parabola of the form $y = ax^2$
alge253 Graphing a parabola of the form $y = (x-a)^2 + c$
pcalc746 Graphing a parabola of the form $y = ax^2 + bx + c$: Integer coefficients
alge702 Classifying the graph of a function
alge723 How the leading coefficient affects the shape of a parabola
.fun032 Identifying functions from relations
.fun010 Vertical line test
.fun016 Domain and range from ordered pairs
.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
.mstat052 Identifying independent and dependent variables from equations or real-world situations
.pcalc768 Finding the average rate of change of a function
.fun019 Sum, difference, and product of two functions
.fun022 Composition of two functions: Basic
.fun002 Graphing integer functions
.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
.pcalc114 Even and odd functions
.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 Translating the graph of a function by reflecting over an axis
.alge262 Graphing a cubic function of the form y = ax^3
.alge168 Graphing an absolute value equation in the plane: Advanced
.alge712 Graphing an exponential function and its asymptote: f(x) = a(b)x
.mstat051 Choosing a graph to fit a narrative: Advanced
.alge807 Finding the next terms of a sequence with whole numbers
.alge741 Finding patterns in shapes
.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
.pcalc086 Finding a specified term of a geometric sequence given the common ratio and first term
.pcalc713 Arithmetic and geometric sequences: Identifying and writing an explicit rule
.alge177 Finding a final amount in a word problem on exponential growth or decay
.alge741 Compound interest

Radical Expressions

.alge213 Domain of a square root function
.pcalc781 Graphing a square root function
.arith016 Square root of a perfect square
.arith062 Estimating a square root
.arith061 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
.arith032 Square root addition or subtraction
.arith039 Square root multiplication: Advanced
.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
.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
alge182 Solving a radical equation that simplifies to a quadratic equation: Two radicals

Rational Expressions

alge715 Domain of a rational function
alge680 Simplifying a ratio of polynomials: Problem type 1
alge682 Simplifying a ratio of polynomials: Problem type 2
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
alge626 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
arit695 Complex fraction without variables: Problem type 1
arit696 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
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
arit612 Word problem involving multiple rates
alge770 Solving a work problem using a rational equation
alge220 Word problem on inverse proportions
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
pcalc789 Finding the asymptotes of a rational function: Basic
pcalc108 Graphing a rational function: Problem type 1

Perimeter, Area, and Volume

geom339 Perimeter of a polygon
geom300 Perimeter of a square or a rectangle
geom221 Finding the missing length in a figure
geom353 Perimeter of a piecewise rectangular figure
geom817 Finding a side length given the perimeter and side lengths with variables
geom078 Sides of polygons having the same perimeter
geom019 Area of a square or a rectangle
geom350 Distinguishing between area and perimeter
geom351 Areas of rectangles with the same perimeter
geom340 Area of a piecewise rectangular figure
geom142 Word problem involving the area between two rectangles
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
geom922 Area of a parallelogram
geom023 Area of a trapezoid
geom344 Area involving rectangles and triangles
geom213 Area of a regular polygon
geom832 Area of quadrilaterals in the coordinate plane
alge724 Finding an area in terms of variables
geom016 Circumference of a circle
geom218 Finding the radius or the diameter of a circle given its circumference
geom301 Perimeter involving rectangles and circles
geom838 Circumference ratios
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
geom805 Arc length and area of a sector of a circle
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
geom833 Volume of a pyramid
geom035 Volume of a cylinder
geom092 Word problem involving the rate of filling or emptying a cylinder
geom841 Volume of a sphere
geom219 Nets of solids
geom861 Nets of solids: Advanced
geom348 Vertices, edges, and faces of a solid
geom816 Side views of a solid made of cubes
geom031 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
geom842 Surface area of a sphere
geom345 Surface area of a piecewise rectangular prism made of unit cubes
geom338 Surface area involving prisms or cylinders

Lines, Angles, and Triangles

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
geom349 Naming segments, rays, and lines
geom525 Computing distances between decimals on the number line
geom526 Midpoint of a number line segment
geom521 Segment addition and midpoints
geom616 Introduction to proofs: Justifying statements
geom614 Proofs involving segment congruence
geom358 Identifying parallel and perpendicular lines
geom385 Introduction to proofs involving parallel lines
geom836 Proofs involving parallel lines
geom154 Constructing the perpendicular bisector of a line segment
geom150 Constructing a pair of perpendicular lines
geom157 Constructing a pair of parallel 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
geom304 Identifying corresponding and alternate angles
geom305 Identifying supplementary and vertical angles
geom530 Solving equations involving vertical angles
geom531 Solving equations involving angles and parallel lines
geom850 Introduction to angle addition
geom851 Angle addition and angle bisectors
geom611 Proofs involving angle congruence
geom159 Constructing congruent angles
geom158 Constructing an angle bisector
geom306 Acute, obtuse, and right triangles
geom307 Scalene, isosceles, and equilateral triangles
geom801 Finding an angle measure of a triangle given two angles
geom812 Finding an angle measure given extended triangles
geom813 Finding an angle measure given a triangle and parallel lines
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
geom502 Finding angle measures of a right or isosceles triangle given angles with variables
geom844 Triangle inequality: Problem type 1
geom845 Triangle inequality: Problem type 2
geom854 Relationship between angle measures and side lengths in a triangle: Problem type 1
geom855 Relationship between angle measures and side lengths in a triangle: Problem type 2
geom844 Pythagorean Theorem
geom868 Computing an area using the Pythagorean Theorem
geom862 Using the Pythagorean Theorem repeatedly
geom506 Special right triangles
geom212 Circles inscribed in and circumscribed about regular polygons
geom520 Identifying and naming congruent triangles
geom617 Proofs involving congruent triangles: Problem type 1
geom837 Proofs involving congruent triangles: Problem type 2
geom840 Proofs involving congruent triangles: Problem type 3
geom839 Proofs involving congruent triangles: Problem type 4
geom843 Proofs involving congruent triangles: Problem type 5
geom505 Indirect proof (proof by contradiction)
palc600 Sine, cosine, and tangent ratios: Variables for side lengths
palc606 Using the Pythagorean Theorem to find a trigonometric ratio
palc607 Using a trigonometric ratio to find a side length in a right triangle
palc610 Using trigonometry to find distances
palc608 Using a trigonometric ratio to find an angle measure in a right triangle
palc611 Using trigonometry to find angles of elevation or depression
palc631 Solving a triangle with the law of sines: Problem type 1
palc632 Solving a triangle with the law of sines: Problem type 2
palc633 Solving a triangle with the law of cosines
palc060 Magnitude of a vector
palc063 Translation of a vector
geom858 Scalar multiplication of a vector: Geometric Approach
geom857 Vector addition: Geometric approach
geom856 Vector addition and scalar multiplication
vector008 Linear combination of vectors: Algebraic approach
vector002 Calculating the magnitude and direction of a vector
vector005 Finding the components of a vector

Polygons, Circles, and Similarity

alge191 Midpoint of a line segment in the plane
alge132 Distance between two points in the plane
geom310 Classifying quadrilaterals
geom523 Classifying quadrilaterals: Advanced problem
geom532 Classifying parallelograms
geom528 Properties of parallelograms: Problem type 1
geom527 Properties of parallelograms: Problem type 2
geom833 Properties of rectangles
geom834 Properties of rhombi
geom870 Sum of the angle measures of a quadrilateral
APPENDIX B. PROGRAMS IN ALEKS

geom852 The sum of interior angle measures in a convex polygon
geom853 Interior and exterior angle measures in a regular polygon
geom819 Finding coordinates of vertices of polygons
geom818 Finding the coordinates of a point to make a parallelogram
geom863 Congruence in the coordinate plane
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
pcalc605 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
geom359 Identifying congruent shapes on a grid
geom360 Identifying similar or congruent shapes on a grid
geom337 Similar polygons
geom038 Similar right triangles
geom337 Indirect measurement
geom510 Triangles and parallel lines
geom507 Right triangles and geometric mean
geom846 Similar solids: Problem type 1
geom847 Similar solids: Problem type 2
geom337 Identifying transformations
geom330 Translating a polygon
geom332 Using a translated point to find coordinates of other translated points
geom331 Reflecting a polygon over a vertical or horizontal line
geom333 Finding the coordinates of three points reflected over an axis
geom334 Drawing lines of symmetry
geom335 Rotating a figure about the origin
geom815 Finding an angle of rotation
geom331 Rotational and point symmetries
geom336 Dilating a figure

Statistics and Probability

mstat004 Constructing a histogram for numerical data
mstat005 Constructing a bar graph for non-numerical data
mstat024 Interpreting a bar graph
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
mstat006 Constructing a box-and-whisker plot
mstat031 Interpreting a stem-and-leaf plot
mstat027 Using back-to-back stem-and-leaf plots to compare data sets
geom814 Angle measure in a circle graph
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
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
mstat066 Weighted mean
mstat025 Finding if a question can be answered by the data
stat802 Rejecting unreasonable claims based on average statistics
stat805 Making a reasonable inference based on proportion statistics
Arithmetic Readiness

- Rounding to tens or hundreds
- Rounding to hundreds or thousands
- Estimating a sum of whole numbers
- Introduction to exponents
- Writing expressions using exponents
- Power of 10: Positive exponent
- Order of operations with whole numbers
- Order of operations with whole numbers and grouping symbols
- Order of operations with whole numbers and exponents: Basic
- Order of operations with whole numbers and exponents: Advanced
- Evaluating an algebraic expression: Whole numbers with two operations
- Evaluating an algebraic expression: Whole number operations and exponents
- Factors
- Prime numbers
- Prime factorization
- Greatest common factor of 2 numbers
- Least common multiple of 2 numbers
- Word problem with common multiples
- Equivalent fractions
- Simplifying a fraction
- Using a common denominator to order fractions
- Addition or subtraction of fractions with the same denominator
- Finding the LCD of two fractions
- Introduction to addition or subtraction of fractions with different denominators
- Addition or subtraction of fractions with different denominators
- 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
- The reciprocal of a number
- Division involving a whole number and a fraction
- Fraction division
- Mixed arithmetic operations with fractions
- Multi-step word problem involving fractions and multiplication
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
arith129 Introduction to ordering decimals
arith608 Ordering decimals
arith609 Ordering fractions and decimals
arith222 Converting a fraction to a terminating decimal
arith089 Converting a fraction to a repeating decimal
arith087 Converting a decimal to a proper fraction in simplest form: Advanced
arith624 Addition of aligned decimals
arith625 Subtraction of aligned decimals
arith131 Estimating a decimal sum or difference
arith017 Multiplication of a decimal by a whole number
arith082 Multiplication of a decimal by a power of ten
arith055 Decimal multiplication: Problem type 1
arith081 Division of a decimal by a whole number
arith083 Division of a decimal by a power of ten
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
arith628 Word problem with multiple decimal operations: Problem type 1
geom339 Perimeter of a polygon
geom300 Perimeter of a square or a rectangle
geom019 Area of a square or a rectangle
geom221 Finding the missing length in a figure
geom340 Area of a piecewise rectangular figure
geom142 Word problem involving the area between two rectangles
geom080 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
geom838 Circumference ratios
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
geom031 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
geom842 Surface area of a sphere
geom311 Volume of a rectangular prism
geom990 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
geom041 Volume of a sphere
geom039 Finding supplementary and complementary angles

Real Numbers

alg001 Identifying numbers as integers or non-integers
alg002 Identifying numbers as rational or irrational
B.51. PREP FOR TX - STAAR ALGEBRA 1

mstat038 Reading the temperature from a thermometer
arith699 Writing a signed number for a real-world situation
alge286 Plotting integers on a number line
arith687 Fractional position on a number line
arith605 Plotting rational numbers on a number line
arith691 Ordering integers
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
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
arith231 Integer multiplication and division
arith800 Multiplication of 3 or 4 integers
arith822 Signed fraction multiplication: Basic
arith105 Signed fraction multiplication: Advanced
alge984 Classifying sums and products as rational or irrational
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
arith671 Absolute value of a number
arith104 Operations with absolute value: Problem type 2
geom525 Computing distances between decimals on the number line
alge187 Properties of addition
alge188 Properties of real numbers
arith657 Understanding the distributive property
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

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
alge266 Additive property of equality with a negative coefficient
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
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
alge016 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 two distributions
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
alge810 Introduction to algebraic symbol manipulation
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
alge831 Translating a phrase into a one-step expression
alge391 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
alge730 Writing a multi-step equation for a real-world situation
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
alge794 Solving a value mixture problem using a linear equation
alge795 Solving a percent 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
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
geom901 Finding an angle measure of a triangle given two angles
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
arith663 Writing ratios for real-world situations
alge272 Solving a proportion of the form x/a = b/c
alge840 Solving a proportion of the form (x+a)/b = c/d
alge271 Solving a proportion of the form a/(x+b) = c/x
arith664 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
geom037 Similar polygons
geom038 Similar right triangles
geom337 Indirect measurement
arith226 Converting between percentages and decimals
arith990 Converting a percentage to a fraction in simplest form
arith602 Converting a fraction to a percentage: Denominator of 20, 25, or 50
arith669 Writing a ratio as a percentage without a calculator
arith030 Finding a percentage of a whole number without a calculator: Basic
 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
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
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
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: Problem type 1
alge861 Solving a compound linear inequality: Problem type 2
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
alge943 Writing an absolute value inequality given a graph on the number line
alge868 Solving an absolute value inequality: Problem type 1
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

Functions and Lines

set001 Set builder notation
set002 Union and intersection of finite sets
APPENDIX B. PROGRAMS IN ALEKS

fun001 Table for a linear function
pcalc760 Evaluating functions: Linear and quadratic or cubic
fun033 Variable expressions as inputs of functions
fun016 Domain and range from ordered pairs
alge896 Graphing an integer function and finding its range for a given domain
fun032 Identifying functions from relations
fun010 Vertical line test
pcalc761 Finding inputs and outputs of a function from its graph
alge999 Finding where a function is increasing, decreasing, or constant given the graph
pcalc752 Finding local maxima and minima of a function given the graph
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
alge716 Introduction to the composition of two functions
fun012 Inverse functions: Problem type 1
alge064 Reading a point in the coordinate plane
alge067 Plotting a point in the coordinate plane
alge873 Identifying solutions to a linear equation in two variables
alge850 Table for a linear equation
alge800 Finding a solution 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
alge197 Graphing a line given its x- and y-intercepts
alge881 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
alge876 Identifying linear equations: Advanced
alge874 Identifying linear functions given ordered pairs
alge891 Rewriting a linear equation in the form Ax + By = C
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
alge888 Finding the coordinate that yields 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
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
alge701 Writing an equation and drawing its graph to model a real-world situation: Advanced
mstat052 Identifying independent and dependent variables from equations or real-world situations
alge990 Domain and range of a linear function that models a real-world situation
alge989 Interpreting the parameters of a linear function that models a real-world situation
alge992 Combining functions to write a new function that models a real-world situation
alge987 Comparing properties of linear functions given in different forms
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
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 line given through a point
alge991 Solving a linear equation by graphing
mstat051 Choosing a graph to fit a narrative: Advanced
alge828 Interpreting direct variation from a graph
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
alge925 Finding the next terms of an arithmetic sequence with whole numbers
alge906 Finding the next terms of an arithmetic sequence with integers
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
alge909 Writing an explicit rule for an arithmetic sequence
alge908 Finding the first terms of a sequence using a recursive rule
alge910 Writing a recursive rule for an arithmetic sequence
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
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
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
fun030 Evaluating a piecewise-defined function
fun031 Graphing a piecewise-defined function

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 system of linear equations that is inconsistent or consistent dependent
alge753 Solving a system of 3 linear equations in 3 unknowns
alge988 Identifying the operations used to create equivalent systems of 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
alge938 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
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
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
APPENDIX B. PROGRAMS IN ALEKS

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
pcalc037 Scalar multiplication of a matrix
pcalc038 Addition or subtraction of matrices
pcalc740 Linear combination of matrices
pcalc712 Gauss-Jordan elimination with a 2x2 matrix

Exponents

alge790 Evaluating expressions with exponents of zero
arith084 Power of 10: Negative exponent
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
alge821 Understanding the product rule of exponents
alge024 Introduction to the product rule of exponents
alge030 Product rule with positive exponents: Multivariate
alge961 Introduction to the product rule with negative exponents
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
alge926 Quotient rule with negative exponents: Problem type 2
alge826 Understanding the power rules of exponents
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
alge927 Power and quotient rules with positive 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
scinot002 Multiplying and dividing numbers written in scientific notation
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
alge971 Table for an exponential function
alge830 Evaluating an exponential function that models a real-world situation
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
alge301 Solving an exponential equation by finding common bases: Linear exponents
alge177 Finding a final amount in a word problem on exponential growth or decay
alge741 Compound interest
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
alge933 Finding the next terms of a geometric sequence with whole numbers
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
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
alge992 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
alge083 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
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: 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
alge205 Factoring a quadratic in two variables with leading coefficient greater than 1
alge937 Factoring a quadratic with a negative leading coefficient
alge941 Factoring a product of a quadratic trinomial and a monomial
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
alge042 Factoring with repeated use of the difference of squares formula
alge044 Factoring a sum or difference of two cubes
APPENDIX B. PROGRAMS IN ALEKS

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

Quadratic Functions and Equations

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
alge975 Domain and range from the graph of a parabola
alge976 Range of a quadratic function
alge996 Comparing properties of quadratic functions given in different forms
alge953 Translating the graph of a parabola: One step
alge253 Graphing a parabola of the form $y = (x-a)^2 + c$
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
alge702 Classifying the graph of a function
alge965 Identifying linear, quadratic, and exponential functions given ordered pairs
alge723 How the leading coefficient affects the shape of a parabola
alge185 Writing an equation for a function after a vertical translation
fun020 Writing an equation for a function after a vertical and horizontal translation
pcalc748 Graphing a quadratic inequality: Problem type 1
pcalc749 Graphing a quadratic inequality: Problem type 2
alge957 Solving a quadratic equation by graphing
alge962 Solving an equation of the form $x^2 = a$ using the square root property
alge958 Solving a quadratic equation using the square root property: Problem type 1
alge959 Solving a quadratic equation using the square root property: Problem type 2
alge094 Completing the square
alge960 Solving a quadratic equation by completing the square
alge963 Applying the quadratic formula: Decimal answers
alge995 Applying the quadratic formula: Exact answers
alge214 Discriminant of a quadratic equation
alge524 Solving a word problem using a quadratic equation with irrational roots
alge094 Graphically solving a system of linear and quadratic equations
alge995 Solving a system of linear and quadratic equations
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

Radicals

alge213 Domain of a square root function
pcalc781 Graphing a square root function
arith016 Square root of a perfect square
arith062 Estimating a square root
arith061 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
Rational Expressions

alg049 Restriction on a variable in a denominator: Linear
alg715 Domain of a rational function
alg710 Simplifying a ratio of polynomials: Problem type 1
alg682 Simplifying a ratio of polynomials: Problem type 2
alg034 Simplifying a ratio of multivariate polynomials
alg053 Multiplying rational expressions involving multivariate monomials
alg620 Multiplying rational expressions involving quadratics with leading coefficients of 1
alg054 Dividing rational expressions involving multivariate monomials
alg766 Dividing rational expressions involving quadratics with leading coefficients of 1
alg747 Introduction to the LCM of two monomials
alg055 Least common multiple of two monomials
alg056 Adding rational expressions with common denominators and binomial numerators
alg057 Adding rational expressions with different denominators: ax, bx
alg226 Adding rational expressions with multivariate monomial denominators: Advanced
alg622 Adding rational expressions with different denominators: x+a, x+b
alg661 Adding rational expressions involving different quadratic denominators
alg695 Complex fraction without variables: Problem type 1
alg696 Complex fraction without variables: Problem type 2
alg058 Complex fraction involving multivariate monomials
alg767 Complex fraction: GCF and quadratic factoring
alg768 Complex fraction made of sums involving rational expressions
alg060 Solving a rational equation that simplifies to linear: Denominator x
alg205 Solving a rational equation that simplifies to linear: Denominator x+a
alg206 Solving a rational equation that simplifies to linear: Unlike binomial denominators
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
arith612 Word problem involving multiple rates
alg770 Solving a work problem using a rational equation
alg902 Identifying direct and inverse variation from ordered pairs and writing equations
alg903 Identifying direct and inverse variation equations
alg905 Writing an inverse variation equation
alg176 Word problem on inverse variation
alg220 Word problem on inverse proportions
pcalc789 Finding the asymptotes of a rational function: Basic
pcalc108 Graphing a rational function: Problem type 1

Data Analysis and Probability

mstat037 Constructing a line plot
mstat004 Constructing a histogram for numerical data
mstat024 Interpreting a bar graph
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
gem814 Angle measure in a circle graph
mstat031 Interpreting a stem-and-leaf plot
mstat027 Using back-to-back stem-and-leaf plots to compare data sets
mstat006 Constructing a box-and-whisker plot
mstat073 Using box-and-whisker plots to compare data sets
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
mstat066 Weighted 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
mstat025 Finding if a question can be answered by the data
mstat049 Computing a percentage from a table of values
stat020 Calculating relative frequencies in a contingency table
stat805 Making a reasonable inference based on proportion statistics
stat009 Percentiles
mstat072 Five-number summary and interquartile range
stat021 Population standard deviation
mstat042 Interpreting a Venn diagram of 2 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
mstat006 Word problem involving permutations
mstat009 Word problem involving combinations
stat790 Permutations, combinations, and the multiplication principle for counting
mstat026 Introduction to the probability of an event
mstat010 Probability of an event
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

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Arithmetic Readiness
arith233 Introduction to exponents
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
alge731 Evaluating an algebraic expression: Whole numbers with two operations
arith56 Factors
arith070 Least common multiple of 2 numbers
arith212 Equivalent fractions
arith067 Simplifying a fraction
arith801 Finding the LCD of two 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
arith088 The reciprocal of a number
arith22 Fraction division
arith015 Writing an improper fraction as a mixed number
arith110 Decimal place value: Tenths and hundredths
arith221 Rounding decimals
arith013 Decimal addition with 3 numbers
arith625 Subtraction of aligned decimals
arith017 Multiplication of a decimal by a whole number
arith082 Multiplication of a decimal by a power of ten
arith655 Decimal multiplication: Problem type 1
arith081 Division of a decimal by a whole number
arith083 Division of a decimal by a power of ten
arith630 Finding the percentage of a whole number without a calculator: Basic
alge286 Plotting integers on a number line
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
arith701 Word problem with addition or subtraction of integers
arith116 Signed fraction addition or subtraction: Basic
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
arith822 Signed fraction multiplication: Basic
arith118 Order of operations with integers
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
arith016 Square root of a perfect square
arith02 Estimating a square root
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
arith032 Square root addition or subtraction
arith039 Square root multiplication: Advanced
alg086 Rationalizing the denominator of a radical expression
mstat034 Measuring length to the nearest quarter or half inch
mstat035 Conversions involving measurements in feet and inches
mstat030 Adding measurements in feet and inches
unit006 U.S. Customary unit conversion with whole number values
unit006 U.S. Customary unit conversion with whole number values: Two-step conversion
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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
unit034 Converting between metric and U.S. Customary unit systems
unit035 Converting between compound units: Basic
unit036 Converting between compound units: Advanced
mstat065 Converting between temperatures in Fahrenheit and Celsius

Equations and Inequalities

alg001 Identifying numbers as integers or non-integers
alg002 Identifying numbers as rational or irrational
alg606 Distributive property: Whole number coefficients
alg604 Distributive property: Integer coefficients
alg700 Combining like terms: Whole number coefficients
alg607 Combining like terms: Integer coefficients
alg663 Combining like terms: Advanced
alg293 Combining like terms in a quadratic expression
alg187 Properties of addition
alg188 Properties of real numbers
alg291 Translating a phrase into a two-step expression
alg016 Translating a sentence into a one-step equation
alg010 Additive property of equality with integers
alg266 Additive property of equality with a negative coefficient
alg740 Multiplicative property of equality with integers
alg820 Multiplicative property of equality with fractions
alg012 Multiplicative property of equality with signed fractions
alg803 Using two steps to solve an equation with whole numbers
alg006 Solving a two-step equation with integers
alg208 Solving a two-step equation with signed fractions
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
alg810 Introduction to algebraic symbol manipulation
alg743 Algebraic symbol manipulation: Problem type 1
alg744 Algebraic symbol manipulation: Problem type 2
alg272 Solving a proportion of the form x/a = b/c
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
arith663 Writing ratios for real-world situations
arith610 Word problem on proportions: Problem type 1
arith611 Word problem on proportions: Problem type 2
alg015 Translating a sentence by using an inequality symbol
alg017 Graphing a linear inequality on the number line
alg822 Writing an inequality given a graph on the number line
alg166 Graphing a compound inequality on the number line
alg186 Translating a sentence into a compound inequality
alg019 Solving a linear inequality: Problem type 1
alg020 Solving a linear inequality: Problem type 2
alg021 Solving a linear inequality: Problem type 3
alg207 Solving a linear inequality: Problem type 4
alg745 Solving a linear inequality: Problem type 5
alg746 Solving a compound linear inequality: Problem type 1

Linear Equations in Two Variables
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
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
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
alge076 Solving a system of linear equations using elimination with multiplication and addition
pcalc038 Addition or subtraction of matrices
pcalc037 Scalar multiplication of a matrix
pcalc740 Linear combination of matrices

Reasoning, Lines, and Angles

alge807 Finding the next terms of a sequence with whole numbers
alge732 Finding patterns in shapes
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
geom349 Naming segments, rays, and lines
geom525 Computing distances between decimals on the number line
geom526 Midpoint of a number line segment
geom521 Segment addition and midpoints
geom616 Introduction to proofs: Justifying statements
geom614 Proofs involving segment congruence
alge132 Distance between two points in the plane
alge191 Midpoint of a line segment in the plane
geom358 Identifying parallel and perpendicular lines
geom835 Introduction to proofs involving parallel lines
geom836 Proofs involving parallel lines
geom154 Constructing the perpendicular bisector of a line segment
geom150 Constructing a pair of perpendicular lines
geom157 Constructing a pair of parallel 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
geom304 Identifying corresponding and alternate angles
geom305 Identifying supplementary and vertical angles
geom530 Solving equations involving vertical angles
geom531 Solving equations involving angles and parallel lines
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geom850 Introduction to angle addition
geom851 Angle addition and angle bisectors
geom611 Proofs involving angle congruence
geom158 Constructing an angle bisector
geom159 Constructing congruent angles

Triangles

geom306 Acute, obtuse, and right triangles
geom307 Scalene, isosceles, and equilateral triangles
geom801 Area of a triangle
geom001 Finding an angle measure of a triangle given two angles
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
geom812 Finding an angle measure given extended triangles
geom813 Finding an angle measure given a triangle and parallel lines
geom844 Triangle inequality: Problem type 1
geom845 Triangle inequality: Problem type 2
geom854 Relationship between angle measures and side lengths in a triangle: Problem type 1
geom855 Relationship between angle measures and side lengths in a triangle: Problem type 2
geom650 Indirect proof (proof by contradiction)
geom520 Identifying and naming congruent triangles
geom617 Proofs involving congruent triangles: Problem type 1
geom837 Proofs involving congruent triangles: Problem type 2
geom840 Proofs involving congruent triangles: Problem type 3
geom843 Proofs involving congruent triangles: Problem type 4
geom844 Pythagorean Theorem
geom862 Using the Pythagorean Theorem repeatedly
geom068 Computing an area using the Pythagorean Theorem
geom506 Special right triangles

Polygons

geom310 Classifying quadrilaterals
geom523 Classifying quadrilaterals: Advanced problem
geom532 Classifying parallelograms
geom819 Finding coordinates of vertices of polygons
geom818 Finding the coordinates of a point to make a parallelogram
geom863 Congruence in the coordinate plane
geom870 Sum of the angle measures of a quadrilateral
geom528 Properties of parallelograms: Problem type 1
geom527 Properties of parallelograms: Problem type 2
geom833 Properties of rectangles
geom834 Properties of rhombi
geom852 The sum of interior angle measures in a convex polygon
geom533 Interior and exterior angle measures in a regular polygon
geom300 Perimeter of a square or a rectangle
geom339 Perimeter of a polygon
geom221 Finding the missing length in a figure
geom535 Perimeter of a piecewise rectangular figure
geom817 Finding a side length given the perimeter and side lengths with variables
geom078 Sides of polygons having the same perimeter
geom019 Area of a square or a rectangle
geom350 Distinguishing between area and perimeter
geom351 Areas of rectangles with the same perimeter
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geom340 Area of a piecewise rectangular figure
geom142 Word problem involving the area between two rectangles
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
geom344 Area involving rectangles and triangles
geom213 Area of a regular polygon
geom832 Area of quadrilaterals in the coordinate plane
alge724 Finding an area in terms of variables

Similarity, Trigonometry, and Transformations

gem360 Identifying similar or congruent shapes on a grid
geom037 Similar polygons
geom038 Similar right triangles
geom337 Indirect measurement
geom510 Triangles and parallel lines
geom507 Right triangles and geometric mean
pcalc600 Sine, cosine, and tangent ratios: Variables for side lengths
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 distances
pcalc608 Using a trigonometric ratio to find an angle measure in a right triangle
pcalc611 Using trigonometry to find angles of elevation or depression
pcalc631 Solving a triangle with the law of sines: Problem type 1
pcalc632 Solving a triangle with the law of cosines: Problem type 2
pcalc633 Solving a triangle with the law of cosines
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
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
pcalc060 Magnitude of a vector
pcalc063 Translation of a vector
geom858 Scalar multiplication of a vector: Geometric Approach
geom857 Vector addition: Geometric approach
geom856 Vector addition and scalar multiplication
vector008 Linear combination of vectors: Algebraic approach
vector002 Calculating the magnitude and direction of a vector
vector005 Finding the components of a vector

Circles

gem347 Introduction to a circle: Diameter, radius, and chord
gem343 Identifying central angles, inscribed angles, arcs, chords, and tangents of a circle
gem848 Tangents of a circle: Problem type 1
gem849 Tangents of a circle: Problem type 2
gem511 Lengths of chords, secants, and tangents
gem512 Central angles and inscribed angles of a circle
gem514 Inscribed angles of a circle
gem513 Angles of intersecting secants and tangents
gem814 Angle measure in a circle graph
APPENDIX B. PROGRAMS IN ALEKS

geom016 Circumference of a circle
geom218 Finding the radius or the diameter of a circle given its circumference
geom301 Perimeter involving rectangles and circles
geom38 Circumference ratios
geom802 Circumference and area of a circle
geom805 Arc length and area of a sector of a circle
geom36 Area involving rectangles and circles
geom362 Word problem involving the area between two concentric circles
geom214 Area involving inscribed figures
geom212 Circles inscribed in and circumscribed about regular polygons
pcalc60 Graphing a circle given its equation in standard form
pcalc06 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

Volumes and Surface Areas

geom830 Counting the cubes in a solid made of cubes
geom354 Volume of a rectangular prism made of unit cubes
geom31 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
geom892 Word problem involving the rate of filling or emptying a cylinder
geom896 Volume of a cone: Exact answers in terms of pi
geom841 Volume of a sphere
geom348 Vertices, edges, and faces of a solid
geom219 Nets of solids
geom861 Nets of solids: Advanced
geom816 Side views of a solid made of cubes
geom83 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
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
geom846 Similar solids: Problem type 1
geom847 Similar solids: Problem type 2

Probability

mstat041 Interpreting a tree diagram
mstat040 Introduction to the counting principle
mstat015 Counting principle
mstat008 Word problem involving permutations
mstat009 Word problem involving combinations
stat790 Permutations, combinations, and the multiplication principle for counting
mstat026 Introduction to the probability of an event
mstat010 Probability of an event
mstat048 Odds of an event
stat106 Outcomes and event probability
stat112 Probabilities involving two dice
mstat01 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
Removed Topics - Arithmetic, Equations, Inequalities

- arith033 Greatest common factor of 2 numbers
- arith123 Rounding to hundreds or thousands
- arith092 Writing expressions using exponents
- arith083 Power of 10: Positive exponent
- arith658 Filling in missing operations to make an equation
- arith034 Prime numbers
- arith035 Prime factorization
- arith064 Solving a word problem on proportions using a unit rate
- arith657 Understanding the distributive property
- 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
- arith079 Product of a unit fraction and a whole number
- arith119 Introduction to fraction multiplication
- arith694 Division involving a whole number and a fraction
- arith697 Mixed arithmetic operations with fractions
- arith619 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
- arith020 Mixed number multiplication: Problem type 1
- arith068 Mixed number division
- arith220 Decimal place value: Hundreds to ten thousandths
- arith608 Ordering decimals
- arith609 Ordering fractions and 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
- arith626 Word problem with one decimal operation: Problem type 1
- arith627 Word problem with one decimal operation: Problem type 2
- arith226 Converting between percentages and decimals
- arith092 Converting a fraction to a percentage: Denominator of 20, 25, or 50
- arith690 Converting a percentage to a fraction in simplest form
- mstat049 Computing a percentage from a table of values
- arith099 Writing a ratio as a percentage without a calculator
- 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
- stat804 Interpreting a circle graph or pie chart
- stat801 Computations from a circle graph
- arith699 Writing a signed number for a real-world situation
- mstat038 Reading the temperature from a thermometer
- arith687 Fractional position on a number line
- arith605 Plotting rational numbers on a number line
- alge009 Additive property of equality with whole numbers
- alge600 Additive property of equality with decimals
- alge008 Multiplicative property of equality with whole numbers
- alge825 Multiplicative property of equality with decimals
- alge824 Solving a two-step equation with signed decimals
- alg200 Solving an equation to find the value of an expression
- alg061 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
- 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 Writing a one-step expression for a real-world situation
- alge602 Writing a one-step variable expression for a real-world situation
APPENDIX B. PROGRAMS IN ALEKS

alge730 Writing a multi-step equation for a real-world situation
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
alge794 Solving a value mixture problem using a linear equation
alge795 Solving a percent 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
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 \( -x - + a = b \)
alge170 Solving an absolute value inequality: Basic
mstat025 Finding if a question can be answered by the data
stat802 Rejecting unreasonable claims based on average statistics
stat805 Making a reasonable inference based on proportion statistics
mstat004 Constructing a histogram for numerical data
mstat005 Constructing a bar graph for non-numerical data
mstat024 Interpreting a bar graph
mstat044 Interpreting a double bar graph
mstat007 Interpreting a line graph
mstat006 Constructing a box-and-whisker plot
mstat031 Interpreting a stem-and-leaf plot
mstat027 Using back-to-back stem-and-leaf plots to compare data sets
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
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
mstat066 Weighted mean

Removed Topics - Advanced Algebra

set004 Set builder and interval notation
fun001 Table for a linear function
pcalc760 Evaluating functions: Linear and quadratic or cubic
fun033 Variable expressions as inputs of functions
fun032 Identifying functions from relations
fun010 Vertical line test
fun016 Domain and range from ordered pairs
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
mstat052 Identifying independent and dependent variables from equations or real-world situations
pcalc768 Finding the average rate of change of a function
fun019 Sum, difference, and product of two functions
fun022 Composition of two functions: Basic
fun002 Graphing integer functions
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
B.52. PREP FOR TX - STAAR GEOMETRY

pcalc114 Even and odd functions
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
alge262 Graphing a cubic function of the form \( y = ax^3 \)
alge168 Graphing an absolute value equation in the plane: Advanced
alge712 Graphing an exponential function and its asymptote: \( f(x) = a(b)x \)
mstat051 Choosing a graph to fit a narrative: Advanced
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
mstat030 Sketching the line of best fit
mstat023 Scatter plots and correlation
alge752 Solving a system of linear equations that is inconsistent or consistent dependent
alge753 Solving a system of 3 linear equations in 3 unknowns
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
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
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
alge079 Graphing a system of two linear inequalities: Basic
arit036 Scientific notation with positive exponent
arit037 Scientific notation with negative exponent
scinot002 Multiplying and dividing numbers written in scientific notation
alge790 Evaluating expressions with exponents of zero
arit084 Power of 10: Negative exponent
arit042 Evaluating an expression with a negative exponent: Positive fraction base
arit043 Evaluating an expression with a negative exponent: Negative integer base
alge791 Rewriting an algebraic expression without a negative exponent
alge821 Understanding the product rule of exponents
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
alge826 Understanding the power rules of exponents
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
arit029 Ordering numbers with positive exponents
alge758 Degree and leading coefficient of a univariate polynomial
alge798 Simplifying a sum or difference of two 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
alge765 Multiplying binomials in two variables
alge032 Squaring a binomial: Univariate
alge769 Multiplication involving binomials and trinomials in two variables
alge759 Dividing a polynomial by a monomial: Univariate
alge760 Dividing a polynomial by a monomial: Multivariate
APPENDIX B. PROGRAMS IN ALEKS

alge761 Polynomial long division: Problem type 1
alge762 Polynomial long division: Problem type 2
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
alge039 Factoring a quadratic with leading coefficient 1
alge043 Factoring a perfect square trinomial
alge040 Factoring a quadratic with leading coefficient greater than 1
alge265 Factoring a quadratic in two variables 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
alge181 Factoring a polynomial by grouping: Problem type 2
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
alge092 Solving a quadratic equation using the square root property: Problem type 1
alge227 Solving a quadratic equation using the square root property: Problem type 2
alge094 Completing the square
alge780 Solving a quadratic equation by completing the square
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
alge226 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
alge252 Graphing a parabola of the form $y = ax^2$
alge253 Graphing a parabola of the form $y = (x-a)^2 + c$
pcalc746 Graphing a parabola of the form $y = ax^2 + bx + c$: Integer coefficients
alge702 Classifying the graph of a function
alge723 How the leading coefficient affects the shape of a parabola
alge715 Domain of a rational function
alge710 Simplifying a ratio of polynomials: Problem type 1
alge682 Simplifying a ratio of polynomials: Problem type 2
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
alge706 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
alge767 Complex fraction: GCF and quadratic factoring
alge768 Complex fraction made of sums involving rational expressions
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
pcalc789 Finding the asymptotes of a rational function: Basic
pcalc108 Graphing a rational function: Problem type 1
arith612 Word problem involving multiple rates
alge770 Solving a work problem using a rational equation
alge220 Word problem on inverse proportions
B.53 Math Prep. for TAKS – HS Exit Exam

Integers, Fractions and Percents

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
arith048 Order of operations with whole numbers
arith016 Square root of a perfect square
arith212 Equivalent fractions
arith067 Simplifying a fraction
arith015 Writing an improper fraction as a mixed number
arith019 Writing a mixed number as an improper 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
arith086 Product of a fraction and a whole number: Problem type 1
arith053 Fraction multiplication
arith022 Fraction division
arith015 Signed fraction multiplication: Advanced
mstat034 Measuring length to the nearest quarter or half inch
arith221 Rounding decimals
arith224 Word problem with decimal addition and multiplication
arith227 Word problem with decimal subtraction and division
arith090 Converting a percentage to a fraction in simplest form
arith686 Writing a ratio as a percentage
mstat049 Computing a percentage from a table of values
APPENDIX B. PROGRAMS IN ALEKS

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

Equations and Inequalities

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
alge010 Additive property of equality with integers
alge008 Multiplicative property of equality with whole numbers
alge012 Multiplicative property of equality with signed fractions
alge066 Solving a two-step equation with integers
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
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
alge060 Solving a rational equation that simplifies to linear: Denominator x
alge810 Introduction to algebraic symbol manipulation
alge160 Algebraic symbol manipulation
alge015 Translating a sentence by using an inequality symbol
alge729 Writing a multi-step inequality for a real-world situation
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 Graphing a linear inequality on the number line
alge166 Graphing a compound inequality on the number line
arith663 Writing ratios for real-world situations
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
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
alge175 Word problem on direct variation
alge602 Writing a one-step variable expression for a real-world situation
alge016 Translating a sentence into a one-step equation
alge730 Writing a multi-step equation for a real-world situation
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

Graphs, Functions and Systems of Equations

alge064 Reading a point in the coordinate plane
alge067 Plotting a point in the coordinate plane
algebra066 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
fun001 Table for a linear function
alge197 Graphing a line given its x- and y-intercepts
alge198 Graphing a vertical or horizontal line
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<td>Writing equations of lines parallel and perpendicular to a given line through a point</td>
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<td>alge076</td>
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<td>alge725</td>
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<td>alge177</td>
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**Exponents, Polynomials and Quadratics**

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alg040 Factoring a quadratic with leading coefficient greater than 1
alg290 Factoring a difference of squares in one variable: Basic
alg681 Solving an equation written in factored form
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
alg095 Applying the quadratic formula: Exact answers
alg703 Solving a word problem using a quadratic equation with rational roots
alg524 Solving a word problem using a quadratic equation with irrational roots
alg723 How the leading coefficient affects the shape of a parabola
alg252 Graphing a parabola of the form y = ax^2
alg253 Graphing a parabola of the form y = (x-a)^2 + c
alg277 Finding the x-intercept(s) and the vertex of a parabola
alg185 Writing an equation for a function after a vertical translation
alg262 Graphing a cubic function of the form y = ax^3

Perimeter, Area and Volume

geom300 Perimeter of a square or a rectangle
geom817 Finding a side length given the perimeter and side lengths with variables
geom078 Sides of polygons having the same perimeter
geom019 Area of a square or a rectangle
geom351 Areas of rectangles with the same perimeter
geom340 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
geom142 Word problem involving the area between two rectangles
geom801 Area of a triangle
geom022 Area of a parallelogram
geom023 Area of a trapezoid
geom344 Area involving rectangles and triangles
geom213 Area of a regular polygon
geom832 Area of quadrilaterals in the coordinate plane
alg724 Finding an area in terms of variables
geom218 Finding the radius or the diameter of a circle given its circumference
geom892 Circumference and area of a circle
geom301 Perimeter involving rectangles and circles
geom302 Area involving rectangles and circles
geom366 Word problem involving the area between two concentric circles
geom214 Area involving inscribed figures
geom805 Arc length and area of a sector of a circle
geom219 Nets of solids
geom861 Nets of solids: Advanced
geom865 Measuring the net of a solid to find surface area or volume
geom348 Vertices, edges, and faces of a solid
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
geom991 Surface area of a triangular prism
geom034 Surface area of a cylinder: Exact answers in terms of pi
geom842 Surface area of a sphere
geom338 Surface area involving prisms or cylinders
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
geom980 Volume of a triangular prism
geom835 Volume of a cylinder
geom841 Volume of a sphere
geom033 Volume of a pyramid
Geometry

geom086 Volume of a cone: Exact answers in terms of pi
geom092 Word problem involving the rate of filling or emptying a cylinder

geom358 Identifying parallel and perpendicular lines
geom521 Segment addition and midpoints
geom039 Finding supplementary and complementary angles
geom304 Identifying corresponding and alternate angles
geom305 Identifying supplementary and vertical angles
geom530 Solving equations involving vertical angles
geom503 Angles and parallel lines
geom050 Introduction to angle addition
geom001 Finding an angle measure of a triangle given two angles
geom098 Finding an angle measure for a triangle with an extended side
geom099 Finding an angle measure for a triangle sharing a side with another triangle
geom812 Finding an angle measure given extended triangles
geom813 Finding an angle measure given a triangle and parallel lines
geom852 The sum of interior angle measures in a convex polygon
geom814 Angle measure in a circle graph
geom306 Acute, obtuse, and right triangles
geom307 Scalene, isosceles, and equilateral triangles
geom044 Pythagorean Theorem
geom862 Using the Pythagorean Theorem repeatedly
geom860 Special right triangles
geom068 Computing an area using the Pythagorean Theorem
geom854 Relationship between angle measures and side lengths in a triangle: Problem type 1
geom844 Triangle inequality: Problem type 1
geom310 Classifying quadrilaterals
geom528 Properties of parallelograms: Problem type 1
geom532 Classifying parallelograms
geom818 Finding the coordinates of a point to make a parallelogram
geom819 Finding coordinates of vertices of polygons
geom359 Identifying congruent shapes on a grid
geom863 Congruence in the coordinate plane
geom860 Identifying similar or congruent shapes on a grid
geom837 Similar polygons
geom038 Similar right triangles
geom337 Indirect measurement
geom510 Triangles and parallel lines
geom507 Right triangles and geometric mean
geom846 Similar solids: Problem type 1
geom847 Similar solids: Problem type 2
geom133 Ratio of volumes
geom330 Translating a polygon
geom357 Identifying transformations
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
geom334 Drawing lines of symmetry
geom335 Rotating a figure about the origin
geom336 Dilating a figure
geom815 Finding an angle of rotation

Probability and Statistics

mstat044 Interpreting a double bar graph
mstat007 Interpreting a line graph
B.54 Prep for GED Mathematics

Whole Numbers and Integers

arith124 Whole number place value: Problem type 1
arith125 Whole number place value: Problem type 2
arith066 Expanded form
arith028 Numeral translation: Problem type 1
arith060 Numeral translation: Problem type 2
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
arith012 Addition of large numbers
arith636 Subtracting a 1-digit number from a 2-digit number
arith007 Subtraction without borrowing
arith006 Subtraction with borrowing
arith637 Subtraction and regrouping with zeros
arith682 Subtraction with multiple regrouping steps
arith613 Word problem with addition or subtraction of whole numbers
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
arith014 Multiplication of large numbers
arith075 Division facts
arith652 Division without carry
arith005 Division with carry
arith616 Quotient and remainder: Problem type 1
B.54. PREP FOR GED MATHEMATICS

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
arith077 Ordering large numbers
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
arith645 Introduction to parentheses
arith681 Introduction to order of operations
arith048 Order of operations with whole numbers
arith51 Order of operations with whole numbers and grouping symbols
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
arith70 Least common multiple of 2 numbers
arith240 Word problem with common multiples
mstat038 Reading the temperature from a thermometer
alge286 Plotting integers on a number line
arith071 Absolute value of a number
arith104 Operations with absolute value: Problem type 2
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
arith118 Order of operations with integers

Rational Numbers

arith623 Introduction to fractions
arith663 Writing ratios for real-world situations
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
arith605 Plotting rational numbers 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
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
arith609 Ordering fractions and decimals
arith618 Addition or subtraction of fractions with the same denominator
arith664 Introduction to addition or subtraction of fractions with different denominators
APPENDIX B. PROGRAMS IN ALEKS

arith230 Addition or subtraction of fractions with different denominators
arith100 Fractional part of a circle
arith088 The reciprocal of a number
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
arith095 Multi-step word problem involving fractions and multiplication
arith022 Fraction division
arith062 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
arith076 Mixed number multiplication: Problem type 2
arith068 Mixed number division
arith087 Converting a mixed number and an improper fraction
arith671 Converting a fraction to a decimal
arith222 Converting a fraction to a repeating decimal
arith223 Converting a fraction to a repeating decimal
arith224 Converting a fraction to a repeating decimal
arith613 Decimal addition with 3 numbers
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
arith131 Estimating a decimal sum or difference
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
arith046 Decimal multiplication: Problem type 2
arith045 Word problem with powers of ten
arith068 Converting a mixed number and an improper fraction
arith628 Word problem with multiple decimal operations: Problem type 1
arith083 Division of a decimal by a whole number
arith081 Division of a decimal by a whole number
arith019 Division of a decimal by a whole number
arith629 Word problem with multiple decimal operations: Problem type 2
arith116 Signed fraction addition or subtraction: Basic
arith106 Signed fraction addition or subtraction: Advanced
arith105 Signed fraction multiplication: Advanced
arith117 Signed decimal addition and subtraction
arith234 Signed decimal addition and subtraction with 3 numbers
geom525 Computing distances between decimals on the number line

Measurement, Proportion, Percents, and Probability

mstat033 Measuring length to the nearest inch
mstat034 Measuring length to the nearest quarter or half inch
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
mstat035 Conversions involving measurements in feet and inches
mstat036 Adding measurements in feet and inches
unit009 U.S. Customary area unit conversion with whole number values
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
unit010 Metric area unit conversion with decimal values
unit034 Converting between metric and U.S. Customary unit systems
unit035 Converting between compound units: Basic
unit036 Converting between compound units: Advanced
unit012 Time unit conversion with whole number values
time006 Adding time
time007 Elapsed time
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 $x/a = b/c$
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
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
arith069 Writing a ratio as a percentage without a calculator
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
mstat049 Computing a percentage from a table of values
stat805 Making a reasonable inference based on proportion statistics
stat804 Interpreting a circle graph or pie chart
stat106 Outcomes and event probability
mstat026 Introduction to the probability of an event
mstat010 Probability of an event
mstat011 Area as probability
mstat012 Probability of independent events
mstat013 Probability of dependent events
stat112 Probabilities involving two dice

**Variable Expressions and Equations**

arith655 Introduction to properties of addition
arith656 Introduction to properties of multiplication
arith657 Understanding the distributive property
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
alge731 Evaluating an algebraic expression: Whole numbers with two operations
alge005 Evaluating a linear expression: Integer multiplication with addition or subtraction
alge733 Writing a one-step expression for a real-world situation
alge602 Writing a one-step variable expression for a real-world situation
alge099 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
alge266 Additive property of equality with a negative coefficient
APPENDIX B. PROGRAMS IN ALEKS

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
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
alge810 Introduction to algebraic symbol manipulation
alge016 Translating a sentence into a one-step equation
alge730 Writing a multi-step equation for a real-world situation
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
alge271 Solving a proportion of the form \( \frac{a}{x+b} = \frac{c}{x} \)
alge015 Translating a sentence by using an inequality symbol
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 Graphing a linear inequality on the number line
arith233 Introduction to exponents
arith683 Power of 10: Positive exponent
arith684 Power of 10: Negative exponent
arith036 Scientific notation with positive exponent
arith037 Scientific notation with negative exponent
scinot002 Multiplying and dividing numbers written in scientific notation
arith047 Evaluating expressions with exponents: Problem type 1
arith049 Evaluating expressions with exponents: Problem type 2
arith600 Order of operations with integers and exponents
arith601 Square root of a perfect square
arith602 Estimating a square root
arith603 Square root of a rational perfect square
arith604 Simplifying the square root of a whole number less than 100
arith609 Cube root of an integer
alge024 Introduction to the product rule of exponents
arith029 Ordering numbers with positive exponents
alge030 Product rule with positive exponents: Multivariate
alge026 Quotient of expressions involving exponents
alge027 Power rules with positive exponents
alin04 Evaluating a quadratic expression: Integers
alin029 Simplifying a sum or difference of three univariate polynomials
alin033 Multiplying binomials with leading coefficients of 1
alin055 Least common multiple of two monomials
alin037 Greatest common factor of two multivariate monomials
alin075 Factoring a quadratic with leading coefficient 1
alin040 Factoring a quadratic with leading coefficient greater than 1
alin024 Factoring a difference of squares
alin081 Solving an equation written in factored form
alin045 Finding the roots of a quadratic equation with leading coefficient 1
alin048 Finding the roots of a quadratic equation with leading coefficient greater than 1
alin089 Solving a radical equation that simplifies to a linear equation: One radical, basic

Functions and Graphs

mstat005 Constructing a bar graph for non-numerical data
mstat024 Interpreting a bar graph
mstat044 Interpreting a double bar graph
mstat007 Interpreting a line graph
B.54. PREP FOR GED MATHEMATICS

mstat003 Mode 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
mstat025 Finding if a question can be answered by the data
fun005 Writing a function rule given a table of ordered pairs: One-step rules
alge282 Function tables with two-step rules
fun006 Writing a function rule given a table of ordered pairs: Two-step rules
alge064 Reading a point in the coordinate plane
alge067 Plotting a point in the coordinate plane
alge807 Finding the next terms of a sequence with whole numbers
mstat061 Describing an increasing or decreasing pattern from a table of values
alge066 Finding a solution to a linear equation in two variables
alge216 Determining whether given points lie on, both, or neither of 2 lines given equations
alge194 Graphing a line given its equation in slope-intercept form
alge195 Graphing a line given its equation in standard form
alge197 Graphing a line given its x- and y-intercepts
alge196 Graphing a line through a given point with a given slope
alge198 Graphing a vertical or horizontal line
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
alge069 Finding the y-intercept of a line given its equation
alge210 Finding x- and y-intercepts of a line given the equation: Advanced
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
alge701 Writing an equation and drawing its graph to model a real-world situation: Advanced
alge263 Interpreting the graphs of two functions
alge132 Distance between two points in the plane
alge191 Midpoint of a line segment in the plane
alge252 Graphing a parabola of the form y = ax^2

Geometry

gem349 Naming segments, rays, and lines
gem358 Identifying parallel and perpendicular lines
gem151 Measuring an angle with the protractor
gem152 Drawing an angle with the protractor
gem203 Acute, obtuse, and right angles
gem039 Finding supplementary and complementary angles
gem034 Identifying corresponding and alternate angles
gem035 Identifying supplementary and vertical angles
gem530 Solving equations involving vertical angles
gem531 Solving equations involving angles and parallel lines
gem306 Acute, obtuse, and right triangles
gem307 Scalene, isosceles, and equilateral triangles
gem520 Identifying and naming congruent triangles
gem501 Area of a triangle
gem501 Finding an angle measure of a triangle given two angles
gem502 Finding angle measures of a right or isosceles triangle given angles with variables
gem008 Finding an angle measure for a triangle with an extended side
gem509 Finding an angle measure for a triangle sharing a side with another triangle
gem544 Pythagorean Theorem
gem545 Relationship between angle measures and side lengths in a triangle: Problem type 1
pcalc690 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 distances
gem360 Naming polygons
gem067 Identifying parallelograms, rectangles, and squares
gem310 Classifying quadrilaterals
APPENDIX B. PROGRAMS IN ALEKS

geom300 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
geom019 Area of a square or a rectangle
geom350 Distinguishing between area and perimeter
geom351 Areas of rectangles with the same perimeter
geom018 Finding the side length of a rectangle given its perimeter or area
geom352 Finding a side length given the perimeter and side lengths with variables
geom022 Area of a parallelogram
geom023 Area of a trapezoid
geom340 Area of a piecewise rectangular figure
geom142 Word problem involving the area between two rectangles
geom344 Area involving rectangles and triangles
geom143 Finding the perimeter or area of a rectangle given one of these values
geom832 Area of quadrilaterals in the coordinate plane
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
geom838 Circumference ratios
geom301 Perimeter involving rectangles and circles
geom802 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
geom890 Volume of a triangular prism
geom833 Volume of a pyramid
geom835 Volume of a cylinder
geom886 Volume of a cone: Exact answers in terms of pi
geom249 Word problem involving the rate of filling or emptying a cylinder
geom348 Vertices, edges, and faces of a solid
geom219 Nets of solids
geom031 Surface area of a cube or a rectangular prism
geom359 Identifying congruent shapes on a grid
geom360 Identifying similar or congruent shapes on a grid
geom837 Similar polygons
geom838 Similar right triangles
geom37 Indirect measurement
geom846 Similar solids: Problem type 1

B.55 H.S. Prep. for Statistics

Numbers

arith200 Integer addition: Problem type 1
arith68 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
arith4 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
arith002 Converting a fraction to a percentage: Denominator of 20, 25, or 50
arith686 Writing a ratio as a percentage
stat849 Computing a percentage from a table of values
arith067 Simplifying a fraction
arith664 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
alge731 Evaluating an algebraic expression: Whole numbers with two operations
alge004 Evaluating a quadratic expression: Integers
alge005 Evaluating a linear expression: Integer multiplication with addition or subtraction
alge606 Distributive property: Whole number coefficients
alge607 Combining like terms: Integer coefficients
stat026 Introduction to summation notation
stat022 Summation of indexed data
alge024 Introduction to the product rule of exponents
alge027 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
APPENDIX B. PROGRAMS IN ALEKS

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
stat226 Die rolling
stat850 Probability of independent events
stat851 Probability of dependent events
stat117 Probabilities of draws with replacement
stat114 Probability of intersection or union: Word problems
stat116 Conditional probability: Basic
stat109 Intersection and conditional probability

B.56 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
arith022 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
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
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
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
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
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
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
APPENDIX B. PROGRAMS IN ALEKS

B.57 AP Statistics (Quantitative)

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
- 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
- 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
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

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

Distributions

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
stat163 Normal distribution: Word problems
stat173 t distribution
stat170 Chi-square distribution
stat187 Normal approximation to binomial
stat185 Central limit theorem: Sample mean
stat186 Central limit theorem: Sample sum
stat188 Central limit theorem: Sample proportion

Inferential Statistics

stat200 Selecting a distribution for inferences on the population mean
stat201 Confidence interval for the population mean: Use of the standard normal
stat755 Choosing an appropriate sample size
stat202 Confidence interval for the population mean: Use of the t distribution
stat203 Confidence interval for a population proportion
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
stat300 Determining null and alternative hypotheses
stat190 Type I and Type II errors
stat192 Type I and Type II errors and power
stat194 Effect size, sample size, and power
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
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
stat319 Contingency tables: Expected frequencies
stat320 Chi-square goodness-of-fit test
stat321 Chi-square test of independence

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

Out

stat171 F distribution
stat204 Confidence interval for the population standard deviation
stat208 Confidence interval for the ratio of population variances
stat304 Hypothesis test for the population variance or standard deviation
stat308 Hypothesis test for the ratio of population variances
stat326 Sign test
stat327 Wilcoxon signed-ranks test
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
stat422 ANOVA: Mean squares and the common population variance
stat423 ANOVA: Degrees of freedom and the F statistic
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Math and Algebra

arith231 Integer multiplication and division
arith067 Simplifying a fraction
arith212 Equivalent fractions
arith105 Signed fraction multiplication: Advanced
arith1234 Signed decimal addition and subtraction with 3 numbers
arith030 Finding a percentage of a whole number without a calculator: Basic
arith047 Evaluating expressions with exponents: Problem type 1
arith029 Ordering numbers with positive exponents
arith024 Ordering numbers with negative exponents
alge024 Introduction to the product rule of exponents
alge026 Quotient of expressions involving exponents
alge004 Evaluating a quadratic expression: Integers
alge606 Distributive property: Whole number coefficients
alge604 Distributive property: Integer coefficients
alge607 Combining like terms: Integer coefficients
alge603 Combining like terms: Advanced
alge160 Algebraic symbol manipulation
alge027 Power rules with positive exponents
alge025 Power of a power rule with negative exponents
alge029 Simplifying a sum or difference of three univariate polynomials
alge030 Product rule with positive exponents: Multivariate
alge033 Multiplying binomials with leading coefficients of 1
alge032 Squaring a binomial: Univariate
alge006 Solving a two-step equation with integers
alge080 Solving an equation to find the value of an expression
alge067 Solving a rational equation that simplifies to linear: Denominator x
alge214 Discriminant of a quadratic equation
alge095 Applying the quadratic formula: Exact answers
alge194 Graphing a line given its equation in slope-intercept form
alge196 Graphing a line through a given point with a given slope
alge637 Determining the slope of a line given its graph
arith082 Multiplication of a decimal by a power of ten
arith083 Division of a decimal by a power of ten
scinot101 Converting between decimal numbers and numbers written in scientific notation
scinot102 Multiplying and dividing numbers written in scientific notation
scinot103 Calculating positive powers of scientific notation

**Atomic Theory and Atomic Structure**

- atom015 Distinguishing elements and compounds
- atom016 Distinguishing compounds and mixtures
- atom034 Distinguishing chemical and physical change
- atom033 Distinguishing solid, liquid and gas phases of a pure substance
- atom001 Names and symbols of important elements
- atom002 Reading a Periodic Table entry
- atom042 Understanding periods and groups of the Periodic Table
- atom003 Organization of the Periodic Table
- atom005 Standard chemical and physical states of the elements
- atom038 Using the Periodic Table to identify similar elements
- atom039 Identifying the parts of an atom
- atom063 Counting the number of protons and electrons in a neutral atom
- atom006 Counting protons and electrons in atoms and atomic ions
- atom029 Finding isoprotonic atoms
- atom030 Finding isoelectronic atoms
- atom012 Predicting the ions formed by common main-group elements
- atom004 Isotopes
- atom058 Finding atomic mass from isotope mass and natural abundance
- atom062 Counting valence electrons in a neutral atom
- atom048 Counting the electron shells in a neutral atom

**Chemical Bonding**

- atom019 Counting valence electrons in an atomic ion
- atom020 Drawing the Lewis dot diagram of a main group atom or common atomic ion
- atom017 Predicting whether a compound is ionic or molecular
- atom045 Understanding the prefixes used in naming binary compounds
- atom007 Predicting the formula of binary ionic compounds
- atom008 Naming binary ionic compounds
- atom028 Deducing the ions in a binary ionic compound from its empirical formula
- atom064 Predicting ionic compounds formed by two elements
- atom013 Predicting and naming ionic compounds formed by two elements
- atom036 Identifying common polyatomic ions
- atom011 Predicting the formula of ionic compounds with common polyatomic ions
- atom009 Naming ionic compounds with common polyatomic ions
- atom035 Deducing the ions in a polyatomic ionic compound from its empirical formula
- stoich006 Counting the number of atoms in a formula unit
- stoich007 Finding mole ratios from chemical formulae
- stoich008 Finding chemical formulae from a mole ratio
- atom060 Writing a chemical formula given a molecular model
- atom061 Writing a chemical formula given a chemical structure
- stoich010 Finding mass percent from chemical formulae
- stoich011 Elemental analysis
- atom014 Naming binary covalent compounds

**States of Matter**

- gas001 Interconverting pressure and force
- gas002 Measuring pressure in non-SI units
- gas003 Understanding pressure equilibrium and atmospheric pressure
- gas004 Understanding Boyle’s Law
gas005 Solving applications of Boyle’s Law
gas006 Using Charles’s Law
gas007 Using the ideal equation of state
gas008 Interconverting molar mass and density of ideal gases
gas009 Calculating mole fraction in a gas mixture
gas010 Calculating partial pressure in a gas mixture
gas011 Solving for a gaseous reactant
gas018 Using relative effusion rates to find an unknown molar mass
thermo001 Understanding how kinetic energy scales with mass and speed
gas012 Understanding how average molecular kinetic energy scales with temperature
gas013 Understanding how average molecular speed scales with temperature and molar mass
gas014 Interpreting a graph of molecular speed distribution
gas017 Understanding how molecular collision rate scales with temperature and volume
thermo017 Using heat of fusion or vaporization to find the heat needed to melt or boil a substance
thermo019 Relating vapor pressure to vaporization
stoich020 Calculating molarity using solute moles
stoich026 Using molarity to find solute moles and solution volume
stoich029 Calculating molarity using solute mass
stoich030 Using molarity to find solute mass and solution volume
stoich021 Dilution
stoich022 Calculating mass percent composition
stoich032 Using mass percent composition to find solution volume
soln006 Calculating molality
soln005 Predicting relative boiling point elevations and freezing point depressions

Reactions and Stoichiometry

rxn001 Identifying combination, decomposition, single and double displacement reactions
soln001 Predicting the products of dissolution
soln002 Writing net ionic equations
soln003 Predicting precipitation
rxn006 Identifying precipitation, combustion and acid-base reactions
acid002 Identifying acids and bases by their chemical formula
acid011 Predicting the products of a neutralization reaction
acid001 Identifying acids and bases by their reaction with water
acid008 Identifying Bronsted-Lowry acids and bases
acid009 Finding the conjugate of an acid or base
acid010 Predicting the products of the reaction of a strong acid with water
acid032 Predicting the qualitative acid-base properties of salts
acid003 Naming inorganic acids
acid004 Reducing the formulae of inorganic acids from their names
acid006 Recognizing common acids and bases
redox001 Assigning oxidation numbers
redox002 Recognizing reduction and oxidation
redox003 Identifying oxidizing and reducing agents
redox004 Identifying oxidized and reduced reactants in a metal-nonmetal reaction
redox005 Identifying oxidized and reduced reactants in a single-displacement reaction
redox011 Predicting whether simple electrochemical reactions happen
stoich002 Using the Avogadro Number
stoich003 Calculating and using the molar mass of elements
stoich004 Calculating and using the molar mass of diatomic elements
stoich005 Calculating and using the molar mass of heterodiatomic compounds
stoich009 Finding molar mass from chemical formulae
stoich024 Finding a molecular formula from molar mass and elemental analysis
stoich012 Stoichiometric coefficients
stoich013 Balancing chemical equations with noninterfering coefficients
stoich014 Balancing chemical equations with interfering coefficients
rxn002 Writing a chemical equation from a description of the reaction
rxn004 Writing the net equation for a sequence of reactions
stoich015 Solving for a reactant using a chemical equation
APPENDIX B. PROGRAMS IN ALEKS

stoich016 Identifying the limiting reactant in a drawing of a mixture
stoich017 Limiting reactants
stoich018 Percent yield of chemical reactions
stoich037 Solving for a reactant in solution
stoich038 Solving limiting reactant problems in solution
acid023 Determining the volume of base needed to titrate a given mass of acid
acid024 Determining the molar mass of an acid by titration
acid025 Standardizing a base solution by titration
redox006 Writing a simple half-reaction from its description
redox007 Writing the half-reactions of a metal-nonmetal reaction
redox008 Writing the half-reactions of a single-displacement reaction

Kinetics and Equilibrium

equibase3 Understanding that no reaction goes to 100
equibase4 Predicting relative forward and reverse rates of reaction in a dynamic equilibrium
equibase5 Using Le Chatelier’s Principle to predict the result of changing concentration or volume
equibase6 Using Le Chatelier’s Principle to predict the result of changing temperature
equibase16 Interconverting pH and hydronium ion concentration
equibase17 Using the ion product of water
acid018 Making qualitative estimates of pH change
acid019 Calculating the pH of a strong acid solution
acid020 Calculating the pH of a strong base solution
equibase9 Predicting how reaction rate varies with pressure, concentration and temperature
equibase12 Calculating the reaction rate of one reactant from that of another
equibase15 Calculating average and instantaneous reaction rate from a graph of concentration versus time
equibase9 Using a rate law
equibase10 Interpreting a reaction energy diagram
equibase11 Relating activation energy to reaction rate
equibase13 Drawing the reaction energy diagram of a catalyzed reaction

Thermodynamics

thermo008 Interconverting calories and joules
thermo011 Calculating specific heat capacity
thermo009 Using specific heat capacity to find heat
thermo010 Using specific heat capacity to find temperature change
thermo003 Using conservation of energy to predict the qualitative exchange of kinetic and potential energy
thermo005 Calculating pressure-volume work
thermo006 Understanding the definitions of heat and work
thermo007 Understanding the definition of enthalpy
thermo014 Calculating the heat of reaction from molar reaction enthalpy and the mass of a reactant
thermo021 Using Hess’s Law to calculate net reaction enthalpy
thermo022 Writing a standard formation reaction
thermo023 Calculating a molar heat of reaction from formation enthalpies

Descriptive Chemistry

acid044 Predicting the relative acidity of binary acids
acid049 Predicting the acid-base properties of a binary oxide in water
atom046 Understanding periodic trends in atomic size
atom047 Understanding periodic trends in atomic ionizability
ochem001 Identifying organic compounds
ochem008 Naming normal alkanes
ochem009 Using family suffixes to name organic compounds
Laboratory

unit043 Knowing the dimension of common simple SI units
unit044 Understanding the purpose of SI prefixes
unit045 Knowing the value of an SI prefix as a power of 10
unit014 Interconversion of prefixed and base SI units
unit015 Interconversion of prefixed SI units
unit047 Interconverting compound SI units
unit032 Interconverting temperatures in Celsius and Kelvins
unit033 Interconverting temperatures in Celsius and Fahrenheit
unit048 Addition and subtraction of measurements
unit049 Simplifying unit expressions
unit051 Multiplication and division of measurements
sigfig001 Counting significant digits
sigfig002 Rounding to a given significant digit
sigfig003 Counting significant digits when measurements are added or subtracted
sigfig004 Counting significant digits when measurements are multiplied or divided
sigfig005 Adding or subtracting and multiplying or dividing measurements
acid021 Diluting a strong acid solution to a given pH
acid022 Preparing a strong base solution with a given pH

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Math and Algebra

arith231 Integer multiplication and division
arith067 Simplifying a fraction
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arith024 Ordering numbers with negative exponents
alg0624 Introduction to the product rule of exponents
alg026 Quotient of expressions involving exponents
alg004 Evaluating a quadratic expression: Integers
alg0606 Distributive property: Whole number coefficients
alg0604 Distributive property: Integer coefficients
alg0607 Combining like terms: Integer coefficients
alg0663 Combining like terms: Advanced
alg160 Algebraic symbol manipulation
alg027 Power rules with positive exponents
alg025 Power of a power rule with negative exponents
alg029 Simplifying a sum or difference of three univariate polynomials
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alg033 Multiplying binomials with leading coefficients of 1
alg032 Squaring a binomial: Univariate
alg006 Solving a two-step equation with integers
alg0200 Solving an equation to find the value of an expression
alg060 Solving a rational equation that simplifies to linear: Denominator x
alg214 Discriminant of a quadratic equation
alg0695 Applying the quadratic formula: Exact answers
alg194 Graphing a line given its equation in slope-intercept form
alg196 Graphing a line through a given point with a given slope
alg037 Determining the slope of a line given its graph
arith082 Multiplication of a decimal by a power of ten
APPENDIX B. PROGRAMS IN ALEKS

arith083 Division of a decimal by a power of ten
scinot101 Converting between decimal numbers and numbers written in scientific notation
scinot102 Multiplying and dividing numbers written in scientific notation
scinot103 Calculating positive powers of scientific notation

Atomic Theory and Atomic Structure

atom015 Distinguishing elements and compounds
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atom006 Counting protons and electrons in atoms and atomic ions
atom029 Finding isoprotonic atoms
atom030 Finding isoelectronic atoms
atom012 Predicting the ions formed by common main-group elements
atom004 Isotopes
atom058 Finding atomic mass from isotope mass and natural abundance
atom048 Counting valence electrons in a neutral atom
atom047 Counting the electron shells in a neutral atom
atom065 Understanding the definitions of ionization energy and electron affinity
atom024 Deducing n and l from a subshell label
atom001 Deducing the allowed quantum numbers of an atomic electron
atom025 Deciding the relative energy of electron subshells
atom024 Calculating the capacity of electron subshells
atom057 Drawing a box diagram of the electron configuration of an atom
atom025 Interpreting the electron configuration of an atom or atomic ion
atom026 Interpreting the electron configuration of an atom or atomic ion in noble-gas notation
atom027 Writing the electron configuration of an atom or atomic ion with s and p electrons only
atom022 Writing the electron configuration of an atom using the Periodic Table
atom023 Identifying quantum mechanics errors in electron configurations
atom041 Understanding the organization of the electromagnetic spectrum
atom040 Interconverting the wavelength and frequency of electromagnetic radiation
atom043 Interconverting wavelength, frequency and photon energy
atom044 Calculating the wavelength of a spectral line from an energy diagram
atom049 Predicting the qualitative features of a line spectrum
atom050 Calculating the wavelength of a line in the spectrum of hydrogen
nchem001 Interpreting the symbol for a nuclide
nchem002 Writing the symbols in a nuclear chemical equation
nchem003 Balancing a nuclear chemical equation
nchem006 Writing the equation for a typical radioactive decay
nchem004 Knowing the properties of the common types of nuclear radiation
nchem005 Understanding the common modes of radioactive decay
nchem009 Understanding radioactive half life
nchem010 Interconverting amount of radioactive decay and half life
nchem011 Calculating radioactive activity from half life
nchem012 Using isotope ratios to radiodate
nchem013 Using activity to radiodate

Chemical Bonding
atom019 Counting valence electrons in an atomic ion
atom020 Drawing the Lewis dot diagram of a main group atom or common atomic ion
atom017 Predicting whether a compound is ionic or molecular
atom045 Understanding the prefixes used in naming binary compounds
atom007 Predicting the formula of binary ionic compounds
atom008 Naming binary ionic compounds
atom028 Deducing the ions in a binary ionic compound from its empirical formula
atom064 Predicting ionic compounds formed by two elements
atom013 Predicting and naming ionic compounds formed by two elements
atom036 Identifying common polyatomic ions
atom011 Predicting the formula of ionic compounds with common polyatomic ions
atom009 Naming ionic compounds with common polyatomic ions
atom035 Deducing the ions in a polyatomic ionic compound from its empirical formula
atom010 Naming ionic compounds with common oxoanions
stoich006 Counting the number of atoms in a formula unit
stoich007 Finding mole ratios from chemical formulae
stoich008 Finding chemical formulae from a mole ratio
atom060 Writing a chemical formula given a molecular model
atom061 Writing a chemical formula given a chemical structure
stoich010 Finding mass percent from chemical formulae
stoich011 Elemental analysis
atom014 Naming binary covalent compounds

States of Matter

gaso01 Interconverting pressure and force
gaso02 Measuring pressure in non-SI units
gaso03 Understanding pressure equilibrium and atmospheric pressure
gaso04 Understanding Boyle’s Law
gaso05 Solving applications of Boyle’s Law
gaso06 Using Charles’s Law
gaso07 Using the ideal equation of state
gaso08 Interconverting molar mass and density of ideal gases
gaso09 Calculating mole fraction in a gas mixture
gaso10 Calculating partial pressure in a gas mixture
gaso11 Solving for a gaseous reactant
gaso18 Using relative effusion rates to find an unknown molar mass
thermo001 Understanding how kinetic energy scales with mass and speed
gaso12 Understanding how average molecular kinetic energy scales with temperature
thermo013 Understanding how average molecular speed scales with temperature and molar mass
thermo014 Interpreting a graph of molecular speed distribution
gaso15 Predicting how molecular speed distribution changes with temperature and molar mass
gaso16 Calculating average molecular speed
gaso17 Understanding how molecular collision rate scales with temperature and volume
thermo002 Understanding how electrostatic potential energy scales with charge and separation
thermo017 Using heat of fusion or vaporization to find the heat needed to melt or boil a substance
thermo019 Relating vapor pressure to vaporization
thermo040 Using a phase diagram to predict phase at a given temperature and pressure
thermo041 Labeling a typical simple phase diagram
thermo042 Using a phase diagram to find a phase transition temperature or pressure
stoich020 Calculating molarity using solute moles
stoich028 Using molarity to find solute moles and solution volume
stoich029 Calculating molarity using solute mass
stoich030 Using molarity to find solute mass and solution volume
stoich021 Dilution
stoich022 Calculating mass percent composition
stoich032 Using mass percent composition to find solution volume
soln006 Calculating molality
soln008 Calculating mole fraction
soln013 Understanding conceptual components of the enthalpy of solution
soln010 Using Henry’s Law to calculate the solubility of a gas
soln005 Predicting relative boiling point elevations and freezing point depressions
soln007 Using osmotic pressure to find molar mass
soln009 Using Raoult’s Law to calculate the vapor pressure of a component

Reactions and Stoichiometry

rxn001 Identifying combination, decomposition, single and double displacement reactions
soln001 Predicting the products of dissolution
soln002 Writing net ionic equations
soln003 Predicting precipitation
rxn006 Identifying precipitation, combustion and acid-base reactions
acid002 Identifying acids and bases by their chemical formula
acid011 Predicting the products of a neutralization reaction
acid001 Identifying acids and bases by their reaction with water
acid008 Identifying Bronsted-Lowry acids and bases
acid009 Finding the conjugate of an acid or base
acid010 Predicting the products of the reaction of a strong acid with water
acid032 Predicting the qualitative acid-base properties of salts
acid003 Naming inorganic acids
acid004 Deducing the formulae of inorganic acids from their names
acid047 Identifying Lewis acids and bases in reactions
redox001 Assigning oxidation numbers
redox002 Recognizing reduction and oxidation
redox003 Identifying oxidizing and reducing agents
redox004 Identifying oxidized and reduced reactants in a metal-nonmetal reaction
redox005 Identifying oxidized and reduced reactants in a single-displacement reaction
redox011 Predicting whether simple electrochemical reactions happen
redox012 Designing a galvanic cell from a single-displacement redox reaction
redox016 Designing a galvanic cell from two half-reactions
redox017 Analyzing a galvanic cell
redox018 Picking a reduction or oxidation that will make a galvanic cell work
redox019 Ranking the strength of oxidizing and reducing agents using standard reduction potentials
redox022 Using the relationship between charge, current and time
redox023 Using the Faraday constant
redox024 Analyzing the electrolysis of molten salt
redox025 Calculating the mass of an electrolysis product from the applied current
stoich002 Using the Avogadro Number
stoich003 Calculating and using the molar mass of elements
stoich004 Calculating and using the molar mass of diatomic elements
stoich005 Calculating and using the molar mass of heterodiatomic compounds
stoich009 Finding molar mass from chemical formulae
stoich024 Finding a molecular formula from molar mass and elemental analysis
stoich012 Stoichiometric coefficients
stoich013 Balancing chemical equations with noninterfering coefficients
stoich014 Balancing chemical equations with interfering coefficients
rxn002 Writing a chemical equation from a description of the reaction
rxn004 Writing the net equation for a sequence of reactions
stoich015 Solving for a reactant using a chemical equation
stoich016 Identifying the limiting reactant in a drawing of a mixture
stoich017 Limiting reactants
stoich018 Percent yield of chemical reactions
stoich037 Solving for a reactant in solution
stoich038 Solving limiting reactant problems in solution
acid023 Determining the volume of base needed to titrate a given mass of acid
acid024 Determining the molar mass of an acid by titration
acid025 Standardizing a base solution by titration
redox006 Writing a simple half-reaction from its description
redox007 Writing the half-reactions of a metal-nonmetal reaction
Kinetics and Equilibrium

equi003 Understanding that no reaction goes to 100

equi004 Predicting relative forward and reverse rates of reaction in a dynamic equilibrium

equi005 Using Le Chatelier’s Principle to predict the result of changing concentration or volume

equi006 Using Le Chatelier’s Principle to predict the result of changing temperature

equi007 Writing an equilibrium constant expression

equi014 Writing an equilibrium constant expression for a heterogeneous equilibrium

equi008 Using an equilibrium constant to predict the direction of spontaneous reaction

equi015 Using the general properties of equilibrium constants

equi016 Setting up a reaction table

equi017 Calculating equilibrium composition from an equilibrium constant

acid016 Interconverting pH and hydronium ion concentration

acid017 Using the ion product of water

acid018 Making qualitative estimates of pH change

acid019 Calculating the pH of a strong acid solution

acid020 Calculating the pH of a strong base solution

acid026 Writing an acid dissociation constant expression

acid027 Calculating the Ka of a weak acid from pH

acid028 Calculating the pH of a weak acid solution

acid029 Writing a base protonation constant expression

acid030 Calculating the pH of a weak base solution

acid042 Interconverting Ka and pKa

acid035 Identifying the major species in weak acid or weak base equilibria

acid036 Setting up a reaction table for a pH calculation with a common ion

acid037 Calculating the pH of a buffer

acid038 Calculating the composition of a buffer of a given pH

soln014 Writing a solubility product (Ksp) expression

soln015 Using Ksp to calculate the solubility of a compound

soln016 Using the solubility of a compound to calculate Ksp

soln017 Calculating the solubility of an ionic compound when a common ion is present

equi009 Predicting how reaction rate varies with pressure, concentration and temperature

equi012 Calculating the reaction rate of one reactant from that of another

equi032 Calculating average and instantaneous reaction rate from a graph of concentration versus time

equi019 Using a rate law

equi020 Using reactant reaction order to predict changes in initial rate

equi021 Deducing a rate law from initial reaction rate data

equi023 Calculating the change in concentration after a whole number of half-lives of a first-order reaction

Thermodynamics

equi029 Deducing a rate law from the change in concentration over time

equi030 Finding half life and rate constant from a graph of concentration versus time

equi010 Interpreting a reaction energy diagram

equi011 Relating activation energy to reaction rate

equi013 Drawing the reaction energy diagram of a catalyzed reaction

equi024 Understanding the qualitative predictions of the Arrhenius equation

acid033 Identifying the molecularity of an elementary reaction

equi034 Identifying intermediates in a reaction mechanism

equi035 Writing a plausible missing step for a simple reaction mechanism

equi036 Writing the rate law of an elementary reaction

acid037 Writing the rate law implied by a simple mechanism with an initial slow step

acid040 Deducing information about reaction mechanisms from a reaction energy diagram
thermo008 Interconverting calories and joules
thermo011 Calculating specific heat capacity
thermo009 Using specific heat capacity to find heat
thermo010 Using specific heat capacity to find temperature change
thermo003 Using conservation of energy to predict the qualitative exchange of kinetic and potential energy
thermo005 Calculating pressure-volume work
thermo006 Understanding the definitions of heat and work
thermo007 Understanding the definition of enthalpy
thermo014 Calculating the heat of reaction from molar reaction enthalpy and the mass of a reactant
thermo021 Using Hess’s Law to calculate net reaction enthalpy
thermo022 Writing a standard formation reaction
thermo023 Calculating a molar heat of reaction from formation enthalpies
thermo018 Calculating the heat of reaction from bond energies
thermo024 Calculating entropy change from reversible heat flow
thermo026 Calculating absolute entropy using the Boltzmann hypothesis
thermo027 Calculating entropy change using the Boltzmann hypothesis
thermo028 Predicting qualitatively how entropy changes with temperature and volume
thermo029 Predicting qualitatively how entropy changes with mixing and separation
thermo030 Qualitatively predicting reaction entropy
thermo031 Calculating reaction entropy using the standard molar entropies of reactants
thermo032 Using the general properties of Gibbs free energy
thermo033 Calculating dG from dH and dS
thermo034 Using the conditions of spontaneity to deduce the signs of .H and .S
thermo035 Calculating standard reaction free energy from standard free energies of formation
thermo037 Estimating a phase transition temperature from standard thermodynamic data
thermo038 Calculating reaction free energy under nonstandard conditions
thermo039 Using reaction free energy to predict equilibrium composition
redox020 Calculating standard reaction free energy from standard reduction potentials
redox021 Using the Nernst equation to calculate nonstandard cell voltage
redox026 Recognizing consistency among equilibrium constant, free energy, and cell potential

Descriptive Chemistry

acid044 Predicting the relative acidity of binary acids
acid045 Understanding the effect of induction on acidity
acid046 Predicting the qualitative acid-base properties of metal cations
acid049 Predicting the acid-base properties of a binary oxide in water
acid066 Recognizing common acids and bases
atom046 Understanding periodic trends in atomic size
atom047 Understanding periodic trends in atomic ionizability
atom066 Identifying elements with a similar valence electron configuration
atom065 Identifying s, p, d and f block elements
atom072 Deducing the block of an element from an electron configuration
atom069 Deducing valence electron configuration from trends in successive ionization energies
atom071 Understanding periodic trends in effective nuclear charge
ochem001 Identifying organic compounds
ochem003 Interpreting condensed chemical structures
ochem004 Identifying organic functional groups
ochem008 Naming normal alkanes
ochem009 Using family suffixes to name organic compounds
ochem010 Naming the parent hydrocarbon of branched alkanes
ochem011 Naming alkyl side chains
ochem019 Naming alcohols
ochem020 Naming aldehydes and acids
ochem021 Naming benzene derivatives

Laboratory
B.60 Math Review for AP Calculus

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
arith698 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
arith272 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
arith871 Absolute value of a number
arith104 Operations with absolute value: Problem type 2
alge001 Identifying numbers as integers or non-integers
APPENDIX B. PROGRAMS IN ALEKS

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
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: Problem type 1
alge747 Solving a compound linear inequality: Problem type 2
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

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
arith030 Product rule with positive exponents: Multivariate
arith028 Product rule with negative exponents
arith026 Quotient of expressions involving exponents
arith755 Quotient rule with negative exponents: Problem type 1
arith754 Introduction to the power rules of exponents
arith027 Power rules with positive exponents
arith025 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
arithmetic036 Scientific notation with positive exponent
arithmetic037 Scientific notation with negative exponent
scientific02 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
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: Problem type 1
alge093 Solving a quadratic equation using the square root property: Problem type 2
alge094 Completing the square
alge780 Solving a quadratic equation by completing the square
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
alge764 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
gem0807 Finding slopes of lines parallel and perpendicular to a line given in the form Ax + By = C
gem0808 Writing equations of lines parallel and perpendicular to a given line through a point
alge0701 Writing an equation and drawing its graph to model a real-world situation: Advanced
alge0805 Application problem with a linear function: Finding a coordinate given the slope and a point
alge0806 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
alge067 Solving a system of linear equations using elimination with multiplication and addition
alge753 Solving a system of linear equations in 3 unknowns
alge752 Solving a 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
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
pcalc628 Evaluating functions: Absolute value, rational, radical
fun030 Evaluating a piecewise-defined function
fun033 Variable expressions as inputs of functions
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
pcalc752 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 = ax2
alge253 Graphing a parabola of the form y = (x-a)2 + 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
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 = ax3
Rational Expressions

alge715 Domain of a rational function
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
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
pcalc881 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
APPENDIX B. PROGRAMS IN ALEKS

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
arith694 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
arith092 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
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
alge093 Solving an equation using the odd-root property: Problem type 1
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

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 logba = 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
B.60. MATH REVIEW FOR AP CALCULUS

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
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

ggeom300 Perimeter of a square or a rectangle
ggeom019 Area of a square or a rectangle
ggeom340 Area of a piecewise rectangular figure
ggeom351 Areas of rectangles with the same perimeter
ggeom817 Finding a side length given the perimeter and side lengths with variables
ggeom217 Finding the side length of a rectangle given its perimeter or area
ggeom143 Finding the perimeter or area of a rectangle given one of these values
ggeom022 Area of a parallelogram
ggeom801 Area of a triangle
ggeom802 Circumference and area of a circle
ggeom218 Finding the radius or the diameter of a circle given its circumference
ggeom301 Perimeter involving rectangles and circles
ggeom838 Circumference ratios
ggeom302 Area involving rectangles and circles
ggeom636 Word problem involving the area between two concentric circles
ggeom214 Area involving inscribed figures
ggeom311 Volume of a rectangular prism
ggeom035 Volume of a cylinder
ggeom886 Volume of a cone: Exact answers in terms of pi
ggeom841 Volume of a sphere
ggeom692 Word problem involving the rate of filling or emptying a cylinder
ggeom133 Ratio of volumes
ggeom031 Surface area of a cube or a rectangular prism
ggeom634 Surface area of a cylinder: Exact answers in terms of pi
ggeom037 Similar polygons
ggeom337 Indirect measurement
ggeom044 Pythagorean Theorem
galge132 Distance between two points in the plane
galge191 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
pcalc606 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

pcalc602 Converting between degree and radian measure: Problem type 1
pcalc606 Sketching an angle in standard position
pcalc626 Reference angles: Problem type 1
pcalc622 Coterminal angles
Appendix B. Programs in ALEKS

pcalc005 Arc length and central angle measure
pcalc060 Area of a sector of a circle
pcalc600 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 distances
pcalc608 Using a trigonometric ratio to find an angle measure in a right triangle
pcalc611 Using trigonometry to find angles of elevation or depression
pcalc608 Finding trigonometric ratios given a right triangle
pcalc642 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
pcalc627 Finding coordinates on the unit circle for special angles
pcalc629 Trigonometric functions and special angles: Problem type 1
pcalc630 Trigonometric functions and special angles: Problem type 2
pcalc631 Trigonometric functions and special angles: Problem type 3
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
pcalc633 Amplitude and period of sine and cosine functions
pcalc634 Amplitude, period, and phase shift of sine and cosine functions
pcalc107 Sketching the graph of a sine or cosine function: Problem type 1
pcalc106 Sketching the graph of a sine or cosine function: Problem type 2
pcalc016 Values of inverse trigonometric functions
pcalc018 Composition of a trigonometric function and an inverse trigonometric function: Problem type 1
pcalc019 Composition of a trigonometric function and an inverse trigonometric function: Problem type 2
pcalc036 Composition of a trigonometric function and an inverse trigonometric function: Problem type 3
pcalc648 Simplifying trigonometric expressions
pcalc666 Using cofunction identities
pcalc029 Sum and difference identities: Problem type 1
pcalc063 Sum and difference identities: Problem type 2
pcalc030 Double-angle identities: Problem type 1
pcalc067 Double-angle identities: Problem type 2
pcalc124 Product-to-sum and sum-to-product identities: Problem type 1
pcalc550 Finding solutions in an interval for a basic equation involving sine or cosine
pcalc551 Finding solutions in an interval for a basic equation involving tangent, cotangent, secant, or cosecant equation
pcalc554 Finding solutions in an interval for a trigonometric equation using Pythagorean identities
pcalc020 Solving a basic trigonometric equation involving sine or cosine
pcalc021 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
pcalc057 Converting polar coordinates to rectangular coordinates
pcalc058 Converting an equation written in rectangular coordinates to one written in polar form
pcalc059 Converting an equation written in polar form to one written in rectangular coordinates

Limits and Continuity

pcalc901 Estimating a limit numerically
pcalc902 Finding limits from a graph
pcalc904 Finding limits for a piecewise-defined function
pcalc905 Finding a limit by using the limit laws: Problem type 1
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
pcalc910 Limits at infinity and graphs
pcalc908 Limits at infinity and rational functions
pcalc915 Infinite limits and graphs
pcalc909 Infinite limits and rational functions
pcalc913 Finding a limit of a trigonometric function by using continuity
B.61 Math Review for AP Physics

Arithmetic

- arith048 Order of operations with whole numbers
- arith051 Order of operations with whole numbers and grouping symbols
- arith108 Integer addition: Problem type 2
- arith107 Integer subtraction
- arith231 Integer multiplication and division
- arith071 Absolute value of a number
- arith104 Operations with absolute value: Problem type 2
- 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
- arith116 Signed fraction addition or subtraction: Basic
- arith106 Signed fraction addition or subtraction: Advanced
- arith086 Product of a fraction and a whole number: Problem type 1
- arith119 Introduction to fraction multiplication
- arith053 Fraction multiplication
- arith105 Signed fraction multiplication: Advanced
- arith022 Fraction division
- arith015 Writing an improper fraction as a mixed number
- arith019 Writing a mixed number as an improper fraction
- arith220 Decimal place value: Hundreds to ten thousandths
- arith078 Rounding to tens or hundreds
- arith061 Rounding to thousands, ten thousands, or hundred thousands
- arith221 Rounding decimals
- arith082 Multiplication of a decimal by a power of ten
- arith083 Division of a decimal by a power of ten
- 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
- arith226 Converting between percentages and decimals
- arith002 Converting a fraction to a percentage: Denominator of 20, 25, or 50
- arith086 Writing a ratio as a percentage
- arith030 Finding a percentage of a whole number without a calculator: Basic
- arith225 Finding the percentage increase or decrease: Advanced
- mstat001 Mean of a data set
- arith010 Estimating a sum of whole numbers
- arith012 Estimating a difference of whole numbers
- arith004 Estimating a product or quotient of whole numbers
- unit003 Metric distance conversion with decimal values
- unit004 Metric conversion with decimal values: Two-step problem
- unit010 Metric area unit conversion with decimal values
- unit034 Converting between metric and U.S. Customary unit systems
- unit035 Converting between compound units: Basic
- unit036 Converting between compound units: Advanced
- mstat005 Constructing a bar graph for non-numerical data
- mstat004 Constructing a histogram for numerical data

Linear Equations and Applications
APPENDIX B. PROGRAMS IN ALEKS

alge005 Evaluating a linear expression: Integer multiplication with addition or subtraction
alge006 Distributive property: Whole number coefficients
alge004 Distributive property: Integer coefficients
alge007 Combining like terms: Integer coefficients
alge016 Translating a sentence into a one-step equation
alge062 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
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
alge179 Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators
alge163 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 $x/a=b/c$
arith610 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

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
B.61. MATH REVIEW FOR AP PHYSICS

Exponents and Radicals

arith047 Evaluating expressions with exponents: Problem type 1
arith049 Evaluating expressions with exponents: Problem type 2
arith029 Ordering numbers with positive exponents
arith024 Introduction to the product rule of exponents
arith030 Product rule with positive exponents: Multivariate
arith026 Quotient of expressions involving exponents
arith028 Product rule with negative exponents
arith027 Power rules with positive exponents
arith025 Power of a power rule with negative exponents
arith037 Greatest common factor of two multivariate monomials
arith004 Evaluating a quadratic expression: Integers
arith683 Power of 10: Positive exponent
arith036 Scientific notation with positive exponent
arith684 Power of 10: Negative exponent
arith037 Scientific notation with negative exponent
scinot002 Multiplying and dividing numbers written in scientific notation
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