ALEKS®

This course covers the topics shown below; **new topics** have been highlighted.
Students navigate learning paths based on their level of readiness.
Institutional users may customize the scope and sequence to meet curricular needs.
Number of topics may vary depending on the state and standards selected.

Curriculum Show All (457 topics + 831 additional topics)

- Arithmetic Readiness (37 topics)
  - ♦ Factors, Multiples, and Equivalent Fractions (3 topics)
    - ◊ Equivalent fractions
    - ◊ Simplifying a fraction
    - ◊ Division involving zero
  - ♦ Addition and Subtraction with Fractions (2 topics)
    - ◊ Introduction to addition or subtraction of fractions with different denominators
    - ◊ Addition or subtraction of fractions with different denominators
  - ♦ Multiplication and Division with Fractions (5 topics)
    - ◊ Product of a unit fraction and a whole number
    - ◊ Product of a fraction and a whole number: Problem type 1
    - ◊ Introduction to fraction multiplication
    - ◊ Fraction multiplication
    - ◊ Product of a fraction and a whole number: Problem type 2
  - ♦ Rounding, Ordering, and the Number Line (4 topics)
    - ◊ Rounding to tens or hundreds
    - ◊ Rounding to hundreds or thousands
    - ◊ Decimal place value: Tenths and hundredths
    - ◊ Rounding decimals
  - ♦ Addition and Subtraction with Decimals (1 topics)
    - ◊ Decimal subtraction: Basic
  - ♦ Multiplication and Division with Decimals (5 topics)
    - ◊ Multiplication of a decimal by a power of ten
    - ◊ Multiplying a decimal by a whole number
    - ◊ 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
  - ♦ Converting Between Fractions and Decimals (1 topics)
    - ◊ Converting a fraction to a terminating decimal: Basic
  - ♦ Ratios and Unit Rates (3 topics)
    - ◊ Finding missing values in a table expressing a constant rate
    - ◊ Using a table of equivalent ratios to find a missing quantity in a ratio
    - ◊ Solving a word problem on proportions using a unit rate
  - ♦ Percents (8 topics)
    - ◊ Introduction to converting a percentage to a decimal
    - ◊ Introduction to converting a decimal to a percentage
    - ◊ Converting between percentages and decimals
    - ◊ Converting a fraction to a percentage: Denominator of 4, 5, or 10
    - ◊ Converting a fraction to a percentage: Denominator of 20, 25, or 50
    - ◊ Converting a fraction to a percentage in a real−world situation
    - ◊ Finding a percentage of a whole number
    - ◊ Finding a percentage of a whole number without a calculator: Basic
  - ♦ Units of Measurement (5 topics)

- ◊ U.S. Customary length conversion with whole number values
- ◊ U.S. Customary volume conversion with whole number values
- ◊ U.S. Customary weight conversions with whole number values
- ◊ Time unit conversion with whole number values
- ◊ Converting between metric and U.S. Customary unit systems

• Real Numbers (47 topics)

♦ Plotting and Ordering (7 topics)

- ◊ Plotting integers on a number line
- ◊ Ordering integers
- ◊ Writing a signed number for a real−world situation
- ◊ Finding opposites of integers
- ◊ Square root of a perfect square
- ◊ Absolute value of a number
- ◊ Finding all numbers with a given absolute value

♦ Operations with Signed Numbers (13 topics)

- ◊ Integer addition: Problem type 1
- ◊ Integer addition: Problem type 2
- ◊ Integer subtraction: Problem type 1
- ◊ Integer subtraction: Problem type 2
- ◊ Integer subtraction: Problem type 3
- ◊ Addition and subtraction with 3 integers
- ◊ Operations with absolute value: Problem type 1
- ◊ Computing the distance between two integers on a number line
- ◊ Integer multiplication and division
- ◊ Multiplication of 3 or 4 integers
- ◊ Signed fraction addition or subtraction: Basic
- ◊ Signed fraction multiplication: Basic
- ◊ Signed decimal addition and subtraction

♦ Exponents and Order of Operations (7 topics)

- ◊ Introduction to exponents
- ◊ Order of operations with whole numbers
- ◊ Order of operations with whole numbers and exponents: Basic
- ◊ Exponents and fractions
- ◊ Exponents and integers: Problem type 1
- ◊ Exponents and signed fractions
- ◊ Order of operations with integers

♦ Evaluating Expressions (5 topics)

- ◊ Evaluating an algebraic expression: Whole numbers with two operations
- ◊ Evaluating a formula
- ◊ Evaluating an algebraic expression: Whole numbers with one operation and an exponent
- ◊ Evaluating a linear expression: Integer multiplication with addition or subtraction
- ◊ Evaluating a quadratic expression: Integers

♦ Properties of Real Numbers (12 topics)

- ◊ Combining like terms: Whole number coefficients
- ◊ Combining like terms: Integer coefficients
- ◊ Combining like terms: Fractional coefficients
- ◊ Combining like terms: Decimal coefficients
- ◊ Multiplying a constant and a linear monomial
- ◊ Distributive property: Whole number coefficients
- ◊ Distributive property: Integer coefficients
- ◊ Distributive property: Fractional coefficients
- ◊ Identifying parts in an algebraic expression
- ◊ Identifying equivalent algebraic expressions

- ◊ Using distribution and combining like terms to simplify: Univariate
- ◊ Combining like terms in a quadratic expression

♦ Introduction to Perimeter and Area (3 topics)

- ◊ Perimeter of a polygon
- ◊ Perimeter of a square or a rectangle
- ◊ Area of a square or a rectangle

• Linear Equations and Inequalities (91 topics)

♦ One−Step Linear Equations (11 topics)

- ◊ Identifying solutions to a one−step linear equation: Problem type 1
- ◊ Identifying solutions to a one−step linear equation: Problem type 2
- ◊ Additive property of equality with whole numbers
- ◊ Additive property of equality with decimals
- ◊ Additive property of equality with integers
- ◊ 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

♦ Multi−Step Linear Equations (14 topics)

- ◊ Identifying solutions to a linear equation in one variable: Two−step equations
- ◊ Using two steps to solve an equation with whole numbers
- ◊ Additive property of equality with a negative coefficient
- ◊ Solving a two−step equation with integers
- ◊ Introduction to using substitution to solve a linear equation
- ◊ Introduction to solving an equation with parentheses
- ◊ Identifying properties used to solve a linear equation
- ◊ Introduction to solving an equation with variables on the same side
- ◊ Solving a linear equation with several occurrences of the variable: Variables on the same side
- ◊ Introduction to solving a linear equation with a variable on each 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 the same side and distribution
- ◊ Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
- ◊ Solving a two−step equation with signed fractions

♦ Writing Expressions and Equations (6 topics)

- ◊ 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
- ◊ Writing an equation to represent a proportional relationship
- ◊ Translating a sentence into a multi−step equation

♦ Applications Involving Linear Equations (6 topics)

- ◊ Writing and solving a one−step equation with decimals that models a real−world situation
- ◊ Writing an equation of the form $Ax + B = C$ to solve a word problem
- ◊ Solving a decimal word problem using a linear equation of the form $Ax + B = C$
- ◊ Solving a word problem with two unknowns using a linear equation
- ◊ Writing an equation to represent a real−world problem: Variable on both sides
- ◊ Solving a one−step word problem using the formula $d = rt$

♦ Solving for a Variable and Dimensional Analysis (5 topics)

- ◊ Solving for a variable in terms of other variables using addition or subtraction: Basic
- ◊ Solving for a variable in terms of other variables using multiplication or division: Basic

- ◊ Solving for a variable in terms of other variables using addition or subtraction with division
- ◊ U.S. Customary length conversions involving dimensional analysis
- ◊ Converting between compound units: Basic

♦ Proportions and Applications Involving Percents (13 topics)
- ◊ Solving a proportion of the form x/a=b/c: Basic
- ◊ Solving a proportion of the form x/a = b/c
- ◊ Writing a proportion to solve a problem involving rates
- ◊ Writing and solving a proportion to convert between metric and U.S. Customary units
- ◊ Word problem on proportions: Problem type 1
- ◊ Applying the percent equation: Problem type 1
- ◊ Writing a proportion to solve a multi−step problem involving percentages
- ◊ Finding the multiplier to give a final amount after a percentage increase or decrease
- ◊ Finding the final amount given the original amount and a percentage increase or decrease
- ◊ Finding the sale price given the original price and percent discount
- ◊ Finding the percentage increase or decrease: Advanced
- ◊ Finding the absolute error and percent error of a measurement
- ◊ Introduction to compound interest

♦ Absolute Value Equations (4 topics)
- ◊ Introduction to solving an absolute value equation
- ◊ Solving an absolute value equation: Problem type 1
- ◊ Solving an absolute value equation: Problem type 2
- ◊ Solving an absolute value equation: Problem type 3

♦ Writing and Graphing Inequalities (6 topics)
- ◊ Translating a sentence by using an inequality symbol
- ◊ Translating a sentence into a one−step inequality
- ◊ Introduction to identifying solutions to an inequality
- ◊ Writing an inequality for a real−world situation
- ◊ Graphing a linear inequality on the number line
- ◊ Writing an inequality given a graph on the number line

♦ One−Step Linear Inequalities (6 topics)
- ◊ Identifying solutions to a one−step linear inequality
- ◊ Additive property of inequality with whole numbers
- ◊ Additive property of inequality with integers
- ◊ Multiplicative property of inequality with whole numbers
- ◊ Multiplicative property of inequality with integers
- ◊ Multiplicative property of inequality with signed fractions

♦ Multi−Step Linear Inequalities (7 topics)
- ◊ Identifying solutions to a two−step linear inequality in one variable
- ◊ Solving a two−step linear inequality with whole numbers
- ◊ 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

♦ Applications Involving Linear Inequalities (5 topics)
- ◊ Writing, solving, and graphing the solution to a one−step inequality that models a real−world situation
- ◊ Solving a word problem using a one−step linear inequality
- ◊ Solving a word problem using a two−step linear inequality
- ◊ 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

♦ Compound Inequalities (4 topics)
- ◊ Translating a sentence into a compound inequality

- ◊ Graphing a compound inequality on the number line
- ◊ Solving a compound linear inequality: Graph solution, basic
- ◊ Solving and graphing the solution to a compound inequality that models a real−world situation

♦ Absolute Value Inequalities (4 topics)

- ◊ Solving an absolute value inequality: Problem type 1
- ◊ Solving an absolute value inequality: Problem type 3
- ◊ Solving an absolute value inequality: Problem type 4
- ◊ Writing and solving an absolute value inequality that models a real−world situation and interpreting the solution

• The Coordinate Plane and Equations of Lines (68 topics)

♦ Ordered Pairs (4 topics)

- ◊ Reading a point in the coordinate plane
- ◊ Plotting a point in the coordinate plane
- ◊ Finding distances between points that share a common coordinate given the graph
- ◊ Finding distances between points that share a common coordinate given their coordinates

♦ Tables and Graphs of Lines (15 topics)

- ◊ Function tables with two−step rules
- ◊ Table for a linear equation
- ◊ Writing a function rule given a table of ordered pairs: One−step rules
- ◊ Identifying solutions to a linear equation in two variables
- ◊ Finding the coordinates of a point on a graph given the equation
- ◊ Finding a solution to a linear equation in two variables
- ◊ Graphing a linear equation of the form $y = mx$
- ◊ Graphing a line given its equation in slope−intercept form: Integer slope
- ◊ Graphing a line given its equation in slope−intercept form: Fractional slope
- ◊ Graphing a line given its equation in standard form
- ◊ Graphing a vertical or horizontal line
- ◊ Finding x− and y−intercepts given the graph of a line on a grid
- ◊ Finding x− and y−intercepts of a line given the equation: Basic
- ◊ Graphing a line by first finding its x− and y−intercepts
- ◊ Interpreting a line graph

♦ Slope (7 topics)

- ◊ Finding slope given the graph of a line in quadrant 1 that models a real−world situation
- ◊ Classifying slopes given graphs of lines
- ◊ Finding slope given the graph of a line on a grid
- ◊ Finding slope given two points on a line
- ◊ Finding the slopes of horizontal and vertical lines
- ◊ Graphing a line given its slope and y−intercept
- ◊ Graphing a line through a given point with a given slope

♦ Equations of Lines (18 topics)

- ◊ Identifying linear functions given ordered pairs
- ◊ Finding the slope and y−intercept of a line given its equation in the form $y = mx + b$
- ◊ Finding the slope and y−intercept of a line given its equation in the form $Ax + By = C$
- ◊ Graphing a line by first finding its slope and y−intercept
- ◊ Writing an equation of a line given its slope and y−intercept
- ◊ Finding the slope and y−intercept given a table for a linear function
- ◊ Finding the slope, y−intercept, and equation for a linear function given a table of values
- ◊ Writing an equation in slope−intercept form given the slope and a point
- ◊ Writing the equation of a line given the y−intercept and another point
- ◊ Writing the equation of a line through two given points
- ◊ Comparing linear functions to the parent function $y = x$
- ◊ Identifying parallel and perpendicular lines

- ◊ Writing the equation and finding the slope of a line parallel or perpendicular to a vertical or horizontal line
- ◊ Finding slopes of lines parallel and perpendicular to a line given in slope−intercept form
- ◊ Finding slopes of lines parallel and perpendicular to a line given in the form Ax + By = C
- ◊ Identifying parallel and perpendicular lines from equations
- ◊ Writing equations of lines parallel and perpendicular to a given line through a point
- ◊ Identifying parallel and perpendicular lines from coordinates

♦ Applications of Linear Equations with Two Variables (14 topics)

- ◊ Finding outputs of a one−step function that models a real−world situation: Two variable equation
- ◊ Finding outputs of a two−step function with decimals that models a real−world situation: Two variable equation
- ◊ Writing and evaluating a function that models a real−world situation: Basic
- ◊ Writing a linear equation that models a real−world situation given a graph or a table of values
- ◊ Writing an equation and drawing its graph to model a real−world situation: Advanced
- ◊ Finding the intercepts and rate of change given a graph of a linear function
- ◊ Finding the initial amount and rate of change given a table for a linear function
- ◊ Finding the initial amount and rate of change given two points for a linear function
- ◊ Combining functions to write a new function that models a real−world situation
- ◊ Comparing properties of linear functions given in different forms
- ◊ Interpreting the parameters of a linear function that models a real−world situation
- ◊ Application problem with a linear function: Finding a coordinate given the slope and a point
- ◊ Application problem with a linear function: Finding a coordinate given two points
- ◊ Solving a linear equation by graphing

♦ Scatter Plots and Lines of Best Fit (10 topics)

- ◊ 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
- ◊ Using technology to fit a linear regression model to data and to make a prediction
- ◊ Computing residuals
- ◊ Interpreting residual plots
- ◊ Linear relationship and the correlation coefficient
- ◊ Identifying correlation and causation

• Functions and Systems (56 topics)

♦ Introduction to Functions (7 topics)

- ◊ Identifying functions from relations
- ◊ Vertical line test
- ◊ Domain and range from ordered pairs
- ◊ Table for a linear function
- ◊ Evaluating functions: Linear and quadratic or cubic
- ◊ Finding outputs of a two−step function with decimals that models a real−world situation: Function notation
- ◊ Domain and range of a linear function that models a real−world situation

♦ Arithmetic Sequences (9 topics)

- ◊ Finding the first terms of an arithmetic sequence using an explicit rule
- ◊ Finding the next terms of an arithmetic sequence with whole numbers
- ◊ Finding the next terms of an arithmetic sequence with integers
- ◊ Finding the first terms of a sequence using a recursive rule
- ◊ Identifying arithmetic sequences and finding the common difference
- ◊ Finding a specified term of an arithmetic sequence given the first terms
- ◊ Finding a specified term of an arithmetic sequence given the common difference and first term
- ◊ Writing an explicit rule for an arithmetic sequence

- ◊ Writing a recursive rule for an arithmetic sequence
- ♦ Graphs of Functions (11 topics)
  - ◊ Finding an output of a function from its graph
  - ◊ Finding and interpreting an output of a linear function given a graph that models a real−world situation
  - ◊ Finding domain and range from a linear graph in context
  - ◊ Interpreting the domain and range of a linear function in context
  - ◊ Finding where a function is increasing, decreasing, or constant given the graph
  - ◊ Choosing a graph to fit a narrative: Basic
  - ◊ Choosing a graph to fit a narrative: Advanced
  - ◊ Drawing a graph to fit a narrative
  - ◊ Determining if a function is linear given its graph
  - ◊ Graphing a parabola of the form $y = ax^2$
  - ◊ Finding the average rate of change of a function given its graph
- ♦ Systems of Linear Equations (13 topics)
  - ◊ Identifying solutions to a system of linear equations
  - ◊ Identifying the solution of systems of linear equations from graphs
  - ◊ Graphically solving a system of linear equations both of the form y=mx+b
  - ◊ Graphing a system of linear equations and estimating a solution
  - ◊ Graphically solving a system of linear equations
  - ◊ Solving a system of linear equations of the form y = mx + b
  - ◊ Solving a system of linear equations using substitution
  - ◊ Solving a system of linear equations using elimination with addition
  - ◊ Solving a system of linear equations using elimination with multiplication and addition
  - ◊ Solving a system of linear equations with fractional coefficients
  - ◊ Solving a system of linear equations with decimal coefficients
  - ◊ Solving systems of linear equations with 0, 1, or infinitely many solutions
  - ◊ Identifying the operations used to create equivalent systems of equations
- ♦ Applications Involving Systems of Linear Equations (7 topics)
  - ◊ Interpreting the graphs of two functions
  - ◊ Solving a word problem involving a sum and another basic relationship using a system of linear equations
  - ◊ Solving a word problem using a system of linear equations of the form Ax + By = C
  - ◊ Writing and solving a system of two linear equations given a table of values
  - ◊ Solving a word problem using a system of linear equations of the form y = mx + b
  - ◊ Solving a value mixture problem using a system of linear equations
  - ◊ Solving a distance, rate, time problem using a system of linear equations
- ♦ Linear Inequalities with Two Variables (4 topics)
  - ◊ Identifying solutions to a linear inequality in two variables
  - ◊ Graphing a linear inequality in the plane: Vertical or horizontal line
  - ◊ Graphing a linear inequality in the plane: Slope−intercept form
  - ◊ Graphing a linear inequality in the plane: Standard form
- ♦ Systems of Linear Inequalities (5 topics)
  - ◊ Graphing a system of two linear inequalities: Basic
  - ◊ Graphing a system of two linear inequalities: Advanced
  - ◊ Writing a linear inequality in two variables given a table of values
  - ◊ Writing a multi−step inequality for a real−world situation
  - ◊ Writing a system of linear inequalities that models a real−world situation and determining possible solutions

• Exponents and Exponential Functions (35 topics)

- ♦ Product, Power, and Quotient Rules (4 topics)
  - ◊ Introduction to the product rule of exponents
  - ◊ Introduction to the power of a power rule of exponents

- ◊ Simplifying a ratio of multivariate monomials: Basic
- ◊ Introduction to the quotient rule of exponents

♦ Negative Exponents (5 topics)
- ◊ Evaluating expressions with exponents of zero
- ◊ 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
- ◊ Power of a power rule with negative exponents

♦ Introduction to Radicals (1 topics)
- ◊ Introduction to square root addition or subtraction

♦ Graphs of Exponential Functions (6 topics)
- ◊ Table for an exponential function
- ◊ Graphing an exponential function: $f(x) = b^x$
- ◊ Graphing an exponential function: $f(x) = a(b)^x$
- ◊ Translating the graph of an exponential function
- ◊ Finding domain and range from the graph of an exponential function
- ◊ Choosing the graph for an exponential function and identifying key features

♦ Applications of Exponential Functions (10 topics)
- ◊ Using a calculator to evaluate exponential expressions
- ◊ Evaluating an exponential function that models a real−world situation
- ◊ Finding a final amount in a word problem on exponential growth or decay
- ◊ 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
- ◊ Choosing an exponential model and using it to make a prediction
- ◊ Using technology to determine the better regression model for a given data set and using that model to make a prediction: Linear and exponential
- ◊ Solving an exponential equation by finding common bases: Linear exponents
- ◊ Comparing linear, polynomial, and exponential functions

♦ Geometric Sequences (9 topics)
- ◊ Finding the first terms of a geometric sequence using an explicit rule
- ◊ Finding the next terms of a geometric sequence with whole numbers
- ◊ Finding the next terms of a geometric sequence with signed numbers
- ◊ 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
- ◊ Identifying linear, quadratic, and exponential functions given ordered pairs

• Data Analysis (24 topics)

♦ Frequency Tables (6 topics)
- ◊ 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
- ◊ Calculating relative frequencies in a contingency table: Advanced

♦ Graphs of Data (5 topics)
- ◊ Representing data on a dot plot
- ◊ Constructing a frequency distribution and a histogram
- ◊ Interpreting a histogram
- ◊ Measuring an angle with the protractor
- ◊ Interpreting a Venn diagram of 2 sets

- ♦ Measures of Center and Spread (7 topics)
  - ◊ Range of a data set
  - ◊ How changing a value affects the range and IQR
  - ◊ Mean of a data set
  - ◊ Weighted mean
  - ◊ Mean and median of a data set
  - ◊ How changing a value affects the mean and median
  - ◊ Choosing the best measure to describe data
- ♦ Comparing Data (6 topics)
  - ◊ Using back−to−back stem−and−leaf plots to compare data sets
  - ◊ Five−number summary and interquartile range
  - ◊ Interpreting a box−and−whisker plot
  - ◊ Interpreting a box−and−whisker plot: Problem type 2
  - ◊ Constructing a box−and−whisker plot
  - ◊ Using box−and−whisker plots to compare data sets

• Segments, Lines, and Angles (31 topics)

- ♦ Points, Lines, and Planes (3 topics)
  - ◊ Naming segments, rays, and lines
  - ◊ Identifying congruent shapes on a grid
  - ◊ Matching basic geometric terms with their definitions
- ♦ Distances and Midpoints on a Number Line (3 topics)
  - ◊ Introduction to segment addition
  - ◊ Midpoint of a number line segment: Integers
  - ◊ Segment addition and midpoints
- ♦ Distances and Midpoints in the Coordinate Plane (4 topics)
  - ◊ Distance between two points in the plane: Exact answers
  - ◊ Identifying congruent segments in the plane
  - ◊ Midpoint of a line segment in the plane
  - ◊ Finding an endpoint of a line segment given the other endpoint and the midpoint
- ♦ Angles (12 topics)
  - ◊ Drawing an angle with the protractor
  - ◊ Acute, obtuse, and right angles
  - ◊ Naming angles, sides of angles, and vertices
  - ◊ Introduction to angle addition
  - ◊ Finding the complement or supplement of an angle given a figure
  - ◊ Solving an equation involving complementary or supplementary angles
  - ◊ Writing and solving an equation involving complementary or supplementary angles
  - ◊ Angle addition with relationships between angles
  - ◊ Angle addition and angle bisectors
  - ◊ Identifying linear pairs and vertical angles
  - ◊ Finding angle measures given two intersecting lines
  - ◊ Solving equations involving vertical angles and linear pairs
- ♦ Segment and Angle Constructions (4 topics)
  - ◊ Constructing congruent line segments
  - ◊ Constructing an angle bisector
  - ◊ Constructing congruent angles
  - ◊ Constructing the perpendicular bisector of a line segment
- ♦ Parallel Lines and Transversals (5 topics)
  - ◊ Identifying corresponding and alternate angles
  - ◊ Finding angle measures given two parallel lines cut by a transversal
  - ◊ Solving equations involving angles and a pair of parallel lines
  - ◊ Constructing a pair of perpendicular lines
  - ◊ Constructing a pair of parallel lines

- Triangles and Quadrilaterals (21 topics)
  - ♦ Classifying Triangles (4 topics)
    - ◊ Acute, obtuse, and right triangles
    - ◊ Classifying scalene, isosceles, and equilateral triangles by side lengths
    - ◊ Identifying coordinates that give right triangles
    - ◊ Identifying scalene, isosceles, and equilateral triangles given coordinates of their vertices
  - ♦ Angles of Triangles (4 topics)
    - ◊ Finding an angle measure of a triangle given two angles
    - ◊ Finding an angle measure for a triangle with an extended side
    - ◊ Finding an angle measure given extended triangles
    - ◊ Finding angle measures of a triangle given angles with variables
  - ♦ Congruent Triangles (4 topics)
    - ◊ Identifying transformations
    - ◊ Determining if figures are related by rigid motions
    - ◊ Examining triangle congruence in terms of rigid motion
    - ◊ Exploring the triangle congruence theorems
  - ♦ Isosceles and Equilateral Triangles (2 topics)
    - ◊ Finding side lengths and angle measures of isosceles and equilateral triangles
    - ◊ Finding angle measures of an isosceles triangle given angles with variables
  - ♦ Triangle Constructions and Triangle Inequalities (3 topics)
    - ◊ Creating triangles from given side lengths: Problem type 1
    - ◊ Drawing triangles with given conditions: Side lengths and angle measures
    - ◊ Drawing a circle with a given radius or diameter
  - ♦ Quadrilaterals (4 topics)
    - ◊ Identifying parallelograms, rectangles, and squares
    - ◊ Properties of quadrilaterals
    - ◊ Proving that a quadrilateral with given vertices is a parallelogram
    - ◊ Classifying parallelograms in the coordinate plane
- Similarity and Transformations (40 topics)
  - ♦ Similar Figures (2 topics)
    - ◊ Identifying similar or congruent shapes on a grid
    - ◊ Finding a missing side length given two similar triangles
  - ♦ Proofs Involving Triangle Similarity (1 topics)
    - ◊ Proving the slope criterion for parallel or perpendicular lines
  - ♦ Translations (6 topics)
    - ◊ Translating a point and giving its coordinates: One step
    - ◊ Translating a point and giving its coordinates: Two steps
    - ◊ Properties of translated figures
    - ◊ Determining if figures are related by a translation
    - ◊ Translating a polygon
    - ◊ Understanding the definition of a translation
  - ♦ Reflections (8 topics)
    - ◊ Reflecting a point across an axis
    - ◊ Reflecting a point across an axis and giving its coordinates
    - ◊ Finding the coordinates of a point reflected across an axis
    - ◊ Reflecting a polygon across the x−axis or y−axis
    - ◊ Properties of reflected figures
    - ◊ Determining if figures are related by a reflection
    - ◊ Reflecting a polygon over a vertical or horizontal line
    - ◊ Understanding the definition of a reflection
  - ♦ Rotations (5 topics)
    - ◊ Rotating a point and giving its coordinates
    - ◊ Properties of rotated figures

- ◊ Determining if figures are related by a rotation
- ◊ Rotating a figure about the origin
- ◊ Understanding the definition of a rotation

♦ Symmetry (3 topics)

- ◊ Drawing lines of symmetry
- ◊ Finding an angle of rotation
- ◊ Identifying rotational symmetry and angles of rotation

♦ Congruence Transformations (7 topics)

- ◊ Writing a rule to describe a translation
- ◊ Writing a rule to describe a reflection
- ◊ Writing a rule to describe a rotation
- ◊ Identifying transformations that map a quadrilateral onto itself
- ◊ Identifying transformations that map a regular polygon onto itself
- ◊ Determining if figures are congruent and related by a transformation
- ◊ Determining if figures are congruent and related by a sequence of transformations

♦ Dilations (8 topics)

- ◊ Dilating a segment and giving the coordinates of its endpoints
- ◊ The effect of dilation on side length
- ◊ Determining if figures are related by a dilation
- ◊ Finding a scale factor given a dilation in the coordinate plane
- ◊ Dilating a figure
- ◊ Performing a composition of dilations
- ◊ Performing a composition consisting of a rigid transformation and a dilation
- ◊ Writing a rule to describe a dilation

• Area, Volume, and Circles (7 topics)

♦ Areas of Various Polygons (5 topics)

- ◊ Area of a parallelogram
- ◊ Area of a triangle
- ◊ Finding the perimeter or area of a rectangle in the coordinate plane
- ◊ Finding the perimeter of a triangle, trapezoid, or parallelogram in the coordinate plane
- ◊ Finding the area of a triangle or parallelogram in the coordinate plane

♦ Inscribed Angles and Polygons (2 topics)

- ◊ Inscribing an equilateral triangle or a regular hexagon in a circle
- ◊ Inscribing a square in a circle

• Other Topics Available(*) (831 additional topics)

♦ Arithmetic Readiness (73 topics)

- ◊ Factors
- ◊ Prime numbers
- ◊ Prime factorization
- ◊ Prime factorization: Exponent notation
- ◊ Greatest common factor of 2 numbers
- ◊ Greatest common factor of 3 numbers
- ◊ Least common multiple of 2 numbers
- ◊ Least common multiple of 3 numbers
- ◊ Finding the LCD of two fractions
- ◊ Addition or subtraction of fractions with the same denominator
- ◊ Word problem involving addition or subtraction of fractions with different denominators
- ◊ Multiplication of 3 fractions
- ◊ Word problem involving fractions and multiplication
- ◊ The reciprocal of a number
- ◊ Division involving a whole number and a fraction

◊ Fraction division
◊ Complex fraction without variables: Problem type 1
◊ Word problem involving fractions and division
◊ Writing an improper fraction as a mixed number
◊ Writing a mixed number as an improper fraction
◊ Mixed number addition with the same denominator and renaming
◊ Mixed number subtraction with the same denominator and renaming
◊ Addition or subtraction of mixed numbers with different denominators without renaming
◊ Addition of mixed numbers with different denominators and renaming
◊ Subtraction of mixed numbers with different denominators and renaming
◊ Word problem involving addition or subtraction of mixed numbers with different denominators
◊ Mixed number multiplication
◊ Multiplication of a mixed number and a whole number
◊ Division with a mixed number and a whole number
◊ Mixed number division
◊ Word problem involving multiplication or division with mixed numbers
◊ Fractional position on a number line
◊ Plotting fractions on a number line
◊ Using a common denominator to order fractions
◊ Reading decimal position on a number line: Tenths
◊ Reading decimal position on a number line: Hundredths
◊ Introduction to ordering decimals
◊ Ordering decimals
◊ Using a calculator to convert a fraction to a rounded decimal
◊ Ordering fractions and decimals
◊ Addition of aligned decimals
◊ Decimal addition with 3 numbers
◊ Word problem with addition of 3 or 4 decimals and whole numbers
◊ Introduction to decimal multiplication
◊ Decimal multiplication: Problem type 1
◊ Converting a fraction to a terminating decimal: Advanced
◊ Converting a fraction to a repeating decimal: Basic
◊ Converting a fraction to a repeating decimal: Advanced
◊ Converting a decimal to a proper fraction in simplest form: Basic
◊ Converting a decimal to a proper fraction in simplest form: Advanced
◊ Writing ratios using different notations
◊ Writing ratios for real−world situations
◊ Simplifying a ratio of whole numbers: Problem type 1
◊ Using tables to compare ratios
◊ Finding a unit price
◊ Computing unit prices to find the better buy
◊ Word problem on unit rates associated with ratios of whole numbers: Decimal answers
◊ Representing benchmark percentages on a grid
◊ Converting between percentages and decimals in a real−world situation
◊ Converting a percentage to a fraction in simplest form
◊ Using a calculator to convert a fraction to a rounded percentage
◊ Finding a percentage of a total amount: Real−world situations
◊ Finding a percentage of a total amount without a calculator: Sales tax, commission, discount
◊ Writing a ratio as a percentage
◊ Finding the rate of a tax or commission
◊ Measuring length to the nearest inch
◊ Measuring the length of an object to the nearest quarter or half inch
◊ Conversions involving measurements in feet and inches

- ◊ Word problem involving a U.S. Customary length conversion
- ◊ Measuring length to the nearest centimeter
- ◊ Measuring length to the nearest millimeter
- ◊ Metric distance conversion with whole number values
- ◊ Conversions with currency

♦ Real Numbers (63 topics)

- ◊ Plotting opposite integers on a number line
- ◊ Plotting rational numbers on a number line
- ◊ Comparing integers using a number line
- ◊ Using a number line to compare signed numbers in context
- ◊ Using a calculator to approximate a square root
- ◊ Approximating the location of irrational numbers on a number line
- ◊ Ordering real numbers
- ◊ Interpreting absolute values in context as distances from zero
- ◊ Identifying a sum as a point located a given distance from another point
- ◊ Identifying relative change when combining two quantities
- ◊ Addition and subtraction with 4 or 5 integers
- ◊ Word problem with addition or subtraction of integers
- ◊ Operations with absolute value: Problem type 2
- ◊ Finding the distance between two rational numbers on a number line in context
- ◊ Signed fraction subtraction involving double negation
- ◊ Signed fraction division
- ◊ Signed decimal multiplication
- ◊ Signed decimal division
- ◊ Writing expressions using exponents
- ◊ Power of 10: Positive exponent
- ◊ Order of operations with whole numbers and grouping symbols
- ◊ Order of operations with whole numbers and exponents: Advanced
- ◊ Order of operations with fractions: Problem type 1
- ◊ Order of operations with fractions: Problem type 2
- ◊ Squaring decimal bases: Products greater than 0.1
- ◊ Exponents and decimals: Products less than 0.1
- ◊ Order of operations with decimals: Problem type 1
- ◊ Order of operations with decimals: Problem type 2
- ◊ Exponents and integers: Problem type 2
- ◊ Order of operations with integers and exponents
- ◊ Evaluating an algebraic expression: Whole number addition or subtraction
- ◊ Evaluating an algebraic expression: Whole number multiplication or division
- ◊ Evaluating an algebraic expression: Whole number operations and exponents
- ◊ Converting between temperatures in Fahrenheit and Celsius
- ◊ Evaluating a linear expression: Signed fraction multiplication with addition or subtraction
- ◊ Identifying numbers as integers or non−integers
- ◊ Identifying rational decimal numbers
- ◊ Identifying true statements about rational and irrational numbers
- ◊ Identifying numbers as rational or irrational
- ◊ Identifying like terms
- ◊ Introduction to properties of addition
- ◊ Properties of addition
- ◊ Introduction to adding fractions with variables and common denominators
- ◊ Introduction to the distributive property
- ◊ Understanding the distributive property
- ◊ Introduction to properties of multiplication
- ◊ Properties of real numbers

- ◊ Introduction to factoring with numbers
- ◊ Factoring a linear binomial
- ◊ Identifying properties used to simplify an algebraic expression
- ◊ Using distribution with double negation and combining like terms to simplify: Multivariate
- ◊ Finding the missing length in a figure
- ◊ Perimeter of a piecewise rectangular figure
- ◊ Writing algebraic expressions for the perimeter of a figure
- ◊ Distinguishing between the area and perimeter of a rectangle
- ◊ Areas of rectangles with the same perimeter
- ◊ Area of a piecewise rectangular figure
- ◊ Area between two rectangles
- ◊ Writing algebraic expressions for the area of a figure
- ◊ Solving a two−step word problem involving the area of a rectangle
- ◊ Word problem involving the area between two rectangles
- ◊ U.S. Customary area unit conversion with whole number values
- ◊ Word problem on area involving conversions of U.S. Customary units: Problem type 1

♦ Linear Equations and Inequalities (91 topics)

- ◊ Additive property of equality with fractions and mixed numbers
- ◊ Multiplicative property of equality with whole numbers: Fractional answers
- ◊ Solving an equation to find the value of an expression
- ◊ Solving a multi−step equation given in fractional form
- ◊ Solving a two−step equation with signed decimals
- ◊ Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions
- ◊ Clearing fractions in an equation
- ◊ Solving a linear equation with several occurrences of the variable: Fractional forms with monomial numerators
- ◊ 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
- ◊ Solving a fraction word problem using a linear equation of the form $Ax = B$
- ◊ Choosing stories that can be represented by given one−step equations
- ◊ Comparing arithmetic and algebraic solutions to a word problem
- ◊ Choosing stories that can be represented by given two−step equations
- ◊ Writing an equation of the form $A(x + B) = C$ to solve a word problem
- ◊ Writing and solving a real−world problem given an equation with the variable on both sides
- ◊ Writing a multi−step equation for a real−world situation
- ◊ 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
- ◊ Solving a word problem with three unknowns using a linear equation
- ◊ Solving a word problem involving consecutive integers
- ◊ Solving a value mixture problem using a linear equation
- ◊ Solving a word problem involving rates and time conversion
- ◊ Solving a distance, rate, time problem using a linear equation
- ◊ Finding side lengths of squares given an area and a perimeter
- ◊ Finding side lengths of rectangles given one dimension and an area or a perimeter
- ◊ Word problem on optimizing an area or perimeter
- ◊ Finding the dimensions of a rectangle given its perimeter and a relationship between sides
- ◊ Finding the perimeter or area of a rectangle given one of these values
- ◊ Finding a side length given the perimeter and side lengths with variables
- ◊ Solving for a variable in terms of other variables using addition or subtraction: Advanced

◊ Solving for a variable in terms of other variables using multiplication or division: Advanced
◊ Solving for a variable inside parentheses in terms of other variables
◊ Solving for a variable in terms of other variables in a linear equation with fractions
◊ Converting between metric and U.S. Customary unit systems using dimensional analysis: U.S. Customary to metric
◊ Converting between metric and U.S. Customary unit systems using dimensional analysis: Metric to U.S. Customary
◊ Word problem involving U.S. Customary length conversions using dimensional analysis
◊ Converting between compound units: Advanced
◊ Word problem involving conversion between compound units using dimensional analysis
◊ Solving a proportion of the form $(x+a)/b = c/d$
◊ Solving a proportion of the form $a/(x+b) = c/x$
◊ Introduction to solving a rational equation
◊ Solving a rational equation that simplifies to linear: Denominator x
◊ Word problem on proportions: Problem type 2
◊ Finding the total amount given the percentage of a partial amount
◊ Finding the sale price without a calculator given the original price and percent discount
◊ Finding the total cost including tax or markup
◊ Finding the original amount given the result of a percentage increase or decrease
◊ Finding the original price given the sale price and percent discount
◊ Finding the percentage increase or decrease: Basic
◊ Solving a percent mixture problem using a linear equation
◊ Finding simple interest without a calculator
◊ Finding the interest and future value of a simple interest loan or investment
◊ Solving an absolute value equation: Problem type 4
◊ Writing an absolute value equation to solve a word problem and describing the solution
◊ Calculating income tax
◊ Comparing discounts
◊ Examining a savings plan for college
◊ Calculations involving paying for college
◊ Comparing total costs for attending different colleges
◊ Distinguishing between fixed and variable expenses
◊ Computing percentages for categories of a budget
◊ Computations involving cost of living and hourly wage
◊ Comparing annual salaries of different occupations
◊ Calculations involving purchases with debit and credit cards
◊ Comparing costs of checking accounts
◊ Balancing a check register
◊ Reading a credit report
◊ Understanding the impact of a credit score
◊ Determining the value of credit reports to borrowers and lenders
◊ Deciding when it is applicable to pay with cash or credit and examining the advantages and disadvantages of different payment methods
◊ Computing a person's net worth
◊ Calculating and comparing monthly payments using the ALEKS loan calculator
◊ Calculating monthly payment, total payment, and interest using the ALEKS loan calculator
◊ Calculating and comparing total loan payments using the ALEKS loan calculator
◊ Calculating and comparing simple interest and compound interest
◊ Writing sets of integers using set−builder and roster forms
◊ Union and intersection of finite sets
◊ Additive property of inequality with signed fractions
◊ Additive property of inequality with signed decimals
◊ 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 word problem involving area using a one−step linear inequality: Area and lengths
- ◊ Translating a sentence into a multi−step inequality
- ◊ Solving a word problem using a two−step linear inequality and describing the solution
- ◊ Writing a compound inequality given a graph on the number line
- ◊ Solving a compound linear inequality: Graph solution, advanced
- ◊ Writing an absolute value inequality given a graph on the number line
- ◊ Solving an absolute value inequality: Problem type 2
- ◊ Solving an absolute value inequality: Problem type 5

♦ The Coordinate Plane and Equations of Lines (42 topics)

- ◊ Naming the quadrant or axis of a point given its graph
- ◊ Naming the quadrant or axis of a point given its coordinates
- ◊ Naming the quadrant or axis of a point given the signs of its coordinates
- ◊ Plotting points that share a coordinate and using absolute value to find the distance between them
- ◊ Writing a function rule given a table of ordered pairs: Two−step rules
- ◊ Making a table and plotting points given a unit rate
- ◊ Finding x− and y−intercepts of a line given the equation: Advanced
- ◊ Graphing a line given its x− and y−intercepts
- ◊ Identifying proportional relationships in tables by calculating unit rates: Whole numbers
- ◊ Determining whether a relationship is proportional given a real−world situation
- ◊ Identifying proportional relationships in graphs: Basic
- ◊ Graphing a relationship given a real−world situation to determine if the relationship is proportional
- ◊ Writing an equation and describing a proportional relationship given a graph or table
- ◊ Comparing proportional relationships given in different forms
- ◊ Finding the coordinate that yields a given slope
- ◊ Deriving the slope formula
- ◊ Identifying linear equations: Basic
- ◊ Identifying linear equations: Advanced
- ◊ Rewriting a linear equation in the form $Ax + By = C$
- ◊ Writing an equation and graphing a line given its slope and y−intercept
- ◊ Finding the slope and a point on a line given its equation in point−slope form
- ◊ Graphing a line given its equation in point−slope form
- ◊ Writing the equation of a line in point−slope form given the slope and a point
- ◊ Writing the equation of a line in standard form given the slope and a point
- ◊ Writing the equations of vertical and horizontal lines through a given point
- ◊ Deriving the equation of a line through the origin
- ◊ Deriving the equation of a line not going through the origin
- ◊ Finding inputs and outputs of a two−step function that models a real−world situation: Two variable equation
- ◊ Writing and evaluating a function that models a real−world situation: Advanced
- ◊ Graphing ordered pairs and writing an equation from a table of values in context
- ◊ Writing an equation and drawing its graph to model a real−world situation: Basic
- ◊ Graphing a linear function that models a simple interest situation and identifying key features
- ◊ Identifying independent and dependent quantities from tables and graphs
- ◊ Identifying independent and dependent variables from equations or real−world situations
- ◊ Identifying direct variation equations
- ◊ Identifying direct variation from ordered pairs and writing equations
- ◊ Writing a direct variation equation
- ◊ Word problem on direct variation
- ◊ Interpreting direct variation from a graph
- ◊ Classifying linear and nonlinear relationships from scatter plots
- ◊ Using technology to calculate the correlation coefficients for two sets of bivariate data to compare the linear relationships

- ◊ Identifying outliers and clustering in scatter plots

♦ Functions and Systems (67 topics)

- ◊ Identifying functions given a verbal description
- ◊ Variable expressions as inputs of functions: Problem type 1
- ◊ Evaluating a piecewise−defined function
- ◊ Finding outputs of a one−step function that models a real−world situation: Function notation
- ◊ Finding inputs and outputs of a two−step function that models a real−world situation: Function notation
- ◊ Finding patterns in shapes
- ◊ Finding inputs and outputs of a function from its graph
- ◊ Domain and range from the graph of a discrete relation
- ◊ Finding intercepts of a nonlinear function given its graph
- ◊ Finding local maxima and minima of a function given the graph
- ◊ Graphing an integer function and finding its range for a given domain
- ◊ Graphing a function of the form $f(x) = ax + b$: Integer slope
- ◊ Graphing a function of the form $f(x) = ax + b$: Fractional slope
- ◊ Graphing an absolute value equation of the form $y = A|x|$
- ◊ Graphing an absolute value equation in the plane: Basic
- ◊ Graphing an absolute value equation in the plane: Advanced
- ◊ Graphing a parabola of the form $y = ax^2 + c$
- ◊ Graphing a function of the form $f(x) = ax^2$
- ◊ Graphing a function of the form $f(x) = ax^2 + c$
- ◊ Graphing a parabola of the form $y = (x-h)^2 + k$
- ◊ Classifying function types given graphs of functions: Linear, exponential, and quadratic
- ◊ Classifying function types given graphs of functions: Absolute value, cubic, square root, and cubic root
- ◊ Classifying function types given equations of functions: Problem type 1
- ◊ Classifying function types given equations of functions: Problem type 2
- ◊ Graphing a piecewise−defined function: Problem type 1
- ◊ Introduction to graphing a piecewise−defined function involving lines with non−zero slope
- ◊ Graphing a piecewise−defined function: Problem type 2
- ◊ Finding the average rate of change of a function given its equation
- ◊ Word problem involving average rate of change
- ◊ Translating the graph of a parabola: One step
- ◊ Translating the graph of a parabola: Two steps
- ◊ How the leading coefficient affects the shape of a parabola
- ◊ Graphing quadratic functions of the form $y=ax^2$ and $y=(bx)^2$ by transforming the parent graph $y=x^2$
- ◊ Translating the graph of an absolute value function: One step
- ◊ Translating the graph of an absolute value function: Two steps
- ◊ How the leading coefficient affects the graph of an absolute value function
- ◊ Classifying systems of linear equations from graphs
- ◊ Using a graphing calculator to solve a system of linear equations: Basic
- ◊ Using a graphing calculator to solve a system of linear equations: Advanced
- ◊ Writing a system of linear equations given its graph
- ◊ Introduction to solving a 3x3 system of linear equations
- ◊ Solving a 3x3 system of linear equations: Problem type 1
- ◊ Solving a 3x3 system of linear equations: Problem type 2
- ◊ Scalar multiplication of a matrix
- ◊ Addition or subtraction of matrices
- ◊ Linear combination of matrices
- ◊ Multiplication of matrices: Basic
- ◊ Squaring and multiplying 2x2 matrices
- ◊ Multiplication of matrices: Advanced

- ◊ Word problem involving multiplication of matrices
- ◊ Completing Gauss−Jordan elimination with a 2x2 matrix
- ◊ Gauss−Jordan elimination with a 2x2 matrix
- ◊ Completing Gauss−Jordan elimination with a 3x3 matrix
- ◊ Writing solutions to 3x3 systems of linear equations from augmented matrices
- ◊ Solving a system of linear equations given its augmented matrix
- ◊ Finding the inverse of a 2x2 matrix
- ◊ Finding the inverse of a 3x3 matrix
- ◊ Solving a word problem involving a system of linear equations by graphing and estimating a solution
- ◊ Writing and solving a system of two linear equations given a verbal description
- ◊ Solving a percent mixture problem using a system of linear equations
- ◊ Solving a tax rate or interest rate problem using a system of linear equations
- ◊ Solving a word problem using a 3x3 system of linear equations: Problem type 1
- ◊ Writing an inequality given its graph in the plane: Horizontal or vertical boundary line
- ◊ Writing an inequality given its graph in the plane: Slanted boundary line
- ◊ Graphing a system of three linear inequalities
- ◊ Solving a word problem using a system of linear inequalities: Problem type 1
- ◊ Solving a word problem using a system of linear inequalities: Problem type 2

♦ Exponents and Exponential Functions (75 topics)

- ◊ Introduction to the product rule with positive exponents: Whole number base
- ◊ Understanding the product rule of exponents
- ◊ Product rule with positive exponents: Univariate
- ◊ Product rule with positive exponents: Multivariate
- ◊ Introduction to the power of a power rule with positive exponents: Whole number base
- ◊ Ordering numbers with positive exponents
- ◊ Understanding the power rules of exponents
- ◊ Introduction to the power of a product rule of exponents
- ◊ Power rules with positive exponents: Multivariate products
- ◊ Power rules with positive exponents: Multivariate quotients
- ◊ Power and product rules with positive exponents
- ◊ Introduction to the quotient rule with positive exponents: Whole number base
- ◊ 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
- ◊ Power of 10: Negative exponent
- ◊ Ordering numbers with negative exponents
- ◊ Rewriting an algebraic expression without a negative exponent
- ◊ Introduction to the product rule with negative exponents: Whole number base
- ◊ Introduction to the product rule with negative exponents
- ◊ Product rule with negative exponents
- ◊ Introduction to the quotient rule with negative exponents: Whole number base
- ◊ Quotient rule with negative exponents: Problem type 1
- ◊ Quotient rule with negative exponents: Problem type 2
- ◊ Introduction to the power of a power rule with negative exponents: Whole number base
- ◊ 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
- ◊ Finding all square roots of a number
- ◊ Estimating a square root
- ◊ Square root of a rational perfect square
- ◊ Square roots of perfect squares with signs

- ◊ Cube root of an integer
- ◊ Order of operations with exponents and radicals
- ◊ Finding n^{th} roots of perfect n^{th} powers with signs
- ◊ Simplifying the square root of a whole number less than 100
- ◊ Simplifying the square root of a whole number greater than 100
- ◊ Introduction to square root multiplication
- ◊ Square root multiplication: Basic
- ◊ Square root multiplication: Advanced
- ◊ Simplifying a quotient of square roots
- ◊ Rationalizing a denominator: Quotient involving square roots
- ◊ Classifying sums and products as rational or irrational
- ◊ Converting between radical form and exponent form
- ◊ Using the properties of integer exponents to define rational exponents
- ◊ Rational exponents: Unit fraction exponents and whole number bases
- ◊ Rational exponents: Unit fraction exponents and bases involving signs
- ◊ Rational exponents: Non−unit fraction exponent with a whole number base
- ◊ Rational exponents: Negative exponents and fractional bases
- ◊ Rational exponents: Product rule
- ◊ Rational exponents: Quotient rule
- ◊ Rational exponents: Products and quotients with negative exponents
- ◊ Rational exponents: Power of a power rule
- ◊ Rational exponents: Powers of powers with negative exponents
- ◊ Introduction to scientific notation with positive exponents
- ◊ Scientific notation with a positive exponent
- ◊ Introduction to scientific notation with negative exponents
- ◊ Scientific notation with a 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
- ◊ Multiplying numbers written in decimal form or scientific notation in a real−world situation
- ◊ Dividing numbers written in scientific notation: Basic
- ◊ Dividing numbers written in scientific notation: Advanced
- ◊ Finding the scale factor between numbers given in scientific notation in a real−world situation
- ◊ Graphing an exponential function and its asymptote: $f(x)=b^x$
- ◊ Graphing an exponential function and its asymptote: $f(x) = a(b)^x$
- ◊ Graphing an exponential function and its asymptote: $f(x) = b^{-x}$ or $f(x) = -b^x$ or $f(x) = -b^{-x}$
- ◊ Finding the initial amount and asymptote given a graph of an exponential function
- ◊ Finding the final amount in a word problem on compound interest
- ◊ Finding the future value and interest for an investment earning compound interest
- ◊ Finding the present value of an investment earning compound interest
- ◊ Identifying arithmetic and geometric sequences

♦ Data Analysis (33 topics)

- ◊ Identifying statistical questions
- ◊ Choosing an appropriate method for gathering data: Problem type 1
- ◊ Choosing an appropriate method for gathering data: Problem type 2
- ◊ Finding if a question can be answered by the data
- ◊ Representing data on a bar graph
- ◊ Interpreting data in a bar graph with up to six categories
- ◊ Interpreting a double bar graph
- ◊ Interpreting a stem−and−leaf plot
- ◊ Constructing a stem−and−leaf plot
- ◊ Interpreting a circle graph or pie chart
- ◊ Finding a percentage of a total amount in a circle graph

- ◊ Angle measure in a circle graph
- ◊ Mode of a data set
- ◊ Finding the mode and range from a dot plot (line plot)
- ◊ Interpreting a percent bar graph to summarize categorical data using the mode
- ◊ 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
- ◊ 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
- ◊ Finding outliers in a data set
- ◊ Identifying peaks, symmetry, gaps, and clusters in a dot plot (line plot)
- ◊ Identifying the center, spread, and shape of a data set
- ◊ Computing mean absolute deviation from a list of numerical values
- ◊ Percentiles
- ◊ Population standard deviation
- ◊ Comparing measures of center and variation
- ◊ Finding sample size and comparing samples for estimating the mean
- ◊ Comparing sample means
- ◊ Using the graph of a distribution to find probabilities: Basic
- ◊ Using the empirical rule to identify values and percentages of a normal distribution
- ◊ Word problem involving calculations from a normal distribution

♦ Segments, Lines, and Angles (55 topics)

- ◊ Analyzing relationships between points, lines, and planes given a figure
- ◊ Computing distances between decimals on a number line
- ◊ Finding a point on a number line given the length of a segment and another point
- ◊ Midpoint of a number line segment: Decimals
- ◊ Using a segment's midpoint and endpoint to locate the other endpoint
- ◊ Finding a point that partitions a number line segment in a given fractional relationship
- ◊ Finding a point that partitions a number line segment in a given ratio
- ◊ Distance between two points in the plane: Decimal answers
- ◊ Deriving the distance formula using the Pythagorean Theorem
- ◊ Deriving the midpoint formula on the coordinate plane using previous knowledge about midpoint on a number line
- ◊ Finding a point that partitions a segment in the plane in a given fractional relationship
- ◊ Finding a point that partitions a segment in the plane in a given ratio
- ◊ Finding the weighted average of two points on a line segment in the plane
- ◊ Finding supplementary and complementary angles
- ◊ Writing and solving an equation involving adjacent angles
- ◊ Writing and solving an equation involving vertical angles
- ◊ Making conjectures given a geometric construction
- ◊ Identifying statements
- ◊ Identifying simple and compound statements
- ◊ Negation of a statement
- ◊ Conditional statements and negations
- ◊ Symbolic translation of negations, conjunctions, and disjunctions: Basic
- ◊ Symbolic translation of conditional and biconditional statements: Basic
- ◊ The converse, inverse, and contrapositive of a conditional statement
- ◊ Writing the converse, inverse, and contrapositive of a conditional statement and determining their truth values
- ◊ Writing a biconditional statement as a conditional statement and its converse and determining truth values
- ◊ Finding counterexamples to conjectures

- ◊ Symbolic translation of negations, conjunctions, and disjunctions: Advanced
- ◊ Using De Morgan's Laws to identify negations and equivalent statements
- ◊ Symbolic translation involving three statements
- ◊ Symbolic translation of conditional and biconditional statements: Advanced
- ◊ Understanding quantifiers
- ◊ Negation of a quantified statement
- ◊ Introduction to truth tables with negations, conjunctions, or disjunctions
- ◊ Truth tables with conjunctions or disjunctions
- ◊ Completing rows of truth tables: Conjunctions and disjunctions
- ◊ Using logic to test a claim: Conjunction or disjunction
- ◊ Introduction to truth tables with conditional statements
- ◊ Truth tables with conjunctions, disjunctions, and conditional statements
- ◊ Identifying equivalent statements and negations of a conditional statement
- ◊ Using logic to test a claim: Conditional statement, basic
- ◊ Determining if statements are logically equivalent
- ◊ Introduction to truth tables with biconditional statements
- ◊ Using truth tables to determine the validity of an argument
- ◊ Conditional statements and deductive reasoning
- ◊ Validity of an argument
- ◊ Translating an argument and determining its validity
- ◊ Distinguishing between undefined terms, definitions, postulates, conjectures, and theorems
- ◊ Introduction to proofs: Justifying statements
- ◊ Proofs involving segment congruence
- ◊ Proofs involving angle congruence
- ◊ Solving equations involving angles and two pairs of parallel lines
- ◊ Establishing facts about the angles created when parallel lines are cut by a transversal
- ◊ Introduction to proofs involving parallel lines
- ◊ Proofs involving parallel lines

♦ Triangles and Quadrilaterals (65 topics)

- ◊ Classifying scalene, isosceles, and equilateral triangles by side lengths or angles
- ◊ Finding an angle measure given a triangle and parallel lines
- ◊ Writing an equation to find angle measures of a triangle given angles with variables
- ◊ Establishing facts about the interior angles of a triangle
- ◊ Establishing facts about the interior and exterior angles of a triangle
- ◊ Identifying and naming congruent parts of congruent triangles
- ◊ Completing proofs involving congruent triangles using SSS or SAS
- ◊ Introduction to proving triangles congruent using SSS or SAS
- ◊ Identifying and naming congruent triangles
- ◊ Completing proofs involving congruent triangles using ASA or AAS
- ◊ Introduction to proving triangles congruent using ASA or AAS
- ◊ Proofs involving congruent triangles and segment or angle bisectors
- ◊ Separating overlapping triangles and identifying common features
- ◊ Proofs involving congruent triangles that overlap: Basic
- ◊ Proofs involving congruent triangles with parallel or perpendicular segments
- ◊ Determining when to apply the HL congruence property
- ◊ Introduction to proving triangles congruent using the HL property
- ◊ Introduction to proofs involving congruent triangles and CPCTC
- ◊ Proofs involving congruent triangles, parallel or perpendicular segments, and CPCTC
- ◊ Proofs involving congruent triangles that overlap: Advanced
- ◊ Finding an angle measure for a triangle sharing a side with another triangle
- ◊ Proofs of theorems involving isosceles triangles
- ◊ Introduction to the Pythagorean Theorem
- ◊ Pythagorean Theorem

- ◊ Word problem involving the Pythagorean Theorem
- ◊ Word problem involving the Pythagorean Theorem in three dimensions
- ◊ Using the Pythagorean Theorem repeatedly
- ◊ Using the Pythagorean Theorem to find distance on a grid
- ◊ Using the Pythagorean Theorem to find the distance between two points in the plane in context
- ◊ Identifying side lengths that give right triangles
- ◊ Demonstrating the converse of the Pythagorean Theorem
- ◊ Informal proof of the converse of the Pythagorean Theorem
- ◊ Classifying segments inside triangles
- ◊ Using the circumcenter of a triangle to find segment lengths
- ◊ Using the incenter of a triangle to find segment lengths and angle measures
- ◊ Using the centroid of a triangle to find segment lengths
- ◊ Verifying the Centroid Theorem
- ◊ Introduction to the triangle midsegment theorem
- ◊ Proving the triangle midsegment theorem in the coordinate plane
- ◊ Proof involving points on the perpendicular bisector of a line segment
- ◊ Creating triangles from given side lengths: Problem type 2
- ◊ Using triangle inequality to determine if side lengths form a triangle
- ◊ Using triangle inequality to determine possible lengths of a third side
- ◊ Determining if a triangle is possible based on given angle measures
- ◊ Determining if given measurements define a unique triangle, more than one triangle, or no triangle
- ◊ Drawing triangles with given conditions: Angle measures
- ◊ Drawing triangles with given side lengths using a compass
- ◊ Relationship between angle measures and side lengths in a triangle
- ◊ Relationship between angle measures and side lengths in two triangles
- ◊ Using the hinge theorem
- ◊ Indirect proof (proof by contradiction)
- ◊ Naming polygons
- ◊ Sum of the angle measures of a quadrilateral
- ◊ Classifying parallelograms
- ◊ Finding measures involving diagonals of parallelograms
- ◊ Investigating properties of diagonals of parallelograms
- ◊ Conditions for parallelograms
- ◊ Finding measures involving diagonals of rectangles
- ◊ Finding angle measures involving diagonals of a rhombus
- ◊ Conditions for quadrilaterals
- ◊ Completing proofs of theorems involving sides of a parallelogram
- ◊ Completing proofs of theorems involving angles of a parallelogram
- ◊ Drawing and identifying a polygon in the coordinate plane
- ◊ Finding the coordinates of a point to make a parallelogram
- ◊ Finding coordinates of vertices of polygons

♦ Similarity and Transformations (27 topics)

- ◊ Finding angle measures of a triangle given two angles of a similar triangle
- ◊ Relationships about ratios within and between similar triangles
- ◊ Finding angle measures and side ratios to determine if two triangles are similar
- ◊ Similar polygons
- ◊ Similar right triangles
- ◊ Indirect measurement
- ◊ Triangles and parallel lines
- ◊ Triangles and angle bisectors
- ◊ Determining if figures are related by similarity transformations
- ◊ Examining triangle similarity in terms of similarity transformations
- ◊ Identifying and naming similar triangles

- ◊ Proofs involving similar triangles
- ◊ Completing proofs involving the triangle proportionality theorem
- ◊ Identifying similar right triangles that overlap
- ◊ Proving the Pythagorean Theorem using similar triangles
- ◊ Using a translated point to find coordinates of other translated points
- ◊ Reflecting a point across both coordinate axes
- ◊ Finding the coordinates of a point reflected across both axes
- ◊ Finding the coordinates of three points reflected over an axis
- ◊ Finding the coordinates of a point reflected across an axis and translated
- ◊ Identifying figures that have rotational symmetry or reflectional symmetry
- ◊ Rotational and point symmetries
- ◊ The effect of dilation on area
- ◊ Determining if figures are similar and related by a sequence of transformations
- ◊ Exploring similarity of circles
- ◊ Exploring the effect of dilation on lines
- ◊ Identifying transformations and determining if they preserve congruent figures

♦ Area, Volume, and Circles (85 topics)

- ◊ Word problem on population density
- ◊ Finding the area of a right triangle using the Pythagorean Theorem
- ◊ Computing an area using the Pythagorean Theorem
- ◊ Area involving rectangles and triangles
- ◊ Decomposing a trapezoid or parallelogram to find its area given a situation in context
- ◊ Area of a trapezoid
- ◊ Area of a rhombus
- ◊ Finding the area of a rhombus using the Pythagorean Theorem
- ◊ Finding the area of a trapezoid, rhombus, or kite in the coordinate plane
- ◊ Side lengths, perimeters, and areas of similar polygons
- ◊ Introduction to a circle: Diameter, radius, and chord
- ◊ Circumference of a circle
- ◊ Finding the radius or the diameter of a circle given its circumference
- ◊ Informal argument for the formula of the circumference of a circle
- ◊ Perimeter involving rectangles and circles
- ◊ Area of a circle
- ◊ Circumference and area of a circle
- ◊ Circumference and area of a circle: Exact answers in terms of pi
- ◊ Distinguishing between the area and circumference of a circle
- ◊ Informal argument for the formula of the area of a circle
- ◊ Area involving rectangles and circles
- ◊ Classifying solids
- ◊ Vertices, edges, and faces of a solid
- ◊ Identifying geometric shapes that model real−world objects
- ◊ Nets of solids
- ◊ Counting the cubes in a solid made of cubes
- ◊ Side views of a solid made of cubes
- ◊ Identifying horizontal and vertical cross sections of solids
- ◊ Identifying solids generated by rotations of two−dimensional regions
- ◊ Surface area of a cube or a rectangular prism
- ◊ Using a net to find the surface area of a rectangular prism
- ◊ Using a net to find the lateral surface area and total surface area of a rectangular prism
- ◊ Deriving the formula for the surface area of a rectangular prism
- ◊ Word problem involving the surface area of a rectangular prism
- ◊ Word problem involving U.S. Customary conversions, surface area, and cost
- ◊ Surface area of a triangular prism

- ◊ Using a net to find the surface area of a triangular prism
- ◊ Using a net to find the lateral surface area and total surface area of a triangular prism
- ◊ Deriving the formula for the surface area of a right triangular prism
- ◊ Surface area of a cylinder
- ◊ Surface area of a cylinder: Exact answers in terms of pi
- ◊ Deriving the formula for the surface area of a cylinder
- ◊ Volume of a rectangular prism
- ◊ Writing equivalent expressions for the volume of a rectangular prism
- ◊ Distinguishing between surface area and volume
- ◊ Solving problems involving the volume of a rectangular prism in context
- ◊ Word problem involving the volume of a rectangular prism
- ◊ Word problem involving the rate of filling or emptying a rectangular prism
- ◊ Computations involving density, mass, and volume
- ◊ Word problem on density involving the volume of a rectangular solid
- ◊ Volume of a piecewise rectangular prism
- ◊ Word problem involving the volume of a piecewise rectangular prism
- ◊ Volume of a triangular prism
- ◊ Word problem involving the volume of a triangular prism
- ◊ Volume of a cylinder
- ◊ Describing the formula for the volume of a cylinder
- ◊ Informal argument for the formula of the volume of a cylinder
- ◊ Word problem involving the volume of a cylinder
- ◊ Word problem involving the rate of filling or emptying a cylinder
- ◊ Word problem on density involving the volume of a cylindrical solid
- ◊ Volume of a pyramid
- ◊ Relating the volumes of a rectangular prism and a rectangular pyramid
- ◊ Relating the volumes of a triangular prism and a triangular pyramid
- ◊ Volume of a cone
- ◊ Volume of a cone: Exact answers in terms of pi
- ◊ Informal argument for the formula of the volume of a cone
- ◊ Relating the volumes of a cylinder and a cone
- ◊ Word problem involving the volume of a cone
- ◊ Volume of a sphere
- ◊ Word problem involving the volume of a sphere
- ◊ Identifying chords, secants, and tangents of a circle
- ◊ Tangents of a circle: Problem type 1
- ◊ Tangents of a circle: Problem type 2
- ◊ Constructing a tangent of a circle
- ◊ Naming and finding measures of central angles, inscribed angles, and arcs of a circle
- ◊ Applying properties of radii, diameters, and chords
- ◊ Central angles and inscribed angles of a circle
- ◊ Central angles and angles involving chords and tangents of a circle
- ◊ Inscribed angles in relation to a diameter or a polygon inscribed in a circle
- ◊ Inscribed angles and angles involving chords and tangents of a circle
- ◊ Establishing facts about a quadrilateral inscribed in a circle
- ◊ Inscribing a circle in a triangle
- ◊ Circumscribing a circle about a triangle
- ◊ Angles of intersecting secants and tangents
- ◊ Lengths of chords, secants, and tangents

♦ Polynomials and Quadratic Functions (105 topics)

- ◊ 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
◊ Multiplication involving binomials and trinomials in two variables
◊ Introduction to the GCF of two monomials
◊ Greatest common factor of three univariate monomials
◊ Greatest common factor of two multivariate monomials
◊ Factoring out a monomial from a polynomial: Univariate
◊ Factoring out a monomial from a polynomial: Multivariate
◊ Factoring out a binomial from a polynomial: GCF factoring, basic
◊ 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 a quadratic with leading coefficient 1
◊ Factoring a quadratic in two variables with leading coefficient 1
◊ Factoring out a constant before factoring a quadratic
◊ Factoring a quadratic with leading coefficient greater than 1: Problem type 1
◊ Factoring a quadratic with leading coefficient greater than 1: Problem type 2
◊ Factoring a quadratic with leading coefficient greater than 1: Problem type 3
◊ Factoring a quadratic by the ac−method
◊ Factoring a quadratic in two variables with leading coefficient greater than 1
◊ Factoring a quadratic with a negative leading coefficient
◊ 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 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 a product of a quadratic trinomial and a monomial
◊ 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
◊ Writing a quadratic equation given the roots and the leading coefficient
◊ Solving a word problem using a quadratic equation with rational roots
◊ Writing and solving a quadratic equation for a real−world problem involving area or volume

- ◊ Using the Pythagorean Theorem and a quadratic equation to find side lengths of a right triangle
- ◊ Finding the vertex, intercepts, and axis of symmetry from the graph of a parabola
- ◊ Graphing a parabola of the form $y = a(x-h)^2 + k$
- ◊ Completing the square
- ◊ Graphing a parabola of the form $y = x^2 + bx + c$
- ◊ 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
- ◊ Finding the zeros of a quadratic function given its equation
- ◊ Writing a quadratic function given its zeros
- ◊ Finding the linear factors of a quadratic function given its zeros and describing the general relationship between linear factors and zeros
- ◊ Finding the zeros of a quadratic function given its linear factors and describing the general relationship between linear factors and zeros
- ◊ Finding the x−intercept(s) and the vertex of a parabola
- ◊ Using a graphing calculator to find the zeros of a quadratic function
- ◊ Using a graphing calculator to find the x−intercept(s) and vertex of a quadratic function
- ◊ Writing the equation of a quadratic function given a real−world description
- ◊ Rewriting a quadratic function in standard form
- ◊ Rewriting a quadratic function to find its vertex and sketch its graph
- ◊ Rewriting a quadratic function to find its maximum or minimum and axis of symmetry
- ◊ Finding the maximum or minimum of a quadratic function
- ◊ Word problem involving the maximum or minimum of a quadratic function
- ◊ Finding the domain and range from the graph of a parabola
- ◊ Range of a quadratic function
- ◊ Graphing a quadratic function that models a real−world situation and identifying key features
- ◊ Writing the equation of a quadratic function given a table of values
- ◊ Writing the equation of a quadratic function given its x−intercepts and another point
- ◊ 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
- ◊ Comparing linear, quadratic, and exponential functions given in different forms
- ◊ Determining whether a given situation is best modeled by a linear, exponential, or quadratic function
- ◊ Choosing a quadratic model and using it to make a prediction
- ◊ Using technology to determine the better regression model for a given data set and using that model to make a prediction: Exponential and quadratic
- ◊ Solving an equation of the form $x^2 = a$ using the square root property
- ◊ Solving a quadratic equation using the square root property: Decimal answers, basic
- ◊ Solving a quadratic equation using the square root property: Decimal answers, advanced
- ◊ Applying the quadratic formula: Exact answers
- ◊ Applying the quadratic formula: Decimal answers
- ◊ Deriving the quadratic formula
- ◊ Solving a word problem using a quadratic equation with irrational roots
- ◊ Identifying the center and radius to graph a circle given its equation in standard form
- ◊ Writing the equation of a circle centered at the origin given its radius or a point on the circle
- ◊ Writing an equation of a circle and identifying points that lie on the circle
- ◊ Deriving the equation of a circle using the Pythagorean Theorem
- ◊ Sum, difference, and product of two functions
- ◊ Introduction to the composition of two functions
- ◊ Composition of two functions: Basic
- ◊ Inverse functions: Linear, discrete
- ◊ Finding, evaluating, and interpreting an inverse function for a given linear relationship

♦ Radicals and Trigonometry (50 topics)

◊ Square roots of integers raised to even exponents
◊ Introduction to simplifying a radical expression with an even exponent
◊ Square root of a perfect square monomial
◊ Simplifying a radical expression with an even exponent
◊ Introduction to simplifying a radical expression with an odd exponent
◊ Simplifying a radical expression with an odd exponent
◊ Simplifying a radical expression with two variables
◊ Simplifying a quotient involving a sum or difference with a square root
◊ Square root addition or subtraction
◊ Square root addition or subtraction with three terms
◊ Introduction to simplifying a sum or difference of radical expressions: Univariate
◊ Simplifying a sum or difference of radical expressions: Univariate
◊ Simplifying a sum or difference of radical expressions: Multivariate
◊ Introduction to simplifying a product of radical expressions: Univariate
◊ Simplifying a product of radical expressions: Univariate
◊ Simplifying a product of radical expressions: Multivariate
◊ Introduction to simplifying a product involving square roots using the distributive property
◊ Simplifying a product involving square roots using the distributive property: Basic
◊ Simplifying a product involving square roots using the distributive property: Advanced
◊ Rationalizing a denominator: Square root of a fraction
◊ Rationalizing a denominator: Quotient involving a monomial
◊ Rationalizing a denominator using conjugates: Integer numerator
◊ Rationalizing a denominator using conjugates: Square root in numerator
◊ Sine, cosine, and tangent ratios: Numbers for side lengths
◊ Sine, cosine, and tangent ratios: Variables for side lengths
◊ Using a calculator to approximate sine, cosine, and tangent values
◊ Using the Pythagorean Theorem to find a sine, cosine, or tangent ratio in a right triangle
◊ Using the Pythagorean Theorem to find several trigonometric ratios in a right triangle
◊ Understanding trigonometric ratios through similar right triangles
◊ Relationship between the sines and cosines of complementary angles
◊ Using similar right triangles to find trigonometric ratios
◊ Using a trigonometric ratio to find a side length in a right triangle
◊ Solving a right triangle
◊ Using trigonometry to find a length in a word problem with one right triangle
◊ Using a trigonometric ratio to find an angle measure in a right triangle
◊ Using trigonometry to find angles of elevation or depression in a word problem
◊ Writing a vector in component form given its initial and terminal points
◊ Magnitude of a vector given in component form
◊ Vector addition and scalar multiplication: Component form
◊ Linear combination of vectors: Component form
◊ Multiplication of a vector by a scalar: Geometric approach
◊ Vector addition: Geometric approach
◊ Vector subtraction: Geometric approach
◊ Finding the magnitude and direction of a vector given its graph
◊ Finding the components of a vector given its graph
◊ Finding magnitudes of forces related to a sum of three vectors
◊ Finding magnitudes of forces related to an object suspended by cables
◊ Dot product of vectors given in component form
◊ Finding the angle between two vectors given in component form
◊ Using the dot product to find perpendicular vectors

***Other Topics Available** *By default, these topics are NOT included in the course, but can be added using the content editor in the Teacher Module.*

