ALEKS[®] Middle School Math Course

Middle School Math Course 3

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.

Curriculum (416 topics + 898 additional topics)

- Whole Numbers and Integers (37 topics)
 - Multiplication and Division with Whole Numbers (4 topics)
 - Division involving zero
 - Word problem with multiplication or division of whole numbers
 - · Word problem with multiplication and addition or subtraction of whole numbers
 - Word problem on unit rates associated with ratios of whole numbers: Whole number answers
 - Exponents and Order of Operations (5 topics)
 - Introduction to exponents
 - Introduction to parentheses
 - Introduction to order of operations
 - $\circ~$ Order of operations with whole numbers
 - Order of operations with whole numbers and exponents: Basic
 - Prime Numbers, Factors, and Multiples (1 topics)
 Greatest common factor of 2 numbers
 - Plotting and Comparing Integers (3 topics)
 - Plotting integers on a number line
 - Ordering integers
 - Writing a signed number for a real-world situation
 - Addition and Subtraction with Integers (7 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
 - Computing the distance between two integers on a number line
 - Multiplication and Division with Integers (4 topics)
 - Integer multiplication and division
 - Multiplication of 3 or 4 integers
 - Exponents and integers: Problem type 1
 - Order of operations with integers
 - Evaluating and Writing Expressions (8 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
 - 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
 - One-Step Equations (5 topics)
 - Additive property of equality with whole numbers
 - Additive property of equality with integers
 - Multiplicative property of equality with whole numbers
 - Multiplicative property of equality with integers
 - Translating a sentence into a one-step equation
- Fractions (22 topics)
 - Equivalent Fractions (3 topics)
 - Equivalent fractions
 - Introduction to simplifying a fraction
 - Simplifying a fraction

- Plotting and Ordering Fractions (3 topics)
 - Plotting fractions using a number line
 - Comparing fractions with the same denominator
 Comparing fractions by finding a common denominator
- Mixed Numbers and Improper Fractions (4 topics)
 - Writing an improper fraction as a mixed number
 Writing a mixed number as an improper fraction
 - Writing a mixed number as an improper fraction
 Plotting mixed numbers on a number line
 - Plotting mixed numbers on a number line
 Plotting rational numbers on a number line
- Addition and Subtraction with Fractions (4 topics)
 - Addition or subtraction of fractions with the same denominator and simplification
 - Writing fractions with a common denominator to add or subtract
 - Addition or subtraction of fractions with different denominators
 - Signed fraction addition or subtraction: Basic
- Multiplication and Division with Fractions (6 topics)
 - Product of a unit fraction and a whole number
 - Product of a fraction and a whole number: Problem type 1
 - Product of a fraction and a whole number: Problem type 2
 - Introduction to fraction multiplication
 - Fraction multiplication
 - Signed fraction multiplication: Basic
- Exponents and Order of Operations (1 topics)
 - Exponents and fractions
- Expressions and One-Step Equations (3 topics)
 Multiplicative property of equality with signed fractions
- Decimals (37 topics)
 - Place Value and Ordering (2 topics)
 - Decimal place value: Tenths and hundredths
 - Introduction to ordering decimals
 - Converting Decimals to Fractions (2 topics)
 - Converting a decimal to a proper fraction without simplifying: Basic
 - Converting a decimal to a proper fraction in simplest form: Basic
 - Addition and Subtraction (7 topics)
 - Decimal addition with 2 numbers
 - Decimal subtraction: Basic
 - Decimal subtraction: Advanced
 - Rounding decimals
 - $\circ~$ Signed decimal addition and subtraction
 - Word problem with addition or subtraction of 2 decimals
 - Word problem with subtraction of a whole number and a decimal: Regrouping with zeros
 - Multiplication (8 topics)
 - Multiplication of a decimal by a power of ten
 - Multiplying a decimal less than 1 by a whole number
 - Multiplying a decimal by a whole number
 - Multiplying decimals less than 1: Problem type 1
 - Decimal multiplication: Problem type 1
 - Multiplication of a decimal by a power of 0.1
 - · Word problem with multiplication of a decimal and a whole number
 - Word problem with multiple decimal operations: Problem type 1
 - Division (3 topics)
 - Division of a decimal by a power of ten
 - Division of a decimal by a whole number
 - Word problem with division of a decimal and a whole number
 - Converting Fractions to Decimals (7 topics)
 - Converting a fraction with a denominator of 10 or 100 to a decimal
 - Converting a proper fraction with a denominator of 2, 4, or 5 to a decimal
 - Converting a mixed number with a denominator of 2, 4, or 5 to a decimal
 - Converting a fraction to a terminating decimal: Basic
 - Converting a fraction to a terminating decimal: Advanced
 - Converting a fraction to a repeating decimal: Basic
 - Converting a mixed number to a terminating decimal: Basic

- Venn Diagrams and Sets of Rational Numbers (5 topics)
 - Identifying numbers as integers or non-integers
 - Identifying rational decimal numbers
 - Interpreting a Venn diagram of 2 sets
 - Constructing a Venn diagram to classify rational numbers
 - Constructing a Venn diagram to describe relationships between sets of rational numbers
- Expressions and One-Step Equations (3 topics)
 - Additive property of equality with decimals
 - Multiplicative property of equality with decimals
 - Writing and solving a one-step equation with decimals that models a real-world situation
- Ratios, Proportions, and Measurement (14 topics)
 - Ratios and Unit Rates (4 topics)
 - Finding missing values in a table of equivalent ratios
 - Using a table of equivalent ratios to find a missing quantity in a ratio
 - Solving a word problem on proportions using a unit rate
 - Solving a one-step word problem using the formula d = rt
 - Proportions (4 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
 - Word problem on proportions: Problem type 1
 - Similar Figures (6 topics)
 - Identifying congruent shapes on a grid
 - Identifying similar or congruent shapes on a grid
 - Finding a missing side length given two similar triangles
 - Similar polygons
 - Similar right triangles
 - Indirect measurement
- Percents (10 topics)
 - Percents, Decimals, and Fractions (1 topics)
 - Converting between percentages and decimals
 - Percent of a Number (3 topics)
 - Finding a percentage of a whole number
 - Finding a percentage of a whole number without a calculator: Basic
 - Finding a percentage of a total amount without a calculator: Sales tax, commission, discount
 - Interest (3 topics)
 - Finding simple interest without a calculator
 - Finding the interest and future value of a simple interest loan or investment
 - Introduction to compound interest
 - Personal Financial Literacy (3 topics)
 - Examining a savings plan for college
 - Using the ALEKS periodic deposit calculator to compute savings which include periodic deposits
 - Calculating and comparing simple interest and compound interest
- Equations and Inequalities (29 topics)
 - The Distributive Property (4 topics)
 - Multiplying a constant and a linear monomial
 - Distributive property: Whole number coefficients
 - Distributive property: Integer coefficients
 - Factoring a linear binomial
 - Simplifying Algebraic Expressions (3 topics)
 - Combining like terms: Whole number coefficients
 - Combining like terms: Integer coefficients
 - Using distribution and combining like terms to simplify: Univariate
 - Multi-Step Equations (8 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
 - $\circ~$ Solving a two-step equation with integers
 - Introduction to solving an equation with parentheses
 - Solving a two-step equation with signed decimals

- 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
- Equations with Variables on Both Sides (5 topics)
 - 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 equations with zero, one, or infinitely many solutions
- Solving Formulas for a Variable (2 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
- Applications of Equations (7 topics)
 - Translating a sentence into a multi-step equation
 - 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
 - Writing and solving a real-world problem given an equation with the variable on both sides
 - Solving a decimal word problem using a linear equation with the variable on both sides
- Graphs, Functions, and Sequences (82 topics)
 - Ordered Pairs (3 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
 - Tables and Graphs of Lines (12 topics)
 - Table for a linear equation
 - Writing a function rule given a table of ordered pairs: Two-step rules
 - Identifying solutions to a linear equation in two variables
 - Graphing a line in quadrant 1
 - 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
 - Identifying parallel and perpendicular lines
 - Proportional Relationships (9 topics)
 - Making a table and plotting points given a unit rate
 - Writing an equation to represent a proportional relationship
 - Identifying proportional relationships in equations
 - Identifying proportional relationships in tables by calculating unit rates: Whole numbers
 - 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
 - Finding outputs and rate of increase given the graph of a line that models a real-world situation
 - Comparing proportional relationships given in different forms
 - Slope (6 topics)
 - Finding slope given the graph of a line in quadrant 1 that models a real-world situation
 - 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
 - Using right triangles to find the slope of a line
 - Graphing a line given its slope and y-intercept
 - Direct and Inverse Variation (4 topics)
 - Identifying direct variation from ordered pairs and writing equations
 - Writing a direct variation equation
 - Word problem on direct variation
 - $\circ~$ Interpreting direct variation from a graph
 - Equations of Lines (11 topics)
 - Identifying linear equations: Basic
 - 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

- 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
- Writing an equation in slope-intercept form given the slope and a point
- Finding the slope and a point on 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 given the y-intercept and another point
- Writing the equation of a line through two given points

Applications (12 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 and evaluating a function that models a real-world situation: Advanced
- Writing an equation and drawing its graph to model 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
- Comparing properties of linear functions given in different forms
- Interpreting the parameters of a linear function that models a real-world situation
- Introduction to Functions (4 topics)
 - Identifying functions from relations
 - Vertical line test
 - Domain and range from ordered pairs
 - Table for a linear function
- Graphs of Functions (8 topics)
 - Domain and range from the graph of a discrete relation
 - 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
- Systems of 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
 - Introduction to using substitution to solve a linear equation
 - 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 systems of linear equations with 0, 1, or infinitely many solutions
 - 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 y = mx + b
- Exponents, Polynomials, and Radicals (63 topics)
 - Product, Power, and Quotient Rules (10 topics)
 - Introduction to the product rule with positive exponents: Whole number base
 - Understanding the product rule of exponents
 - Introduction to the product rule of exponents
 - Product rule with positive exponents: Univariate
 - Introduction to the power of a power rule with positive exponents: Whole number base
 - Understanding the power rules of exponents
 - Introduction to the power of a power rule of exponents
 - Introduction to the power of a product rule of exponents
 - Introduction to the quotient rule with positive exponents: Whole number base
 - Introduction to the quotient rule of exponents
 - Negative Exponents (9 topics)
 - 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
 - Introduction to the product rule with negative exponents: Whole number base
 - Introduction to the product rule with negative exponents

- Introduction to the quotient rule with negative exponents: Whole number base
- Quotient rule with negative exponents: Problem type 1
- Introduction to the power of a power rule with negative exponents: Whole number base
- Scientific Notation (16 topics)
 - 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
 - Estimating numbers using scientific notation
 - Choosing metric units and converting to the base unit in scientific notation
 - Expressing calculator notation as scientific notation
 - 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
 - Adding or subtracting numbers written in scientific notation: Same exponents, basic
 - Adding or subtracting numbers written in scientific notation: Different exponents
- Square Roots and Irrational Numbers (16 topics)
 - Square root of a perfect square
 - Finding all square roots of a number
 - Square root of a rational perfect square
 - Square roots of perfect squares with signs
 - Using a calculator to approximate a square root
 - Estimating a square root
 - Using numerical methods to approximate a square root to the nearest tenth
 - Using numerical methods to approximate a square root to the nearest hundredth
 - Approximating the location of irrational numbers on a number line
 - Approximating the location of irrational numbers on a number line to compare them
 - Ordering real numbers
 - Converting a repeating decimal to a fraction
 - Identifying true statements about rational and irrational numbers
 - Identifying numbers as rational or irrational
 - Constructing a Venn diagram to classify real numbers
 - Constructing a Venn diagram to describe relationships between sets of real numbers
- Higher Roots and Nonlinear Equations (5 topics)
 - Solving an equation of the form x^2 = a using the square root property
 - Finding side lengths of squares given an area and a perimeter
 - Cube root of an integer
 - Order of operations with exponents and radicals
 - Solving an equation of the form $x^3 = a$ using integers
- Applying the Pythagorean Theorem (7 topics)
 - 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
- Lines, Angles, and Polygons (20 topics)
 - Angle Relationships (6 topics)
 - Introduction to angle addition
 - Finding an angle measure in a figure with a right or straight angle
 - Writing and solving an equation involving complementary or supplementary angles
 - Identifying supplementary and vertical angles
 - Finding angle measures given two intersecting lines
 - Solving equations involving vertical angles
 - Parallel Lines (4 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
 - Establishing facts about the angles created when parallel lines are cut by a transversal
 - Angles of Triangles (6 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 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
- Polygons and Quadrilaterals (4 topics)
 - Sum of the angle measures of a quadrilateral
 - Finding the sum of the interior angle measures of a convex polygon given the number of sides
 - Finding the number of sides of a convex polygon given the sum of the measures of the interior angles
 - Finding a missing interior angle measure in a convex polygon
- Transformations (35 topics)
 - Congruence and Similarity (4 topics)
 - Identifying transformations
 - Identifying and naming congruent parts of congruent triangles
 - Finding angle measures of a triangle given two angles of a similar triangle
 - Finding angle measures and side ratios to determine if two triangles are similar
 - 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
 - Writing a rule to describe a translation
 - Reflections (10 topics)
 - Reflecting a point across an axis
 - Reflecting a point across both coordinate axes
 - Reflecting a point across an axis and giving its coordinates
 - Finding the coordinates of a point reflected across an axis
 - Finding the coordinates of a point reflected across both axes
 - Reflecting a polygon across the x-axis or y-axis
 - Properties of reflected figures
 - Determining if figures are related by a reflection
 - Finding the coordinates of a point reflected across an axis and translated
 - Writing a rule to describe a reflection
 - Rotations (7 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
 - Writing a rule to describe a rotation
 - 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
 - The effect of dilation on area
 - Dilating a figure
 - Writing a rule to describe a dilation
 - Determining if figures are similar and related by a sequence of transformations
- Perimeter, Area, and Volume (51 topics)
 - Perimeter (1 topics)
 - Finding the missing length in a figure
 - Area of Rectangles (1 topics)
 Word problem involving the area of a rectangle: Problem type 2
 - Area of Parallelograms, Triangles, and Trapezoids (4 topics)
 - Area of a parallelogram
 - Finding the area of a right triangle on a grid
 - Area of a triangle
 - $\circ~$ Finding the area of a right triangle using the Pythagorean Theorem
 - Area of Composite Figures (2 topics)

- Area of a piecewise rectangular figure
- Area between two rectangles
- The Converse and a Proof of the Pythagorean Theorem (3 topics)
 - Identifying side lengths that give right triangles
 - Demonstrating the converse of the Pythagorean Theorem
 - Informal proof of the Pythagorean Theorem
- Circumference and Area of Circles (11 topics)
 - 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
 - Area of a circle
 - Circumference and area of a circle
 - Informal argument for the formula of the area of a circle
 - Area involving rectangles and circles
 - Area between two concentric circles
 - Area involving inscribed figures
 - Area of a sector of a circle: Exact answer in terms of pi
- Three-Dimensional Figures (5 topics)
 - Classifying solids
 - 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
- Volume of Prisms and Cylinders (6 topics)
 - Volume of a rectangular prism
 - Word problem involving the volume of a rectangular prism
 - Volume of a triangular prism
 - Word problem involving the volume of a triangular prism
 - Volume of a cylinder
 - Word problem involving the volume of a cylinder
- Volume of Pyramids, Cones, and Spheres (6 topics)
 - Volume of a pyramid
 - 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
- Surface Area (12 topics)
 - Surface area of a cube or a rectangular prism
 - Using a net to find the surface area of a rectangular prism
 - Word problem involving the surface area of a rectangular prism
 - Surface area of a triangular prism
 - Using a net to find the surface area of a triangular prism
 - Surface area of a cylinder
 - Word problem involving the surface area of a cylinder
 - Word problem involving the surface area of rectangular prisms and cylinders
 - Using a net to find the lateral surface area and total surface area of a pyramid
 - Word problem involving the surface area of rectangular prisms and pyramids
 - Lateral surface area and surface area of a cone
 - Surface area of a sphere
- Data Analysis and Probability (16 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 (1 topics)
 - Constructing a percent bar graph
 - Scatter Plots and Lines of Best Fit (7 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
- Classifying linear and nonlinear relationships from scatter plots
- Identifying outliers and clustering in scatter plots
- Simulations (2 topics)
 - Identifying outcomes in a random number table used to simulate a simple event
 - Generating random samples from a population with known characteristics
- Other Topics Available(*) (898 additional topics)
 - Whole Numbers and Integers (121 topics)
 - Whole number place value: Problem type 1
 - Whole number place value: Problem type 2
 - Comparing place values of digits in a whole number: Problem type 1
 - Numeral translation: Problem type 1
 - Numeral translation: Problem type 2
 - Expanded form: 2 and 3-digit numbers
 - Expanded form: 4 and 5-digit numbers
 - Expanded form with zeros
 - Adding 2-digit numbers with regrouping a hundred
 - Adding 3 or 4 numbers with two-digits with regrouping
 - Adding 3-digit numbers with regrouping
 - Adding 3 numbers with two, three, and four-digits
 - Subtraction involving 3-digit numbers without regrouping
 - Subtraction of 2-digit numbers with regrouping
 - Subtraction with multiple regrouping steps involving 3-digit numbers
 - Subtraction with multiple regrouping steps involving 4-digit numbers
 - Subtraction and regrouping with zeros
 - Word problem with addition or subtraction of whole numbers
 - Describing an increasing or decreasing pattern from a table of values
 - Perimeter of a polygon
 - Perimeter of a rectangle on a grid
 - Perimeter of a square or a rectangle
 - Multiplication as repeated addition
 - Multiplying 2-digit and 1-digit numbers with regrouping: Problem type 2
 - Understanding multiplication of a one-digit number with a larger number
 - Multiplying multi-digit and 1-digit numbers with regrouping
 - Area of a rectangle on a grid
 - Area of a rectangle with one-digit side lengths
 - Area of a rectangle with two-digit by one-digit side lengths
 - Introduction to multiplication using an area model
 - Multiplying a multi-digit and a 1-digit number using an area model
 - Introduction to multiplication of large numbers
 - Multiplication of large numbers
 - Multiples: Problem type 1
 - Multiples: Problem type 2
 - $\circ~$ Division of whole numbers given in fractional form
 - Division with regrouping: 1-digit divisor, 2-digit dividend
 - Quotient with remainder: 1-digit divisor, 2-digit dividend
 - Writing a division sentence for equal groups
 - Writing a division sentence for equal groups and a remainder
 - Whole number division: 2-digit by 2-digit, no remainder
 - Division with regrouping: 1-digit divisor, 3-digit or 4-digit dividend
 - Quotient with remainder: 1-digit divisor, 3-digit or 4-digit dividend
 - Division involving quotients with intermediate zeros: Problem type 1
 - Division involving quotients with intermediate zeros: Problem type 2
 - Division with remainder involving quotients with intermediate zeros: Problem type 1
 - Division with remainder involving quotients with intermediate zeros: Problem type 2
 - Whole number division: 3-digit by 2-digit, no remainder
 - Division with no remainder and a two-digit divisor: Problem type 2
 - Division with remainder and a two-digit divisor: Problem type 1
 - Division with remainder and a two-digit divisor: Problem type 2
 - $\circ\,$ Word problem with division of whole numbers and rounding: Problem type 1 $\,$
 - Word problem with division of whole numbers and rounding: Problem type 2
 - Introduction to inequalities
 - Comparing a numerical expression with a number
 - Ordering large numbers
 - Rounding to tens or hundreds
 - Rounding to hundreds or thousands
 - $\circ~$ Rounding to thousands, ten thousands, or hundred thousands
 - Estimating a sum of whole numbers: Problem type 1

- Estimating a sum of whole numbers: Problem type 2
- Estimating a difference of whole numbers: Problem type 1
- Estimating a difference of whole numbers: Problem type 2
- Estimating a product
- Estimating a quotient
- Writing expressions using exponents
- Power of 10: Positive exponent
- Comparing numerical expressions with parentheses
- $\circ~$ Order of operations with whole numbers and grouping symbols
- Order of operations with whole numbers and exponents: Advanced
- Even and odd numbers
- Divisibility rules for 2, 5, and 10
- Divisibility rules for 3 and 9
- Factors
- Prime numbers
- Prime factorization
- Prime factorization: Exponent notation
- Greatest common factor of 3 numbers
- Least common multiple of 2 numbers
- Least common multiple of 3 numbers
- Word problem involving the least common multiple of 2 numbers
- Word problem with common multiples
- Plotting opposite integers on a number line
- Comparing integers using a number line
- Using a number line to compare signed numbers in context
- Interpreting a table of signed numbers that relate to a real-world situation: Problem type 1
- Interpreting a table of signed numbers that relate to a real-world situation: Problem type 2
- Comparing signed numbers relating to a real-world situation
- Finding opposites of integers
- Absolute value of a number
- Interpreting absolute values in context as distances from zero
- $\circ~\mbox{Finding}$ all numbers with a given absolute value
- Using integer chips to add integers
- Using a number line to add integers
- $\circ~$ Identifying a sum as a point located a given distance from another point
- Identifying relative change when combining two quantities
- Using integer chips to subtract integers
- Using a number line to subtract integers
- Understanding that subtracting an integer is the same as adding its additive inverse
- Addition and subtraction with 4 or 5 integers
- Word problem with addition or subtraction of integers
- Operations with absolute value: Problem type 1
- Operations with absolute value: Problem type 2
- Computing and understanding distances between integers on a number line
- $\circ~$ Finding the distance between two rational numbers on a number line in context
- Finding a point on a number line given the length of a segment and another point
- Establishing rules for multiplying integers: Product of a positive and negative number
- Establishing rules for multiplying integers: Product of two negative numbers www.
- $\circ\,$ Word problem with multiplication or division of integers
- Exponents and integers: Problem type 2
- Order of operations with integers and exponents
- $\circ~$ Evaluating an algebraic expression: Whole number addition or subtraction
- $\circ~$ Evaluating an algebraic expression: Whole number multiplication or division
- $\circ~$ Evaluating an algebraic expression: Whole number operations and exponents
- Identifying solutions to a one-step linear equation: Problem type 1
- Identifying solutions to a one-step linear equation: Problem type 2
- Introduction to solving an equation with multiplication or division
- Writing an equation and solving a multiplicative comparison word problem
- Plotting the solution for a one-step equation on a number line
 Distinguishing between supressions and supressions
- $\circ~\mbox{Distinguishing between expressions and equations}$
- $\circ~$ Distinguishing between expressions and equations given verbal descriptions $\textcircled{\sc ww}$
- Fractions (70 topics)
 - Introduction to non-unit fractions
 - Understanding equivalent fractions: Problem type 1
 - Understanding equivalent fractions: Problem type 2
 - Modeling and writing equivalent fractions
 - $\circ\,$ Conversions involving division in fractional form and whole numbers
 - Introduction to finding equivalent fractions: Multiplying
 - Introduction to finding equivalent fractions: Dividing
 - Identifying equivalent signed fractions
 - Position of fractions on a number line
 - Comparing fractions with the same numerator
 - $\circ~$ Writing a mixed number and an improper fraction for a shaded region

- Position of mixed numbers on a number line
- Addition or subtraction of fractions with the same denominator
- Decomposing a fraction into a sum of fractions with the same denominator
- Word problem involving addition or subtraction of fractions with the same denominator
- Introduction to adding fractions with variables and common denominators
- Finding the LCD of two fractions
- Writing unit fractions with a common denominator to add or subtract
 Addition and subtraction of 3 fractions with different denominators
- Signed fraction subtraction involving double negation
- Signed fraction addition or subtraction: Advanced
- Addition and subtraction of 3 fractions involving signs
- Word problem involving addition or subtraction of fractions with different denominators
- Fractional part of a circle
- Addition or subtraction of mixed numbers with the same denominator
- Addition of mixed numbers with the same denominator and renaming: Problem type 1
- Addition of mixed numbers with the same denominator and renaming: Problem type 2
- Subtraction of mixed numbers with the same denominator and renaming: Problem type 1
- Subtraction of mixed numbers with the same denominator and renaming: Problem type 2
- 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
- Addition and subtraction of 3 mixed numbers with different denominators
- Word problem involving addition or subtraction of mixed numbers with different denominators
- Word problem involving multiplying a fraction and a whole number
- Multiplication of 3 fractions
- Modeling multiplication of proper fractions
- Signed fraction multiplication: Advanced
- Word problem involving fractions and multiplication
- Multi-step word problem involving fractions and multiplication
- Determining if a quantity is increased or decreased when multiplied by a fraction
- Finding the product to determine whether a quantity is increased or decreased when multiplied by a fraction www.
- The reciprocal of a number
- Division involving a whole number and a unit fraction
- Using a model to solve a word problem involving division by a unit fraction
- Division involving a whole number and a fraction
- Fraction division
- Understanding the relationship between dividing by a fraction and multiplying by its reciprocal 🛲
- Fact families for multiplication and division of fractions
- Modeling division of a whole number by a fraction
- Signed fraction division
- Word problem involving fractions and division
- Multiplying mixed numbers: Problem type 1
- Multiplying mixed numbers: Problem type 2
- Multiplying a mixed number and a whole number: Problem type 1
- Multiplying a mixed number and a whole number: Problem type 2
- Division with a mixed number and a whole number
- Mixed number division
- Word problem involving multiplication or division with mixed numbers
- Evaluating expressions with exponents of zero
- Exponents and signed fractions
- Order of operations with fractions: Problem type 1
- Order of operations with fractions: Problem type 2
- Order of operations with fractions: Problem type 3
- Complex fraction without variables: Problem type 1
- Evaluating a linear expression: Signed fraction multiplication with addition or subtraction
- Additive property of equality with fractions and mixed numbers
- Additive property of equality with signed fractions 0
- Multiplicative property of equality with whole numbers: Fractional answers 0
- Multiplicative property of equality with fractions
- Decimals (53 topics)
 - Writing a decimal and a fraction for a shaded region
 - Decimal place value: Hundreds to ten thousandths
 - Writing a decimal number less than 1 given its name
 - Writing a decimal number greater than 1 given its name
 - Writing a decimal number given its name: Advanced
 - Reading decimal position on a number line: Tenths
 - Reading decimal position on a number line: Hundredths
 - Understanding decimal position on a number line using zoom: Hundredths
 - Understanding decimal position on a number line using zoom: Thousandths
 - Ordering decimals
 - Converting a decimal to a proper fraction without simplifying: Advanced
 - Converting a decimal to a proper fraction in simplest form: Advanced 0
 - Converting a decimal to a mixed number and an improper fraction without simplifying

- Converting a decimal to a mixed number and an improper fraction in simplest form: Basic
- Converting a decimal to a mixed number and an improper fraction in simplest form: Advanced
- Addition of decimals: Vertically aligned
- Decimal addition with 3 numbers
- Subtraction of aligned decimals
- Decimal addition and subtraction with 3 or more numbers
- Estimating a decimal sum or difference
- Signed decimal addition and subtraction with 3 numbers
- Computing distances between decimals on a number line
- Word problem with addition of 3 or 4 decimals and whole numbers
- Decimal multiplication: Problem type 2
- Multiplying decimals less than 1: Problem type 2
- Estimating a product of decimals
- Signed decimal multiplication
- Word problem with multiplication of two decimals
- Division of a decimal by a power of 0.1
- Whole number division with decimal answers
- Division of a decimal by a 1-digit decimal: Problem type 1
- Division of a decimal by a 2-digit decimal
- Decimal division with rounding
- Average of two numbers
- Signed decimal division
- Word problem with multiple decimal operations: Problem type 2
- Word problem with division of two decimals
- Converting a fraction with a denominator of 100 or 1000 to a decimal
- Converting a fraction to a repeating decimal: Advanced
- Using a calculator to convert a fraction to a rounded decimal
- Converting a mixed number to a terminating decimal: Advanced
- Converting a fraction or mixed number to a rounded decimal
- Ordering fractions and decimals
- Interpreting a Venn diagram of 3 sets
- 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
- Order of operations with decimals: Problem type 3
- Addition or subtraction with a decimal and a mixed number
- Multiplication with a decimal and a fraction
- Evaluating a linear expression: Signed decimal addition and subtraction
- Evaluating a linear expression: Signed decimal multiplication with addition or subtraction
- Ratios, Proportions, and Measurement (81 topics)
 - Writing ratios using different notations
 - Writing ratios for real-world situations
 - Using a tape diagram to model ratios
 - Writing a ratio and finding a quantity in an equivalent ratio in context
 - Identifying statements that describe a ratio
 - Simplifying a ratio of whole numbers: Problem type 1
 - Simplifying a ratio of decimals
 - Using a tape diagram to solve a problem involving ratios
 - Using tables to compare ratios
 - Finding missing values in a table of equivalent ratios: Given a part-to-part ratio
 - Finding missing values in a table of equivalent ratios: Given a part-to-whole ratio www
 - 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
 - Word problem on unit rates associated with ratios of fractions
 - Word problem on unit rates associated with ratios of mixed numbers
 - Using a tape diagram to solve a problem on unit rates: Problem type 1
 - Using a tape diagram to solve a problem on unit rates: Problem type 2
 - Writing and using unit rates in context
 - Word problem on proportions: Problem type 2
 - Word problem with powers of ten
 - Relationships about ratios within and between similar triangles
 - Investigating the effects on the area for non-proportional and proportional figures
 - Finding lengths using scale models
 - Finding a scale factor: Same units
 - Using a scale drawing to find actual area
 - Reproducing a scale drawing at a different scale
 - Choosing a measuring tool
 - Choosing U.S. Customary measurement units
 - Measuring length to the nearest inch
 - Measuring length to the nearest quarter or half inch
 - Using a double number line to convert U.S. Customary units with whole numbers

- Using a double number line to convert U.S. Customary units with decimals
- U.S. Customary length conversion with whole number values
- Writing and solving a proportion to convert U.S. Customary units of length
- Conversions involving measurements in feet and inches
- Adding measurements in feet and inches
- U.S. Customary length conversions involving rounding decimals
- Word problem involving a U.S. Customary length conversion
- $\circ~$ U.S. Customary volume conversion with whole number values
- U.S. Customary weight conversions with whole number values
- U.S. Customary unit conversion with whole number values: Two-step conversion
- $\circ~$ U.S. Customary unit conversion with mixed number values: One-step conversion
- U.S. Customary unit conversion with mixed number values: Two-step conversion
- U.S. Customary area unit conversion with whole number values
- Word problem on area involving conversions of U.S. Customary units: Problem type 1
- Unit conversions involving acres and hectares
- Choosing metric measurement units
- Measuring length to the nearest centimeter
- Measuring length to the nearest millimeter
- Finding a rate given a pictorial representation of a real-world situation
- Metric distance conversion with whole number values
- $\circ~$ Writing and solving a proportion to convert metric units of length $\langle \overline{\text{NEW}} \rangle$
- Metric distance conversion with decimal values
- Metric mass or volume conversion with whole numbers
- Metric conversion with decimal values: Two-step problem
- Metric area unit conversion with decimal values
- Time unit conversion with whole number values
- Word problem involving adding or subtracting time within the hour
- Introduction to adding time
- Adding time
- Word problem on elapsed time within the hour
- Word problem on elapsed time less than one hour
- Word problem on elapsed time more than one hour
- Word problem on elapsed times crossing a.m. and p.m.
- Reading a positive temperature from a thermometer
- Reading the temperature from a thermometer
- Converting between temperatures in Fahrenheit and Celsius
- Simplifying a ratio of whole numbers: Problem type 2
- Solving a word problem involving rates and time conversion
- Writing and solving a proportion to convert between metric and U.S. Customary units
- Converting between metric and U.S. Customary unit systems
- U.S. Customary length conversions involving dimensional analysis
- 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 initial customary in the systems of the systems of the system of the syste
- Converting between compound units: Basic
- Word problem involving U.S. Customary length conversions using dimensional analysis
- Word problem involving a conversion between U.S. Customary units of weight and metric units of mass
- Converting between compound units: Advanced
- Conversions with currency
- Word problem involving conversion between compound units using dimensional analysis
- Percents (70 topics)
 - Converting a fraction with a denominator of 100 to a percentage
 - Converting a percentage to a fraction with a denominator of 100
 - Finding the percentage of a grid that is shaded
 - Representing benchmark percentages on a grid
 - Introduction to converting a percentage to a decimal
 - Introduction to converting a decimal to a percentage
 - Converting a mixed number percentage to a decimal
 - Converting between percentages and decimals in a real-world situation
 - Converting a percentage to a fraction in simplest form
 - Converting a decimal percentage to a fraction
 - $\circ~$ Converting a fraction to a percentage: Denominator of 4, 5, or 10
 - Finding benchmark fractions and percentages for a figure
 - Comparing fractions, decimals, and percentages using a number line
 - Converting a fraction to a percentage: Denominator of 20, 25, or 50
 - Using a calculator to convert a fraction to a rounded percentage
 - Converting a fraction to a percentage in a real-world situation
 - Using a double number line to find a percentage
 - Writing a ratio as a percentage
 - Writing a ratio as a percentage without a calculator
 - Finding the rate of a tax or commission
 - Making a reasonable inference based on proportion statistics
 - $\circ\,$ Finding a percentage of a whole number without a calculator: Advanced
 - $\circ\,$ Using a double number line to find the part or the whole in a percentage problem

- Finding a percentage of a total amount: Real-world situations
- Writing a proportion to solve a multi-step problem involving percentages
- Estimating a tip without a calculator
- $\circ~\mbox{Finding a percentage of a total amount in a circle graph}$
- Making part-to-part and equivalence comparisons given a circle graph
- Applying the percent equation: Problem type 1
- Applying the percent equation: Problem type 2
- $\circ\;$ Finding the total amount given the percentage of a partial amount
- Interpreting a circle graph or pie chart
- Computations from a circle graph
- 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
- $\circ~$ Finding the sale price without a calculator given the original price and percent discount
- $\circ\,$ Finding the total cost including tax or markup
- Combined effect of more than one markup or discount
- $\circ~$ 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
- Finding the percentage increase or decrease: Advanced
- Finding the absolute error and percent error of a measurement
- $\circ~$ Finding the principal, rate, or time of a simple interest loan or investment
- Computing the interest and repayment amount for a simple interest loan whose term is given in months or days
- Finding the principal, rate, or time for a simple interest loan whose term is given in months or days
- Calculating income tax
- Comparing discounts
- 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
- Using a family budget estimator to determine the minimum monthly budget and average hourly wage needed for a • family
- Comparing annual salaries of different occupations
- Hourly gross pay with overtime
- Gross pay with commission and salary
- Calculations involving purchases with debit and credit cards
- Deciding when it is applicable to pay with cash or credit and examining the advantages and disadvantages of different • payment methods
 - (NEW)
- Comparing costs of checking accounts
- Balancing a check register
- Reading a credit report
- Determining the value of credit reports to borrowers and lenders www.
- Understanding the impact of a credit score
- Computing a person's net worth
- Word problem on financial responsibility
- 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
- Equations and Inequalities (89 topics)
 - Introduction to the distributive property
 - Understanding the distributive property
 - Introduction to factoring with numbers
 - Factoring a sum or difference of whole numbers
 - Distributive property: Fractional coefficients
 - Introduction to properties of addition
 - Identifying like terms
 - Using a number line to add opposite fractions and describing the result
 - Properties of addition
 - Introduction to properties of multiplication
 - Properties of real numbers
 - Combining like terms: Decimal coefficients
 - Combining like terms: Fractional coefficients
 - Using algebra tiles to determine if two expressions are equivalent
 - Identifying parts in an algebraic expression
 - Identifying equivalent algebraic expressions
 - Identifying properties used to simplify an algebraic expression
 - Using distribution with double negation and combining like terms to simplify: Multivariate
 - Combining like terms in a quadratic expression
 - Adding rational expressions with different denominators and a single occurrence of a variable
 - Plotting the solution for a two-step equation on a number line
 - Solving an equation to find the value of an expression

- Solving a multi-step equation given in fractional form
- Identifying properties used to solve a linear equation
- Clearing fractions in an equation
- Solving a two-step equation with signed fractions
- Solving a proportion of the form (x+a)/b = c/d
- Introduction to solving a rational equation
- $\circ~$ Solving a rational equation that simplifies to linear: Denominator x
- Introduction to solving an absolute value equation
- Solving an absolute value equation: Problem type 1
- 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: Fractional forms with monomial numerators
- Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
- Solving a proportion of the form a/(x+b) = c/x
- 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 in terms of other variables using addition or subtraction with division
- 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
- \circ 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
- 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 percent mixture problem using a linear equation
- Solving a distance, rate, time problem using a linear equation
- 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
- Translating a sentence into 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 one-step linear inequality
- 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 whole numbers
- Multiplicative property of inequality with integers
- Multiplicative property of inequality with signed fractions
- · 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
- Solving a linear inequality with multiple occurrences of the variable: Problem type 3
- 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
- Translating a sentence into a multi-step inequality
- Solving a word problem using a two-step linear inequality and describing the solution
- 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
- Constructing a Venn diagram with 2 sets
- Interpreting Venn diagram cardinalities with 2 sets for a real-world situation
- Constructing a Venn diagram with 2 sets to solve a word problem
- Constructing a Venn diagram with 3 sets
- Interpreting Venn diagram cardinalities with 3 sets for a real-world situation
- Constructing a Venn diagram with 3 sets to solve a word problem
- Graphs, Functions, and Sequences (106 topics)
 - Reading a point in quadrant 1
 - Plotting a point in quadrant 1
 - Plotting a point in quadrant 1: Mixed number coordinates
 - Plotting a point in the coordinate plane: Mixed number coordinates
 - 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
- Finding distances between points that share a common coordinate given their coordinates
- Plotting points that share a coordinate and using absolute value to find the distance between them
- Midpoint of a line segment in the plane
- Function tables with two-step rules
- Writing a function rule given a table of ordered pairs: One-step rules
- Finding the coordinates of a point on a graph given the equation
- Finding a solution to a linear equation in two variables
- Comparing two rules with forms of y=ax and y=x+a
- Finding x- and y-intercepts of a line given the equation: Advanced
- Graphing a line given its x- and y-intercepts
- Graphing a line by first finding its x- and y-intercepts
- Interpreting a line graph
- Identifying proportional relationships in tables by calculating unit rates: Fractions
- Determining whether a relationship is proportional given a real-world situation
- Identifying proportional relationships in graphs: Advanced
- Classifying slopes given graphs of lines
- Finding the coordinate that yields a given slope
- Graphing a line through a given point with a given slope
- Identifying direct variation equations
- Writing an inverse variation equation
- Identifying direct and inverse variation equations
- Identifying direct and inverse variation from ordered pairs and writing equations
- Word problem on inverse variation
- Word problem on inverse variation involving the completion of a task
- Rewriting a linear equation in the form Ax + By = C
- Graphing a line by first finding its slope and y-intercept
- Writing an equation and graphing a line given its slope and y-intercept
- Finding the slope, y-intercept, and equation for a linear function given a table of values
- Deriving the equation of a line through the origin (NEW)
- Deriving the equation of a line not going through the origin (New)
- Graphing a line given its equation in point-slope form
- 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
- 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
- Finding inputs and outputs of a two-step function that models a real-world situation: Two variable equation
- Graphing ordered pairs and writing an equation from a table of values in context
- 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
- Identifying independent and dependent quantities from tables and graphs
- Identifying independent and dependent variables from equations or real-world situations
- Solving a linear equation by graphing NEW
- Identifying functions given a verbal description (NEW)
- Evaluating functions: Linear and quadratic or cubic
- Finding outputs of a one-step function that models a real-world situation: Function notation
- Finding outputs of a two-step function with decimals 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
- Domain and range of a linear function that models a real-world situation
- Finding an output of a function from its graph
- Finding inputs and outputs of a function from its graph
- Finding and interpreting an output of a linear function given a graph that models a real-world situation
- 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 $y = ax^2$
- 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 cubic function of the form $y = ax^3$
- 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
- 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
- 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 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
- Finding patterns in shapes
- Writing a system of linear equations given its graph
- Solving a system of linear equations using elimination with multiplication and addition
- Solving a word problem involving a system of linear equations by graphing and estimating a solution
- Solving a word problem using a system of linear equations of the form Ax + By = C
- 0 Writing and solving a system of two linear equations given a table of values
- Writing and solving a system of two linear equations given a verbal description 🛲 0
- Solving a value mixture problem using a system of linear equations
- Addition or subtraction of matrices
- 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
- 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 two linear inequalities: Basic
- Graphing a system of two linear inequalities: Advanced
- Writing a linear inequality in two variables given a table of values
- Exponents, Polynomials, and Radicals (66 topics)
 - Product rule with positive exponents: Multivariate
 - Ordering numbers with positive exponents
 - Power rules with positive exponents: Multivariate products
 - Power rules with positive exponents: Multivariate quotients
 - · Simplifying a ratio of multivariate monomials: Basic
 - Simplifying a ratio of univariate monomials
 - Quotient of expressions involving exponents
 - Simplifying a ratio of multivariate monomials: Advanced
 - Ordering numbers with negative exponents
 - Rewriting an algebraic expression without a negative exponent
 - Power of a power rule with negative exponents
 - · Adding or subtracting numbers written in scientific notation: Same exponents, advanced
 - Estimating the sum or difference of two numbers written in scientific notation
 - 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
 - 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
 - Squaring a binomial: Univariate
 - Multiplication involving binomials and trinomials in one variable
 - Multiplication involving binomials and trinomials in two variables
 - Introduction to the LCM of two monomials
 - Least common multiple of two monomials
 - 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 a quadratic with leading coefficient 1
 - Factoring a perfect square trinomial with leading coefficient 1
 - Factoring a difference of squares in one variable: Basic
 - Factoring a difference of squares in one variable: Advanced
 - Dividing a polynomial by a monomial: Univariate
 - Dividing a polynomial by a monomial: Multivariate
 - Finding the roots of a quadratic equation with leading coefficient 1
 - Determining the kind of decimal expansion for real numbers
 - Identifying the digits that repeat in the decimal expansion of a rational number: Problem type 1
 - Identifying the digits that repeat in the decimal expansion of a rational number: Problem type 2 🛲 0
 - Introduction to simplifying a radical expression with an even exponent

- Square root of a perfect square monomial
- Simplifying the square root of a whole number less than 100
- $\circ~$ Simplifying the square root of a whole number greater than 100 $\,$
- Simplifying a radical expression with an even exponent
- Introduction to simplifying a radical expression with an odd exponent
- $\circ~$ Simplifying a radical expression with an odd exponent
- Introduction to square root addition or subtraction
- Square root addition or subtraction
- 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 (NEW)
- Introduction to solving a radical equation
- Solving a radical equation that simplifies to a linear equation: One radical, basic
- Word problem involving radical equations: Basic
- Solving an equation using the odd-root property: Problem type 1
- $\circ~\mbox{Rational exponents:}$ Unit fraction exponents and whole number bases
- $\circ~$ Rational exponents: Non-unit fraction exponent with a whole number base
- Distance between two points in the plane: Exact answers
- Distance between two points in the plane: Decimal answers
- Lines, Angles, and Polygons (56 topics)
 - Naming segments, rays, and lines
 - Acute, obtuse, and right angles
 - Measuring an angle with the protractor
 - Drawing an angle with the protractor
 - Naming angles, sides of angles, and vertices
 - Writing and solving an equation involving adjacent angles
 - Finding supplementary and complementary angles
 - $\circ~$ Solving an equation involving complementary or supplementary angles
 - Writing and solving an equation involving vertical angles
 - Constructing congruent line segments
 - Constructing an angle bisector
 - Constructing congruent angles
 - Constructing the perpendicular bisector of a line segment
 - Constructing a pair of perpendicular lines
 - Constructing a pair of parallel lines
 - Acute, obtuse, and right triangles
 - Classifying scalene, isosceles, and equilateral triangles by side lengths
 - Classifying scalene, isosceles, and equilateral triangles by side lengths or angles
 - Identifying congruent segments in the plane
 - Identifying scalene, isosceles, and equilateral triangles given coordinates of their vertices
 - Finding an angle measure given extended triangles
 - Finding angle measures of a triangle given angles with variables
 - $\circ~$ Finding side lengths and angle measures of isosceles and equilateral triangles
 - Finding angle measures of an isosceles triangle given angles with variables
 - Finding an angle measure for a triangle sharing a side with another triangle
 - Creating triangles from given side lengths: Problem type 1
 - Creating triangles from given side lengths: Problem type 2
 - Using triangle inequality to determine if side lengths form a triangle
 - $\circ\,$ 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
 - $\circ~$ Drawing triangles with given conditions: Angle measures
 - Drawing triangles with given conditions: Side lengths and angle measures
 - $\circ~$ Drawing a circle with a given radius or diameter
 - Drawing triangles with given side lengths using a compass
 - Relationship between angle measures and side lengths in a triangle
 - $\circ~$ Relationship between angle measures and side lengths in two triangles
 - Sine, cosine, and tangent ratios: Numbers for side lengths
 - $\circ~$ Sine, cosine, and tangent ratios: Variables for side lengths
 - $\circ~$ 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
 - Understanding trigonometric ratios through similar right triangles
 - Relationship between the sines and cosines of complementary angles
 Using a triggenemetric ratio to find a side largeth in a violat triggenemetric
 - Using a trigonometric ratio to find a side length in a right triangle
 Solving a right triangle
 - Solving a right triangle
 - $\circ~$ 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
 - Special right triangles: Decimal answers
 - Naming polygons
 - Drawing and identifying a polygon in the coordinate plane

- Shared attributes among categories of quadrilaterals
- Identifying parallelograms, rectangles, and squares
- Properties of quadrilaterals
- Classifying parallelograms
- Finding the coordinates of a point to make a parallelogram
- Informally deriving the formula for the sum of interior angles of polygons by decomposing them into triangles
- Transformations (12 topics)
 - Identifying and naming congruent triangles
 - Exploring the triangle congruence theorems
 - Using a translated point to find coordinates of other translated points
 - Reflecting a polygon over a vertical or horizontal line
 - Finding the coordinates of three points reflected over an axis
 - Drawing lines of symmetry
 - Finding an angle of rotation
 - Identifying rotational symmetry and angles of rotation
 - Identifying figures that have rotational symmetry or reflectional symmetry (NEW)
 - Performing a composition of dilations (NEW)
 - Performing a composition consisting of a rigid transformation and a dilation (NEW)
 - Identifying transformations and determining if they preserve congruent figures
- Perimeter, Area, and Volume (79 topics)
 - Perimeter of a piecewise rectangular figure
 - Writing algebraic expressions for the perimeter of a figure
 - Finding a side length given the perimeter and side lengths with variables
 - Sides of polygons having the same perimeter
 - Perimeter of a polygon involving mixed numbers and fractions
 - Area of a rectangle with fractional side lengths
 - Area of a rectangle involving mixed number and fractional side lengths
 - Distinguishing between the area and perimeter of a rectangle
 - Areas of rectangles with the same perimeter
 - Word problem on area involving conversions of U.S. Customary units: Problem type 2
 - Word problem on area involving conversions between systems
 - Estimates and exact answers
 - Writing algebraic expressions for the area of a figure
 - 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 the perimeter or area of a rectangle in the coordinate plane
 - Finding the area of a right triangle or its corresponding rectangle
 - Solving a word problem involving area using a one-step linear inequality: Area and lengths
 - Finding the area of a triangle or parallelogram in the coordinate plane
 - $\circ~$ Finding the area of a trapezoid on a grid by using triangles and rectangles
 - Decomposing a trapezoid or parallelogram to find its area given a situation in context (NEW)
 - Area of a trapezoid
 - Finding the area of a composite figure on a grid
 - Introduction to area of a piecewise rectangular figure
 - Word problem on finding the area of a piecewise rectangular figure
 - Word problem involving the area between two rectangles
 - Area involving rectangles and triangles
 - Finding an area in terms of variables
 - Finding the area of a trapezoid, rhombus, or kite in the coordinate plane
 - Informal proof of the converse of the Pythagorean Theorem (New)
 - Identifying chords, secants, and tangents of a circle
 - Naming and finding measures of central angles, inscribed angles, and arcs of a circle
 - Circumference ratios
 - Perimeter involving rectangles and circles
 - Circumference and area of a circle: Exact answers in terms of pi
 - Distinguishing between the area and circumference of a circle
 - Word problem involving the area between two concentric circles
 - Area involving multiple inscribed figures
 - Vertices, edges, and faces of a solid
 - Identifying geometric shapes that model real-world objects
 - Identifying solids generated by rotations of two-dimensional regions (NEW)
 - Volume of a rectangular prism made of unit cubes
 - Volume of a solid made of cubes with unit fraction edge lengths
 - Volume of a rectangular prism with fractional edge lengths
 - Writing equivalent expressions for the volume of a rectangular prism
 - Finding the side length of a cube given its volume
 - $\circ~$ Solving problems involving the volume of a rectangular prism in context
 - Word problem involving the rate of filling or emptying a rectangular prism
 - Computations involving density, mass, and volume NEW
 - Word problem on density involving the volume of a rectangular solid NEW

- Word problem on volume involving conversions of U.S. Customary units
- Volume of a piecewise rectangular prism
- $\circ~$ Word problem involving the volume of a piecewise rectangular prism
- Describing the formula for the volume of a cylinder
- Word problem involving the rate of filling or emptying a cylinder
- Ratio of volumes
- Converting between U.S. Customary units of volume: Problem type 1
- Converting between metric units of volume and capacity
- $\circ~\mbox{Relating the volumes of a rectangular prism and a rectangular pyramid$
- Relating the volumes of a triangular prism and a triangular pyramid
- Volume of a cone: Exact answers in terms of pi
- $\circ~$ Surface area of a rectangular prism made of unit cubes
- Distinguishing between surface area and volume
- Using a net to find the lateral surface area and total surface area of a rectangular prism
- $\circ~$ Deriving the formula for the surface area of a rectangular prism $\textcircled{\sc ww}$
- $\circ~$ Word problem involving U.S. Customary conversions, surface area, and cost
- Surface area of a piecewise rectangular prism made of unit cubes
- 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 www
- Surface area of a cylinder: Exact answers in terms of pi
- Deriving the formula for the surface area of a cylinder www
- Lateral surface area and surface area of a cone: Exact answers in terms of pi
- Side lengths, perimeters, and areas of similar polygons
- Identifying similar solids
- Computing ratios of side lengths, surface areas, and volumes for similar solids
- $\circ~$ Computing side length, surface area, and volume for similar solids
- $\circ~$ Word problem involving volumes of similar solids
- Data Analysis and Probability (95 topics)
 - Identifying statistical questions
 - Classifying samples
 - Choosing an appropriate method for gathering data: Problem type 1
 - $\circ~$ Choosing an appropriate method for gathering data: Problem type 2 $\,$
 - Introduction to expectation
 - Making predictions using experimental data for compound events
 - Interpreting a tally table
 - Constructing a frequency distribution for grouped data
 - Constructing a frequency distribution for non-grouped data
 - Constructing a relative frequency distribution for grouped data
 - Finding if a question can be answered by the data
 - Constructing a line plot
 - Constructing a line plot with fractional values: Fourths
 - Making part-to-whole, part-to-part, and equivalence comparisons given a line plot
 - Constructing a bar graph for non-numerical data
 - Interpreting a bar graph
 - Making part-to-whole, part-to-part, and equivalence comparisons given a bar graph
 - Interpreting a double bar graph
 - Constructing a frequency distribution and a histogram
 - Interpreting a histogram
 - Introduction to interpreting a pictograph
 - Interpreting a pictograph table
 - Interpreting a stem-and-leaf plot
 - Constructing a stem-and-leaf plot (NEW)
 - Angle measure in a circle graph
 - Using technology to fit a linear regression model to data and to make a prediction (NEW)
 - Linear relationship and the correlation coefficient
 - Using technology to calculate the correlation coefficients for two sets of bivariate data to compare the linear • relationships
 - NEW
 - Identifying correlation and causation (NEW)
 - 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
 - Mode of a data set
 - Interpreting a percent bar graph to summarize categorical data using the mode ₪

- Choosing the best measure to describe data
- Range of a data set
- Finding the mode and range from a line plot
- How changing a value affects the range and IQR
- Identifying peaks, symmetry, gaps, and clusters in a line plot
- Identifying the center, spread, and shape of a data set
- Comparing measures of center and variation
- 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
- 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
- Finding outliers in a data set
- Interpreting a tree diagram
- Introduction to the counting principle
- Counting principle
- Counting principle with repetition allowed
- Factorial expressions
- Computing permutations and combinations
- Word problem involving permutations
- Word problem involving combinations
- Introduction to permutations and combinations
- Classifying likelihood
- Determining a sample space and outcomes for an event: Experiment involving a single selection
- Introduction to the probability of an event
- Probability involving one die or choosing from n distinct objects
- Probability involving choosing from objects that are not distinct
- Understanding likelihood
- Probabilities of an event and its complement
- Experimental and theoretical probability
- Finding the odds in favor and against
- Converting between probability and odds
- Area as probability
- Determining a sample space and outcomes for an event: Experiment involving multiple selections
- Outcomes and event probability
- Experimental and theoretical probability for compound events
- Probabilities involving two rolls of a die
- Probabilities of a permutation and a combination
- Identifying independent events given descriptions of experiments
- Probability of independent events
- Probability of dependent events
- Using a random number table to simulate a simple event
- Generating a random number table with technology to simulate a simple event
- Identifying outcomes in a random number table used to simulate a compound event
- Using a random number table to simulate a compound event
- Generating a random number table with technology to simulate a compound event
- Using a random number table to make a fair decision

*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.