

Algebra 1B

This course covers the topics shown below.

Students navigate learning paths based on their level of readiness.

Institutional users may customize the scope and sequence to meet curricular needs.

Curriculum (341 topics + 308 additional topics)

- Arithmetic Readiness (26 topics)
 - ◆ Whole Numbers (11 topics)
 - ◇ Introduction to exponents
 - ◇ Power of 10: Positive exponent
 - ◇ Order of operations with whole numbers
 - ◇ Order of operations with whole numbers and grouping symbols
 - ◇ Order of operations with whole numbers and exponents: Basic
 - ◇ Order of operations with whole numbers and exponents: Advanced
 - ◇ Evaluating an algebraic expression: Whole numbers with two operations
 - ◇ Evaluating an algebraic expression: Whole number operations and exponents
 - ◇ Prime factorization
 - ◇ Greatest common factor of 2 numbers
 - ◇ Least common multiple of 2 numbers
 - ◆ Fractions (8 topics)
 - ◇ Simplifying a fraction
 - ◇ Introduction to addition or subtraction of fractions with different denominators
 - ◇ Addition or subtraction of fractions with different denominators
 - ◇ Product of a fraction and a whole number: Problem type 1
 - ◇ Introduction to fraction multiplication
 - ◇ Fraction multiplication
 - ◇ The reciprocal of a number
 - ◇ Fraction division
 - ◆ Decimals (5 topics)
 - ◇ Rounding decimals
 - ◇ Multiplication of a decimal by a whole number
 - ◇ Division of a decimal by a whole number
 - ◇ Word problem with one decimal operation: Problem type 1
 - ◇ Word problem with one decimal operation: Problem type 2
 - ◆ Geometry (2 topics)
 - ◇ Perimeter of a square or a rectangle
 - ◇ Area of a square or a rectangle
- Real Numbers (32 topics)
 - ◆ Classifying, Plotting, and Ordering (6 topics)
 - ◇ Identifying numbers as integers or non-integers
 - ◇ Identifying numbers as rational or irrational
 - ◇ Plotting integers on a number line
 - ◇ Fractional position on a number line
 - ◇ Ordering integers
 - ◇ Ordering real numbers

- ◆ Operations with Signed Numbers (20 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
 - ◇ Signed fraction addition or subtraction: Basic
 - ◇ Signed fraction addition or subtraction: Advanced
 - ◇ Signed decimal addition and subtraction
 - ◇ Signed decimal addition and subtraction with 3 numbers
 - ◇ Integer multiplication and division
 - ◇ Multiplication of 3 or 4 integers
 - ◇ Signed fraction multiplication: Basic
 - ◇ Signed fraction multiplication: Advanced
 - ◇ Classifying sums and products as rational or irrational
 - ◇ Exponents and integers: Problem type 1
 - ◇ Exponents and signed fractions
 - ◇ Order of operations with integers
 - ◇ Order of operations with integers and exponents
 - ◇ Evaluating a linear expression: Integer multiplication with addition or subtraction
 - ◇ Evaluating a quadratic expression: Integers
- ◆ Properties of Real Numbers (6 topics)
 - ◇ Distributive property: Whole number coefficients
 - ◇ Distributive property: Integer coefficients
 - ◇ Combining like terms: Whole number coefficients
 - ◇ Combining like terms: Integer coefficients
 - ◇ Combining like terms: Advanced
 - ◇ Combining like terms in a quadratic expression
- Linear Equations (44 topics)
 - ◆ One–Step Linear Equations (6 topics)
 - ◇ Additive property of equality with integers
 - ◇ Additive property of equality with a negative coefficient
 - ◇ Additive property of equality with signed fractions
 - ◇ Multiplicative property of equality with fractions
 - ◇ Multiplicative property of equality with integers
 - ◇ Multiplicative property of equality with signed fractions
 - ◆ Multi–Step Linear Equations (15 topics)
 - ◇ Solving a two–step equation with integers
 - ◇ Solving a multi–step equation given in fractional form
 - ◇ Solving a two–step equation with signed fractions
 - ◇ Introduction to solving an equation with parentheses
 - ◇ 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
 - ◇ 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 linear equation with several occurrences of the variable: Variables on both sides and two distributions
 - ◇ Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients

- ◇ Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators
 - ◇ Introduction to algebraic symbol manipulation
 - ◇ Algebraic symbol manipulation: Problem type 1
 - ◇ Algebraic symbol manipulation: Problem type 2
- ◆ Writing Expressions and Equations (4 topics)
 - ◇ Writing a one-step expression for a real-world situation
 - ◇ Translating a phrase into a two-step expression
 - ◇ Translating a sentence into a one-step equation
 - ◇ Translating a sentence into a multi-step equation
- ◆ Applications (5 topics)
 - ◇ Solving a fraction word problem using a linear equation of the form $Ax = B$
 - ◇ Solving a word problem with two unknowns using a linear equation
 - ◇ Solving a decimal word problem using a linear equation of the form $Ax + B = C$
 - ◇ Solving a one-step word problem using the formula $d = rt$
 - ◇ Finding the side length of a rectangle given its perimeter or area
- ◆ Proportions (8 topics)
 - ◇ Writing ratios for real-world situations
 - ◇ Solving a proportion of the form $x/a = b/c$
 - ◇ Solving a proportion of the form $(x+a)/b = c/d$
 - ◇ Solving a proportion of the form $a/(x+b) = c/x$
 - ◇ Solving a word problem on proportions using a unit rate
 - ◇ Word problem on proportions: Problem type 1
 - ◇ Similar polygons
 - ◇ Indirect measurement
- ◆ Percents (6 topics)
 - ◇ Converting between percentages and decimals
 - ◇ Converting a fraction to a percentage: Denominator of 20, 25, or 50
 - ◇ Finding a percentage of a whole number without a calculator: Basic
 - ◇ Applying the percent equation
 - ◇ Finding the sale price without a calculator given the original price and percent discount
 - ◇ Finding simple interest without a calculator
- Linear Inequalities (9 topics)
 - ◆ Writing and Graphing Inequalities (3 topics)
 - ◇ Translating a sentence by using an inequality symbol
 - ◇ Graphing a linear inequality on the number line
 - ◇ Writing an inequality given a graph on the number line
 - ◆ Linear Inequalities and Applications (6 topics)
 - ◇ Additive property of inequality with integers
 - ◇ Multiplicative property of inequality with integers
 - ◇ Solving a two-step linear inequality: Problem type 1
 - ◇ Solving a two-step linear inequality: Problem type 2
 - ◇ 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
- Functions and Lines (43 topics)
 - ◆ Sets, Relations, and Functions (4 topics)
 - ◇ Table for a linear function
 - ◇ Evaluating functions: Linear and quadratic or cubic
 - ◇ Domain and range from ordered pairs
 - ◇ Writing a function rule given a table of ordered pairs: One-step rules
 - ◆ Ordered Pairs (5 topics)
 - ◇ Reading a point in the coordinate plane
 - ◇ Plotting a point in the coordinate plane

- ◇ Identifying solutions to a linear equation in two variables
- ◇ Table for a linear equation
- ◇ Finding a solution to a linear equation in two variables
- ◆ Graphing Lines (6 topics)
 - ◇ 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 line given its x – and y –intercepts
 - ◇ Graphing a vertical or horizontal line
- ◆ Equations of Lines (10 topics)
 - ◇ Identifying linear functions given ordered pairs
 - ◇ 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
 - ◇ Classifying slopes given graphs of lines
 - ◇ Finding slope given the graph of a line on a grid
 - ◇ Finding slope given two points on the line
 - ◇ Finding the slope of horizontal and vertical lines
 - ◇ 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 and graphing a line given its slope and y –intercept
- ◆ Applications (4 topics)
 - ◇ 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: Advanced
 - ◇ Comparing properties of linear functions given in different forms
 - ◇ Solving a linear equation by graphing
- ◆ Direct Variation (4 topics)
 - ◇ Identifying direct variation equations
 - ◇ Identifying direct variation from ordered pairs and writing equations
 - ◇ Writing a direct variation equation
 - ◇ Word problem on direct variation
- ◆ Arithmetic Sequences (8 topics)
 - ◇ 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 sequence using a recursive rule
 - ◇ Writing a recursive rule for an arithmetic sequence
- ◆ Introduction to Graphing Quadratic and Cubic Functions (2 topics)
 - ◇ Graphing a parabola of the form $y = ax^2$
 - ◇ Graphing a parabola of the form $y = ax^2 + c$
- Systems (3 topics)
 - ◆ Systems of Linear Equations (3 topics)
 - ◇ Graphically solving a system of linear equations
 - ◇ Solving a system of linear equations using substitution
 - ◇ Solving a system of linear equations using elimination with addition
- Exponents (47 topics)
 - ◆ Properties of Exponents (23 topics)
 - ◇ Evaluating expressions with exponents of zero
 - ◇ Power of 10: Negative exponent
 - ◇ Evaluating an expression with a negative exponent: Positive fraction base

- ◇ Evaluating an expression with a negative exponent: Negative integer base
- ◇ Rewriting an algebraic expression without a negative exponent
- ◇ Understanding the product rule of exponents
- ◇ Introduction to the product rule of exponents
- ◇ Product rule with positive exponents: Multivariate
- ◇ Introduction to the product rule with negative exponents
- ◇ Product rule with negative exponents
- ◇ Introduction to the quotient rule of exponents
- ◇ Quotient of expressions involving exponents
- ◇ Quotient rule with negative exponents: Problem type 1
- ◇ Quotient rule with negative exponents: Problem type 2
- ◇ Understanding the power rules of exponents
- ◇ Introduction to the power rules of exponents
- ◇ Power rules with positive exponents
- ◇ Power of a power rule with negative exponents
- ◇ Power rules with negative exponents
- ◇ Power and product rules with positive exponents
- ◇ Power and quotient rules with positive exponents
- ◇ Power and quotient rules with negative exponents: Problem type 1
- ◇ Power and quotient rules with negative exponents: Problem type 2
- ◆ Scientific Notation (3 topics)
 - ◇ Scientific notation with positive exponent
 - ◇ Scientific notation with negative exponent
 - ◇ Multiplying and dividing numbers written in scientific notation
- ◆ Rational Exponents (2 topics)
 - ◇ Converting between radical form and exponent form
 - ◇ Rational exponents: Non–unit fraction exponent with a whole number base
- ◆ Exponential Functions (11 topics)
 - ◇ Table for an exponential function
 - ◇ Evaluating an exponential function that models a real–world situation
 - ◇ Finding the initial amount and rate of change given an exponential function
 - ◇ Writing an equation that models exponential growth or decay
 - ◇ Writing an exponential function rule given a table of ordered pairs
 - ◇ Solving an exponential equation by finding common bases: Linear exponents
 - ◇ Finding a final amount in a word problem on exponential growth or decay
 - ◇ Finding the final amount in a word problem on compound interest
 - ◇ Graphing an exponential function: $f(x) = a^x$
 - ◇ Graphing an exponential function: $f(x) = a(b)^x$
 - ◇ Comparing linear, polynomial, and exponential functions
- ◆ Geometric Sequences (8 topics)
 - ◇ Finding the next terms of a geometric sequence with whole numbers
 - ◇ Finding the next terms of a geometric sequence with signed numbers
 - ◇ Identifying arithmetic and geometric sequences
 - ◇ Identifying geometric sequences and finding the common ratio
 - ◇ Finding a specified term of a geometric sequence given the first terms
 - ◇ Finding a specified term of a geometric sequence given the common ratio and first term
 - ◇ Arithmetic and geometric sequences: Identifying and writing an explicit rule
 - ◇ Writing recursive rules for arithmetic and geometric sequences
- Polynomials and Factoring (47 topics)
 - ◆ Polynomial Expressions (16 topics)
 - ◇ Degree and leading coefficient of a univariate polynomial
 - ◇ Simplifying a sum or difference of two univariate polynomials
 - ◇ Multiplying a univariate polynomial by a monomial with a positive coefficient

- ◇ 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
- ◇ Dividing a polynomial by a monomial: Univariate
- ◇ Polynomial long division: Problem type 1
- ◇ Polynomial long division: Problem type 2
- ◇ Closure properties of integers and polynomials
- ◆ Factoring Using the GCF (4 topics)
 - ◇ Introduction to the GCF of two monomials
 - ◇ Greatest common factor of two multivariate monomials
 - ◇ Greatest common factor of three univariate monomials
 - ◇ Factoring out a monomial from a polynomial: Univariate
- ◆ Factoring by Grouping (4 topics)
 - ◇ 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 Quadratic Trinomials (10 topics)
 - ◇ 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 product of a quadratic trinomial and a monomial
- ◆ Factoring Special Products (7 topics)
 - ◇ 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
- ◆ Solving Quadratic Equations by Factoring (6 topics)
 - ◇ Solving an equation written in factored form
 - ◇ Finding the roots of a quadratic equation of the form $ax^2 + bx = 0$
 - ◇ Finding the roots of a quadratic equation with leading coefficient 1
 - ◇ Finding the roots of a quadratic equation with leading coefficient greater than 1
 - ◇ Solving a quadratic equation needing simplification
 - ◇ Solving a word problem using a quadratic equation with rational roots
- Quadratic Functions and Equations (27 topics)
 - ◆ Quadratic Functions (13 topics)
 - ◇ Finding the vertex, x–intercepts, and axis of symmetry from the graph of a parabola
 - ◇ Finding the x–intercept(s) and the vertex of a parabola

- ◇ Rewriting a quadratic function to find the vertex of its graph
- ◇ Finding the maximum or minimum of a quadratic function
- ◇ Word problem involving the maximum or minimum of a quadratic function
- ◇ Domain and range from the graph of a parabola
- ◇ Comparing properties of quadratic functions given in different forms
- ◇ Translating the graph of a parabola: One step
- ◇ Graphing a parabola of the form $y = (x-h)^2 + k$
- ◇ Graphing a parabola of the form $y = ax^2 + bx + c$: Integer coefficients
- ◇ Identifying linear, quadratic, and exponential functions given ordered pairs
- ◇ How the leading coefficient affects the shape of a parabola
- ◇ Writing an equation for a function after a vertical translation
- ◆ Quadratic Equations (10 topics)
 - ◇ Solving a quadratic equation by graphing
 - ◇ 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
 - ◇ Completing the square
 - ◇ Solving a quadratic equation by completing the square: Decimal answers
 - ◇ Applying the quadratic formula: Decimal answers
 - ◇ Applying the quadratic formula: Exact answers
 - ◇ Discriminant of a quadratic equation
 - ◇ Solving a word problem using a quadratic equation with irrational roots
- ◆ Nonlinear Systems of Equations (2 topics)
 - ◇ Graphically solving a system of linear and quadratic equations
 - ◇ Solving a system of linear and quadratic equations
- ◆ Average Rate of Change (2 topics)
 - ◇ Finding the average rate of change of a function given its equation
 - ◇ Finding the average rate of change of a function given its graph
- Radicals (25 topics)
 - ◆ Radical Functions (2 topics)
 - ◇ Domain of a square root function
 - ◇ Graphing a square root function
 - ◆ Radical Expressions (14 topics)
 - ◇ Square root of a perfect square
 - ◇ Estimating a square root
 - ◇ Square root of a rational perfect square
 - ◇ Cube root of an integer
 - ◇ Simplifying the square root of a whole number less than 100
 - ◇ Square root of a perfect square monomial
 - ◇ Simplifying a radical expression with an even exponent
 - ◇ Simplifying a radical expression with two variables
 - ◇ Square root addition or subtraction
 - ◇ Simplifying a sum or difference of radical expressions: Multivariate
 - ◇ Square root multiplication: Advanced
 - ◇ Simplifying a product of radical expressions: Multivariate
 - ◇ Simplifying a product involving square roots using the distributive property: Advanced
 - ◇ Rationalizing the denominator of a radical expression
 - ◆ Radical Equations (3 topics)
 - ◇ Solving a radical equation that simplifies to a linear equation: One radical, basic
 - ◇ Solving a radical equation that simplifies to a linear equation: Two radicals
 - ◇ Solving a radical equation that simplifies to a quadratic equation: One radical
 - ◆ Pythagorean Theorem and Distance Formula (2 topics)
 - ◇ Pythagorean Theorem

- ◇ Distance between two points in the plane: Exact answers
- ◆ Trigonometry (4 topics)
 - ◇ Sine, cosine, and tangent ratios: Numbers for side lengths
 - ◇ Using a calculator to approximate sine, cosine, and tangent values
 - ◇ Using a trigonometric ratio to find a side length in a right triangle
 - ◇ Using trigonometry to find a length in a word problem with one right triangle
- Rational Expressions (29 topics)
 - ◆ Rational Expressions (13 topics)
 - ◇ Restriction on a variable in a denominator: Linear
 - ◇ Domain of a rational function: Excluded values
 - ◇ Simplifying a ratio of polynomials: Problem type 1
 - ◇ Simplifying a ratio of polynomials: Problem type 2
 - ◇ Multiplying rational expressions involving multivariate monomials
 - ◇ Multiplying rational expressions involving quadratics with leading coefficients of 1
 - ◇ Dividing rational expressions involving multivariate monomials
 - ◇ Dividing rational expressions involving quadratics with leading coefficients of 1
 - ◇ Introduction to the LCM of two monomials
 - ◇ Adding rational expressions with common denominators and binomial numerators
 - ◇ Adding rational expressions with different denominators: ax , bx
 - ◇ Adding rational expressions with different denominators: $x+a$, $x+b$
 - ◇ Adding rational expressions involving different quadratic denominators
 - ◆ Complex Fractions (4 topics)
 - ◇ Complex fraction without variables: Problem type 1
 - ◇ Complex fraction without variables: Problem type 2
 - ◇ Complex fraction involving multivariate monomials
 - ◇ Complex fraction: GCF and quadratic factoring
 - ◆ Rational Equations (6 topics)
 - ◇ Solving a rational equation that simplifies to linear: Denominator x
 - ◇ Solving a rational equation that simplifies to linear: Denominator $x+a$
 - ◇ Solving a rational equation that simplifies to linear: Unlike binomial denominators
 - ◇ Solving a rational equation that simplifies to linear: Denominators a , x , or ax
 - ◇ Solving a rational equation that simplifies to quadratic: Binomial denominators, constant numerators
 - ◇ Solving a rational equation that simplifies to quadratic: Binomial denominators and numerators
 - ◆ Applications (6 topics)
 - ◇ Word problem involving multiple rates
 - ◇ Solving a work problem using a rational equation
 - ◇ Identifying direct and inverse variation from ordered pairs and writing equations
 - ◇ Identifying direct and inverse variation equations
 - ◇ Writing an inverse variation equation
 - ◇ Word problem on inverse variation
- Data Analysis and Probability (9 topics)
 - ◆ Counting (2 topics)
 - ◇ Introduction to the counting principle
 - ◇ Counting principle
 - ◆ Probability (7 topics)
 - ◇ Introduction to the probability of an event
 - ◇ Probability of an event
 - ◇ Odds of an event
 - ◇ Outcomes and event probability
 - ◇ Experimental and theoretical probability
 - ◇ Probability of independent events
 - ◇ Probability of dependent events

- Other Topics Available(*) (308 additional topics)
 - ◆ Arithmetic Readiness (64 topics)
 - ◇ Rounding to tens or hundreds
 - ◇ Rounding to hundreds or thousands
 - ◇ Estimating a sum of whole numbers
 - ◇ Writing expressions using exponents
 - ◇ Factors
 - ◇ Prime numbers
 - ◇ Word problem with common multiples
 - ◇ Equivalent fractions
 - ◇ Using a common denominator to order fractions
 - ◇ Addition or subtraction of fractions with the same denominator
 - ◇ Finding the LCD of two fractions
 - ◇ Fractional part of a circle
 - ◇ Product of a unit fraction and a whole number
 - ◇ Division involving a whole number and a fraction
 - ◇ Mixed arithmetic operations with fractions
 - ◇ Multi-step word problem involving fractions and multiplication
 - ◇ Writing an improper fraction as a mixed number
 - ◇ Writing a mixed number as an improper fraction
 - ◇ Addition of mixed numbers with the same denominator and carry
 - ◇ Subtraction of mixed numbers with the same denominator and borrowing
 - ◇ Addition or subtraction of mixed numbers with different denominators
 - ◇ Mixed number multiplication: Problem type 1
 - ◇ Mixed number division
 - ◇ Decimal place value: Tenths and hundredths
 - ◇ Introduction to ordering decimals
 - ◇ Ordering decimals
 - ◇ Ordering fractions and decimals
 - ◇ Converting a fraction to a terminating decimal
 - ◇ Converting a fraction to a repeating decimal
 - ◇ Converting a decimal to a proper fraction in simplest form: Advanced
 - ◇ Addition of aligned decimals
 - ◇ Subtraction of aligned decimals
 - ◇ Estimating a decimal sum or difference
 - ◇ Multiplication of a decimal by a power of ten
 - ◇ Decimal multiplication: Problem type 1
 - ◇ Division of a decimal by a power of ten
 - ◇ Division of a decimal by a 2-digit decimal
 - ◇ Word problem with multiple decimal operations: Problem type 1
 - ◇ Perimeter of a polygon
 - ◇ Finding the missing length in a figure
 - ◇ Area of a piecewise rectangular figure
 - ◇ Word problem involving the area between two rectangles
 - ◇ Area of a triangle
 - ◇ Area of a parallelogram
 - ◇ Area of a trapezoid
 - ◇ Circumference of a circle
 - ◇ Perimeter involving rectangles and circles
 - ◇ Circumference ratios
 - ◇ Circumference and area of a circle

- ◇ Area involving rectangles and circles
- ◇ Word problem involving the area between two concentric circles
- ◇ Area involving inscribed figures
- ◇ Surface area of a cube or a rectangular prism
- ◇ Surface area of a triangular prism
- ◇ Surface area of a cylinder: Exact answers in terms of pi
- ◇ Surface area of a sphere
- ◇ Volume of a rectangular prism
- ◇ Volume of a triangular prism
- ◇ Volume of a pyramid
- ◇ Volume of a cylinder
- ◇ Word problem involving the rate of filling or emptying a cylinder
- ◇ Volume of a cone: Exact answers in terms of pi
- ◇ Volume of a sphere
- ◇ Finding supplementary and complementary angles
- ◆ Real Numbers (11 topics)
 - ◇ Reading the temperature from a thermometer
 - ◇ Writing a signed number for a real-world situation
 - ◇ Plotting rational numbers on a number line
 - ◇ Word problem with addition or subtraction of integers
 - ◇ Exponents and integers: Problem type 2
 - ◇ Absolute value of a number
 - ◇ Operations with absolute value: Problem type 2
 - ◇ Computing distances between decimals on the number line
 - ◇ Properties of addition
 - ◇ Properties of real numbers
 - ◇ Understanding the distributive property
- ◆ Linear Equations (45 topics)
 - ◇ Additive property of equality with whole numbers
 - ◇ Additive property of equality with fractions and mixed numbers
 - ◇ Additive property of equality with decimals
 - ◇ Multiplicative property of equality with whole numbers
 - ◇ Multiplicative property of equality with decimals
 - ◇ Identifying solutions to a linear equation in one variable: Two-step equations
 - ◇ Using two steps to solve an equation with whole numbers
 - ◇ Solving a two-step equation with signed decimals
 - ◇ Solving an equation to find the value of an expression
 - ◇ Solving equations with zero, one, or infinitely many solutions
 - ◇ Identifying properties used to solve a linear equation
 - ◇ Translating a phrase into a one-step expression
 - ◇ 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 percent mixture problem using a linear equation
 - ◇ Word problem on unit rates associated with ratios of whole numbers: Decimal answers
 - ◇ Solving a word problem involving rates and time conversion
 - ◇ Solving a distance, rate, time problem using a linear equation
 - ◇ Finding a side length given the perimeter and side lengths with variables
 - ◇ Finding the perimeter or area of a rectangle given one of these values
 - ◇ Solving equations involving vertical angles

- ◇ Finding an angle measure of a triangle given two angles
- ◇ Finding angle measures of a right or isosceles triangle given angles with variables
- ◇ Finding the value for a new score that will yield a given mean
- ◇ Word problem on proportions: Problem type 2
- ◇ Similar right triangles
- ◇ Converting a percentage to a fraction in simplest form
- ◇ Writing a ratio as a percentage without a calculator
- ◇ Finding the original price given the sale price and percent discount
- ◇ Finding the percentage increase or decrease: Advanced
- ◇ U.S. Customary unit conversion with whole number values
- ◇ Metric distance conversion with whole number values
- ◇ Converting between metric and U.S. Customary unit systems
- ◇ Converting between compound units: Basic
- ◇ Converting between compound units: Advanced
- ◇ Converting between temperatures in Fahrenheit and Celsius
- ◇ Finding the absolute error and percent error of a measurement
- ◇ Solving an absolute value equation: Problem type 1
- ◇ Solving an absolute value equation: Problem type 2
- ◇ Solving an absolute value equation: Problem type 3
- ◇ Solving an absolute value equation: Problem type 4
- ◆ Linear Inequalities (25 topics)
 - ◇ Translating a sentence into a one-step inequality
 - ◇ Translating a sentence into a multi-step inequality
 - ◇ Writing an inequality for a real-world situation
 - ◇ Writing a multi-step inequality for a real-world situation
 - ◇ 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 two-step linear inequality in one variable
 - ◇ Additive property of inequality with whole numbers
 - ◇ Additive property of inequality with signed fractions
 - ◇ Additive property of inequality with signed decimals
 - ◇ Multiplicative property of inequality with signed fractions
 - ◇ Solving a two-step linear inequality with a fractional coefficient
 - ◇ Solving a linear inequality with multiple occurrences of the variable: Problem type 3
 - ◇ Solving inequalities with no solution or all real numbers as solutions
 - ◇ Solving a compound linear inequality: Graph solution, basic
 - ◇ Solving a compound linear inequality: Graph solution, advanced
 - ◇ Solving a decimal word problem using a two-step linear inequality
 - ◇ Solving a decimal word problem using a linear inequality with the variable on both sides
 - ◇ Writing an absolute value inequality given a graph on the number line
 - ◇ Solving an absolute value inequality: Problem type 1
 - ◇ Solving an absolute value inequality: Problem type 2
 - ◇ Solving an absolute value inequality: Problem type 3
 - ◇ Solving an absolute value inequality: Problem type 4
 - ◇ Solving an absolute value inequality: Problem type 5
- ◆ Functions and Lines (53 topics)
 - ◇ Set builder notation
 - ◇ Union and intersection of finite sets
 - ◇ Variable expressions as inputs of functions: Problem type 1
 - ◇ Graphing an integer function and finding its range for a given domain
 - ◇ Identifying functions from relations
 - ◇ Vertical line test

- ◇ Finding inputs and outputs of a function from its graph
- ◇ Finding where a function is increasing, decreasing, or constant given the graph
- ◇ Finding local maxima and minima of a function given the graph
- ◇ Writing a function rule given a table of ordered pairs: Two–step rules
- ◇ Introduction to the composition of two functions
- ◇ Inverse functions: Linear, discrete
- ◇ Graphing a line by first finding its x– and y–intercepts
- ◇ Graphing a line through a given point with a given slope
- ◇ Graphing a line by first finding its slope and y–intercept
- ◇ Graphing a line given its equation in point–slope form
- ◇ Identifying linear equations: Advanced
- ◇ Rewriting a linear equation in the form $Ax + By = C$
- ◇ Finding x– and y–intercepts of a line given the equation: Advanced
- ◇ Finding the coordinate that yields a given slope
- ◇ Writing an equation of a line given the y–intercept and another point
- ◇ Writing an equation in slope–intercept form given the slope and a point
- ◇ Writing an equation in point–slope form given the slope and a point
- ◇ Writing the equation of the line through two given points
- ◇ Writing the equations of vertical and horizontal lines through a given point
- ◇ Identifying independent and dependent variables from equations or real–world situations
- ◇ Domain and range of a linear function that models a real–world situation
- ◇ Interpreting the parameters of a linear function that models a real–world situation
- ◇ Combining functions to write a new 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
- ◇ Identifying parallel and perpendicular lines from equations
- ◇ Finding slopes of lines parallel and perpendicular to a line given in the form $Ax + By = C$
- ◇ Writing equations of lines parallel and perpendicular to a given line through a point
- ◇ Choosing a graph to fit a narrative: Advanced
- ◇ Interpreting direct variation from a graph
- ◇ Scatter plots and correlation
- ◇ Sketching the line of best fit
- ◇ Predictions from the line of best fit
- ◇ Approximating the equation of a line of best fit and making predictions
- ◇ Computing residuals
- ◇ Interpreting residual plots
- ◇ Linear relationship and the correlation coefficient
- ◇ Identifying correlation and causation
- ◇ Translating the graph of an absolute value function: One step
- ◇ Translating the graph of an absolute value function: Two steps
- ◇ Graphing an absolute value equation of the form $y = A|x|$
- ◇ Graphing an absolute value equation in the plane: Basic
- ◇ Graphing an absolute value equation in the plane: Advanced
- ◇ How the leading coefficient affects the graph of an absolute value function
- ◇ Graphing a cubic function of the form $y = ax^3$
- ◇ Evaluating a piecewise–defined function
- ◇ Graphing a piecewise–defined function: Problem type 1
- ◆ Systems (29 topics)
 - ◇ Identifying solutions to a system of linear equations
 - ◇ Classifying systems of linear equations from graphs
 - ◇ 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 a 2x2 system of linear equations that is inconsistent or consistent dependent
- ◇ Solving a 3x3 system of linear equations: Problem type 1
- ◇ Identifying the operations used to create equivalent systems of equations
- ◇ 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 $Ax + By = C$
- ◇ 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
- ◇ 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
- ◇ Identifying solutions to a linear inequality in two variables
- ◇ Graphing a linear inequality in the plane: Slope–intercept form
- ◇ Graphing a linear inequality in the plane: Standard form
- ◇ Graphing a linear inequality in the plane: Vertical or horizontal line
- ◇ Graphing a system of two linear inequalities: Basic
- ◇ Graphing a system of two linear inequalities: Advanced
- ◇ Graphing a system of three linear inequalities
- ◇ Solving a word problem using a system of linear inequalities: Problem type 1
- ◇ Scalar multiplication of a matrix
- ◇ Addition or subtraction of matrices
- ◇ Linear combination of matrices
- ◇ Gauss–Jordan elimination with a 2x2 matrix
- ◆ Exponents (6 topics)
 - ◇ Ordering numbers with positive exponents
 - ◇ Ordering numbers with negative exponents
 - ◇ Power, product, and quotient rules with negative exponents
 - ◇ Rational exponents: Negative exponents and fractional bases
 - ◇ Rational exponents: Products and quotients with negative exponents
 - ◇ Rational exponents: Powers of powers with negative exponents
- ◆ Polynomials and Factoring (13 topics)
 - ◇ Degree of a multivariate polynomial
 - ◇ 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 negative coefficient
 - ◇ Multiplying a multivariate polynomial by a monomial
 - ◇ Multiplication involving binomials and trinomials in two variables
 - ◇ Dividing a polynomial by a monomial: Multivariate
 - ◇ Polynomial long division: Problem type 3
 - ◇ Factoring out a monomial from a polynomial: Multivariate
 - ◇ Factoring a multivariate polynomial by grouping: Problem type 2
 - ◇ Factoring a polynomial involving a GCF and a difference of squares: Multivariate
 - ◇ Factoring with repeated use of the difference of squares formula
 - ◇ Factoring a sum or difference of two cubes
- ◆ Quadratic Functions and Equations (6 topics)
 - ◇ Range of a quadratic function
 - ◇ Graphing a parabola of the form $y = ax^2 + bx + c$: Rational coefficients
 - ◇ Classifying the graph of a function
 - ◇ Writing an equation for a function after a vertical and horizontal translation
 - ◇ Graphing a quadratic inequality: Problem type 1
 - ◇ Graphing a quadratic inequality: Problem type 2

- ◆ Radicals (9 topics)
 - ◇ Simplifying a higher root of a whole number
 - ◇ Simplifying a higher radical expression: Multivariate
 - ◇ Special products of radical expressions: Conjugates and squaring
 - ◇ Rationalizing the denominator of a radical expression using conjugates
 - ◇ Midpoint of a line segment in the plane
 - ◇ Using the Pythagorean Theorem to find a trigonometric ratio
 - ◇ 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
 - ◇ Solving a right triangle
- ◆ Rational Expressions (8 topics)
 - ◇ Simplifying a ratio of multivariate polynomials
 - ◇ Least common multiple of two monomials
 - ◇ Adding rational expressions with multivariate monomial denominators: Advanced
 - ◇ Complex fraction made of sums involving rational expressions
 - ◇ Solving a rational equation that simplifies to quadratic: Proportional form, advanced
 - ◇ Word problem on inverse proportions
 - ◇ Finding the asymptotes of a rational function: Basic
 - ◇ Graphing a rational function: Constant or linear over linear
- ◆ Data Analysis and Probability (39 topics)
 - ◇ Constructing a line plot
 - ◇ Constructing a histogram for numerical data
 - ◇ Interpreting a bar graph
 - ◇ Interpreting a double bar graph
 - ◇ Interpreting a line graph
 - ◇ Interpreting a circle graph or pie chart
 - ◇ Computations from a circle graph
 - ◇ Angle measure in a circle graph
 - ◇ Interpreting a stem-and-leaf plot
 - ◇ Using back-to-back stem-and-leaf plots to compare data sets
 - ◇ Constructing a box-and-whisker plot
 - ◇ Using box-and-whisker plots to compare data sets
 - ◇ Mode of a data set
 - ◇ Finding the mode and range of a data set
 - ◇ Mean of a data set
 - ◇ Mean and median of a data set
 - ◇ Weighted mean
 - ◇ How changing a value affects the mean and median
 - ◇ Choosing the best measure to describe data
 - ◇ Rejecting unreasonable claims based on average statistics
 - ◇ Finding if a question can be answered by the data
 - ◇ Computing a percentage from a table of values
 - ◇ Calculating relative frequencies in a contingency table
 - ◇ Making a reasonable inference based on proportion statistics
 - ◇ Percentiles
 - ◇ Five-number summary and interquartile range
 - ◇ Population standard deviation
 - ◇ Interpreting a Venn diagram of 2 sets
 - ◇ Interpreting a Venn diagram of 3 sets
 - ◇ Interpreting a tree diagram
 - ◇ Factorial expressions
 - ◇ Computing permutations and combinations
 - ◇ Word problem involving permutations

- ◇ Word problem involving combinations
- ◇ Permutations, combinations, and the multiplication principle for counting
- ◇ Probabilities involving two dice
- ◇ Area as probability
- ◇ Introduction to expectation
- ◇ Probability of the union of two events

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.*