This course covers the topics outlined below, and can be used to support a non–STEM pathways course. You can customize the scope and sequence of this course to meet your curricular needs.

Curriculum (457 topics + 788 additional topics)

- Arithmetic Readiness (109 topics)
  - Whole Numbers (26 topics)
    - Whole number place value: Problem type 1
    - Whole number place value: Problem type 2
    - Expanded form: 2 and 3–digit numbers
    - Expanded form: 4 and 5–digit numbers
    - Introduction to inequalities
    - Multiplication as repeated addition
    - 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
    - Time unit conversion with whole number values
    - Rounding to tens or hundreds
    - Rounding to hundreds or thousands
    - Estimating a sum of whole numbers: Problem type 2
    - Writing expressions using exponents
    - Introduction to exponents
    - Introduction to parentheses
    - Introduction to order of operations
    - Order of operations with whole numbers
    - Order of operations with whole numbers and exponents: Basic
    - Even and odd numbers
    - Divisibility rules for 2, 5, and 10
    - Factors
    - Prime numbers
    - Greatest common factor of 2 numbers
    - Least common multiple of 2 numbers
    - Finding the next terms of an arithmetic sequence with whole numbers
    - Finding patterns in shapes
  - Integers (17 topics)
    - Plotting integers on a number line
    - Ordering integers
    - Writing a signed number for a real–world situation
    - 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
    - Absolute value of a number
    - Integer addition: Problem type 1
    - Integer addition: Problem type 2
    - Identifying relative change when combining two quantities
    - Integer subtraction: Problem type 1
    - Integer subtraction: Problem type 2
◊ Integer subtraction: Problem type 3
◊ Addition and subtraction with 3 integers
◊ Word problem with addition or subtraction of integers
◊ Integer multiplication and division
◊ Multiplication of 3 or 4 integers
◊ Word problem with multiplication or division of integers

♦ Introduction to Expressions and Equations (10 topics)
  ◊ Evaluating an algebraic expression: Whole number addition or subtraction
  ◊ Evaluating an algebraic expression: Whole number multiplication or division
  ◊ Evaluating an algebraic expression: Whole numbers with two operations
  ◊ Evaluating a formula
  ◊ Evaluating an algebraic expression: Whole numbers with one operation and an exponent
  ◊ Evaluating a linear expression: Integer multiplication with addition or subtraction
  ◊ Additive property of equality with whole numbers
  ◊ Multiplicative property of equality with whole numbers
  ◊ Using two steps to solve an equation with whole numbers
  ◊ Distinguishing between expressions and equations

♦ Introduction to Perimeter and Area (3 topics)
  ◊ Perimeter of a polygon
  ◊ Perimeter of a square or a rectangle
  ◊ Area of a square or a rectangle

♦ Fractions (18 topics)
  ◊ Introduction to non–unit fractions
  ◊ Equivalent fractions
  ◊ Introduction to simplifying a fraction
  ◊ Simplifying a fraction
  ◊ Plotting fractions on a number line
  ◊ Using a common denominator to order fractions
  ◊ Product of a unit fraction and a whole number
  ◊ Product of a fraction and a whole number: Problem type 1
  ◊ Introduction to fraction multiplication
  ◊ Fraction multiplication
  ◊ Product of a fraction and a whole number: Problem type 2
  ◊ Multiplication of 3 fractions
  ◊ Word problem involving fractions and multiplication
  ◊ The reciprocal of a number
  ◊ Addition or subtraction of fractions with the same denominator and simplification
  ◊ Finding the LCD of two fractions
  ◊ Writing fractions with a common denominator to add or subtract
  ◊ Addition or subtraction of fractions with different denominators

♦ Decimals (28 topics)
  ◊ Decimal place value: Tenths and hundredths
  ◊ Introduction to ordering decimals
  ◊ Ordering decimals
  ◊ Rounding decimals
  ◊ Decimal addition with 2 numbers
  ◊ Decimal addition with 3 numbers
  ◊ Subtraction of aligned decimals
  ◊ Decimal subtraction: Basic
  ◊ Decimal subtraction: Advanced
  ◊ Estimating a decimal sum or difference
  ◊ Signed decimal addition and subtraction
  ◊ Word problem with addition or subtraction of 2 decimals
◊ Word problem with addition of 3 or 4 decimals and whole numbers
◊ 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 ten
◊ Multiplication of a decimal by a power of 0.1
◊ Estimating a product of decimals
◊ Word problem with multiplication of a decimal and a whole number
◊ Word problem with decimal addition and multiplication
◊ Whole number division with decimal answers
◊ Division of a decimal by a whole number
◊ Division of a decimal by a 1-digit decimal: Problem type 1
◊ Division of a decimal by a power of ten
◊ Word problem with division of a decimal and a whole number
◊ Word problem with decimal subtraction and division
♦ Converting Between Fractions and Decimals (7 topics)
◊ Converting a decimal to a proper fraction without simplifying: Basic
◊ Converting a decimal to a proper fraction in simplest form: Basic
◊ 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 fraction to a terminating decimal: Basic
◊ Converting a fraction to a repeating decimal: Basic
◊ Using a calculator to convert a fraction to a rounded decimal
• Ratios, Proportions, and Percents (51 topics)
♦ Ratios and Unit Rates (9 topics)
◊ Writing ratios using different notations
◊ Simplifying a ratio of whole numbers: Problem type 1
◊ Finding a unit price
◊ Using tables to compare ratios
◊ Computing unit prices to find the better buy
◊ Solving a word problem on proportions using a unit rate
◊ Solving a one-step word problem using the formula d = rt
◊ Finding missing values in a table of equivalent ratios
◊ Using a table of equivalent ratios to find a missing quantity in a ratio
♦ Introduction to Proportions (3 topics)
◊ Solving a proportion of the form x/a = b/c: Basic
◊ Solving a proportion of the form x/a = b/c
◊ Word problem on proportions: Problem type 1
♦ Scale Factors and Scale Drawings (2 topics)
◊ Finding lengths using scale models
◊ Finding a scale factor: Same units
♦ Converting Between Fractions, Decimals, and Percentages (10 topics)
◊ Converting a fraction with a denominator of 100 to a percentage
◊ Converting a percentage to a fraction with a denominator of 100
◊ Representing benchmark percentages on a grid
◊ Introduction to converting a percentage to a decimal
◊ Introduction to converting a decimal to a percentage
◊ Converting between percentages and decimals
◊ Converting a fraction to a percentage: Denominator of 4, 5, or 10
◊ Converting a fraction to a percentage: Denominator of 20, 25, or 50
◊ Using a calculator to convert a fraction to a rounded percentage
◊ Converting a fraction to a percentage in a real-world situation
Applications Involving Percentages (15 topics)
- Finding a percentage of a whole number
- Finding a percentage of a total amount: Real-world situations
- Finding a percentage of a total amount without a calculator: Sales tax, commission, discount
- Estimating a tip without a calculator
- Writing a ratio as a percentage
- Finding the rate of a tax or commission
- Computing a percentage from a table of values
- Applying the percent equation: Problem type 1
- Finding the multiplier to give a final amount after a percentage increase or decrease
- Finding the final amount given the original amount and a percentage increase or decrease
- Finding the sale price given the original price and percent discount
- Finding the total cost including tax or markup
- Combined effect of more than one markup or discount
- Finding the percentage increase or decrease: Basic
- Finding the percentage increase or decrease: Advanced

Income and Expenses (5 topics)
- Hourly gross pay with overtime
- Gross pay with commission and salary
- Calculating income tax
- Balancing a check register
- Computing percentages for categories of a budget

Simple Interest (3 topics)
- Finding the interest and future value of a simple interest loan or investment
- Computing the total cost and interest for a loan
- Computing the interest and repayment amount for a simple interest loan whose term is given in months or days

Compound Interest (4 topics)
- Introduction to compound interest
- Calculating and comparing simple interest and compound interest
- Using a calculator to evaluate exponential expressions
- Finding the future value and interest for an investment earning compound interest

Measurement (27 topics)
- U.S. Customary Units of Length (7 topics)
  - U.S. Customary length conversion with whole number values
  - Conversions involving measurements in feet and inches
  - U.S. Customary length conversions involving rounding decimals
  - Word problem involving a U.S. Customary length conversion
  - U.S. Customary length conversions involving dimensional analysis
  - Word problem involving U.S. Customary length conversions using dimensional analysis
  - Finding the absolute error and percent error of a measurement
- Perimeter, Area, and Volume (6 topics)
  - Finding the missing length in a figure
  - Area of a piecewise rectangular figure
  - Circumference of a circle
  - Area of a circle
  - Volume of a rectangular prism
  - Volume of a rectangular prism made of unit cubes
- U.S. Customary Units of Area and Volume (1 topics)
  - Word problem on area involving conversions of U.S. Customary units: Problem type 1
- U.S. Customary Units of Weight and Volume (2 topics)
  - U.S. Customary weight conversions with whole number values
  - U.S. Customary volume conversion with whole number values
Metric Units of Measurement (4 topics)
◇ Choosing metric measurement units
◇ Metric distance conversion with whole number values
◇ Metric distance conversion with decimal values
◇ Metric mass or volume conversion with whole numbers

Converting Between Measurement Systems (5 topics)
◇ Converting between metric and U.S. Customary unit systems
◇ Converting between compound units: Basic
◇ Converting between compound units: Advanced
◇ Conversions with currency
◇ Word problem involving conversion between compound units using dimensional analysis

Time and Temperature (2 topics)
◇ Simplifying a ratio of whole numbers: Problem type 2
◇ Converting between temperatures in Fahrenheit and Celsius

Real Numbers (27 topics)
◇ Plotting and Ordering (3 topics)
   ◇ Square root of a perfect square
   ◇ Using a calculator to approximate a square root
   ◇ Estimating a square root
◇ Venn Diagrams and Sets of Real Numbers (5 topics)
   ◇ Identifying numbers as integers or non-integers
   ◇ Identifying rational decimal numbers
   ◇ Identifying numbers as rational or irrational
   ◇ Interpreting a Venn diagram with 2 sets for a real-world situation
   ◇ Constructing a Venn diagram to classify real numbers
◇ Operations with Rational Numbers (2 topics)
   ◇ Signed fraction addition or subtraction: Basic
   ◇ Signed fraction multiplication: Basic
◇ Exponents and Order of Operations (4 topics)
   ◇ Exponents and fractions
   ◇ Exponents and integers: Problem type 1
   ◇ Evaluating expressions with exponents of zero
   ◇ Order of operations with integers
◇ Evaluating Expressions (1 topics)
   ◇ Evaluating a quadratic expression: Integers
◇ Properties of Operations (12 topics)
   ◇ Introduction to properties of addition
   ◇ Introduction to properties of multiplication
   ◇ Identifying like terms
   ◇ Combining like terms: Whole number coefficients
   ◇ Combining like terms: Integer coefficients
   ◇ Multiplying a constant and a linear monomial
   ◇ Distributive property: Whole number coefficients
   ◇ Distributive property: Integer coefficients
   ◇ Identifying equivalent algebraic expressions
   ◇ Using distribution and combining like terms to simplify: Univariate
   ◇ Identifying properties used to simplify an algebraic expression
   ◇ Combining like terms in a quadratic expression

Linear Equations and Inequalities (61 topics)
◇ One-Step Linear Equations (6 topics)
   ◇ Additive property of equality with decimals
   ◇ Additive property of equality with integers
   ◇ Multiplicative property of equality with fractions
Multiplicative property of equality with decimals
Multiplicative property of equality with integers
Multiplicative property of equality with signed fractions

Multi–Step Linear Equations (12 topics)
- Identifying solutions to a linear equation in one variable: Two–step equations
- Solving a two–step equation with integers
- Introduction to using substitution to solve a linear equation
- Introduction to solving an equation with parentheses
- Solving a multi–step equation given in fractional form
- Identifying properties used to solve a linear equation
- Introduction to solving an equation with variables on the same side
- Solving a linear equation with several occurrences of the variable: Variables on the same side
- Introduction to solving a linear equation with a variable on each side
- Solving a linear equation with several occurrences of the variable: Variables on both sides
- Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
- Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution

Solving Formulas for a Variable (4 topics)
- Solving for a variable in terms of other variables using addition or subtraction: Basic
- Solving for a variable in terms of other variables using multiplication or division: Basic
- Solving for a variable in terms of other variables using multiplication or division: Advanced
- Solving for a variable in terms of other variables using addition or subtraction with division

Writing Expressions and Equations (4 topics)
- Writing a one–step expression for a real–world situation
- Translating a phrase into a one–step expression
- Translating a phrase into a two–step expression
- Translating a sentence into a one–step equation

Applications of Linear Equations (7 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
- Writing an equation to represent a real–world problem: Variable on both sides
- Solving a decimal word problem using a linear equation with the variable on both sides
- Finding side lengths of rectangles given one dimension and an area or a perimeter
- Finding the dimensions of a rectangle given its perimeter and a relationship between sides

Writing and Graphing Inequalities (4 topics)
- Translating a sentence by using an inequality symbol
- Translating a sentence into a one–step inequality
- Writing an inequality for a real–world situation
- Graphing a linear inequality on the number line

Linear Inequalities (6 topics)
- Additive property of inequality with integers
- Additive property of inequality with signed decimals
- 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

Applications of Linear Inequalities (3 topics)
- 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

Set Notation and Operations with Sets (6 topics)
Identifying elements of sets for a real world situation
Writing sets of numbers using descriptive and roster forms
Identifying well defined sets
Finding sets and complements of sets
Finding sets and complements of sets for a real-world situation
Union and intersection of finite sets

Venn Diagrams (5 topics)
- Interpreting Venn diagram cardinalities with 2 sets for a real-world situation
- Interpreting a Venn diagram with 3 sets for a real-world situation
- Constructing a Venn diagram with 2 sets
- Constructing a Venn diagram with 2 sets to solve a word problem
- Interpreting Venn diagram cardinalities with 3 sets for a real-world situation

The Rectangular Coordinate System (4 topics)
- Reading a point in the coordinate plane
- Plotting a point in the coordinate plane
- Function tables with two-step rules
- Finding x- and y-intercepts given the graph of a line on a grid

Probability and Statistics (61 topics)

**Fundamental Counting Principle (3 topics)**
- Interpreting a tree diagram
- Introduction to the counting principle
- Counting principle

**Permutations and Combinations (3 topics)**
- Factorial expressions
- Computing permutations and combinations
- Introduction to permutations and combinations

**Probability and Odds of an Event (10 topics)**
- Determining a sample space and outcomes for a simple event
- Determining a sample space and outcomes for a compound event
- 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
- Outcomes and event probability
- Experimental and theoretical probability
- Finding the odds in favor and against

**Expected Value (2 topics)**
- Introduction to expectation
- Computing expected value in a game of chance

**Probability of Independent and Dependent Events (6 topics)**
- Probability of independent events: Decimal answers
- Probability of dependent events: Decimal answers
- Determining outcomes for compound events and complements of events
- Computing conditional probability using a sample space
- Computing conditional probability using a two-way frequency table
- Computing conditional probability to make an inference using a two-way frequency table

**Interpreting and Displaying Data (15 topics)**
- Choosing an appropriate method for gathering data: Problem type 2
- Constructing a bar graph for non-numerical data
- Interpreting a bar graph
- Interpreting a double bar graph
- Finding a percentage of a total amount in a circle graph
Measuring an angle with the protractor
Angle measure in a circle graph
Calculating relative frequencies in a contingency table
Making an inference using a two−way frequency table
Constructing a frequency distribution for non−grouped data
Constructing a frequency distribution for grouped data
Constructing a frequency distribution and a histogram
Interpreting a histogram
Interpreting a line graph
Interpreting a stem−and−leaf display

♦ Measures of Average (13 topics)
  ◊ Mean of a data set
  ◊ 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: Tabular data
  ◊ Introduction to summation notation
  ◊ Median of a data set
  ◊ Mode of a data set
  ◊ Mean, median, and mode: Computations
  ◊ How changing a value affects the mean and median
  ◊ Finding outliers in a data set
  ◊ Choosing the best measure to describe data
  ◊ Mean, median, and mode: Comparisons

♦ Measures of Variation (4 topics)
  ◊ Range of a data set
  ◊ Comparing measures of center and variation
  ◊ Using back−to−back stem−and−leaf displays to compare data sets
  ◊ Population standard deviation

♦ Measures of Position (2 topics)
  ◊ Percentage of data below a specified value
  ◊ Interpreting percentile ranks

♦ The Normal Distribution (3 topics)
  ◊ Using the graph of a distribution to find probabilities: Basic
  ◊ Using the empirical rule to identify values and percentages of a normal distribution
  ◊ Word problem involving calculations from a normal distribution

• Lines (51 topics)
  ◆ Graphing and Intercepts (9 topics)
    ◊ Table for a linear equation
    ◊ Identifying solutions to a linear equation in two variables
    ◊ Finding a solution to a linear equation in two variables
    ◊ Graphing a linear equation of the form y = mx
    ◊ Graphing a line given its equation in slope−intercept form: Integer slope
    ◊ Graphing a line given its equation in slope−intercept form: Fractional slope
    ◊ Graphing a line given its equation in standard form
    ◊ Graphing a vertical or horizontal line
    ◊ Finding x− and y−intercepts of a line given the equation: Basic

  ◆ Proportional Relationships (6 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
    ◊ 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 (4 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 the line
  ◊ Graphing a line given its slope and y-intercept

♦ Equations of Lines (9 topics)
  ◊ Writing a function rule given a table of ordered pairs: One-step rules
  ◊ Rewriting a linear equation in the form $Ax + By = C$
  ◊ 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
  ◊ Writing an equation in slope-intercept form given the slope and a point
  ◊ Graphing a line given its equation in point-slope form
  ◊ Writing an equation of a line given the y-intercept and another point
  ◊ Writing the equation of the line through two given points

♦ Applications (11 topics)
  ◊ Finding outputs of a two-step function with decimals that models a real-world situation: Two variable equation
  ◊ Finding inputs and outputs of a two-step function that models a real-world situation: Two variable equation
  ◊ Writing and evaluating a function that models a real-world situation: 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: 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
  ◊ Combining functions to write a new function that models a real-world situation
  ◊ Interpreting the parameters of a linear function that models a real-world situation
  ◊ Application problem with a linear function: Finding a coordinate given two points
  ◊ Identifying independent and dependent variables from equations or real-world situations

♦ Scatterplots and Lines of Best Fit (6 topics)
  ◊ Sketching the line of best fit
  ◊ Scatter plots and correlation
  ◊ Predictions from the line of best fit
  ◊ Approximating the equation of a line of best fit and making predictions
  ◊ Classifying linear and nonlinear relationships from scatter plots
  ◊ Linear relationship and the correlation coefficient

♦ Direct and Inverse Variation (6 topics)
  ◊ Introduction to solving a rational equation
  ◊ Solving a rational equation that simplifies to linear: Denominator x
  ◊ Word problem on direct variation
  ◊ Interpreting direct variation from a graph
  ◊ Word problem on inverse variation
  ◊ Writing an equation that models variation

• Functions (7 topics)
  ◆ Function Evaluation and Applications (4 topics)
    ◊ Table for a linear function
    ◊ Evaluating functions: Linear and quadratic or cubic
    ◊ Finding outputs of a two-step function with decimals that models a real-world situation: Function notation
    ◊ Finding inputs and outputs of a two-step function that models a real-world situation: Function notation

  ◆ Graphs of Functions (3 topics)
◊ Finding an output of a function from its graph
◊ Finding where a function is increasing, decreasing, or constant given the graph
◊ Choosing a graph to fit a narrative: Basic

• Systems (12 topics)
  ◦ Systems of Linear Equations (7 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
    ◦ Solving a system of linear equations of the form y = mx + b
    ◦ Solving a system of linear equations using substitution
    ◦ Solving a system of linear equations using elimination with addition
    ◦ Solving a system of linear equations using elimination with multiplication and addition
  ◦ Applications (5 topics)
    ◦ Interpreting the graphs of two functions
    ◦ Solving a word problem involving a sum and another basic relationship using a system of linear equations
    ◦ Solving a word problem using a system of linear equations of the form Ax + By = C
    ◦ Writing and solving a system of two linear equations given a table of values
    ◦ Solving a word problem using a system of linear equations of the form y = mx + b

• Exponents and Polynomials (26 topics)
  ◦ Product, Power, and Quotient Rules (6 topics)
    ◦ 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 of exponents
    ◦ Introduction to the power of a product rule of exponents
    ◦ Introduction to the quotient rule of exponents
  ◦ Negative Exponents (3 topics)
    ◦ Evaluating an expression with a negative exponent: Whole number base
    ◦ Evaluating an expression with a negative exponent: Positive fraction base
    ◦ Introduction to the product rule with negative exponents
  ◦ Scientific Notation (7 topics)
    ◦ Scientific notation with positive exponent
    ◦ Scientific notation with negative exponent
    ◦ Converting between scientific notation and standard form in a real-world situation
    ◦ Multiplying numbers written in scientific notation: Basic
    ◦ Multiplying numbers written in decimal form or scientific notation in a real-world situation
    ◦ Dividing numbers written in scientific notation: Basic
    ◦ Finding the scale factor between numbers given in scientific notation in a real-world situation
  ◦ Operations with Polynomials (5 topics)
    ◦ 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
    ◦ Squaring a binomial: Univariate
  ◦ Factoring Using the GCF (1 topics)
    ◦ Factoring a linear binomial
  ◦ Factoring Quadratic Trinomials (3 topics)
    ◦ Factoring a quadratic with leading coefficient 1
    ◦ 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 Special Products (1 topics)
    ◦ Factoring a perfect square trinomial with leading coefficient 1
Nonlinear Functions (25 topics)
- The Pythagorean Theorem and Distance Formula (4 topics)
  - Introduction to the Pythagorean Theorem
  - Pythagorean Theorem
  - Word problem involving the Pythagorean Theorem
  - Distance between two points in the plane: Decimal answers
- Quadratic Equations (7 topics)
  - Solving an equation written in factored form
  - Finding the roots of a quadratic equation with leading coefficient 1
  - Finding the roots of a quadratic equation with leading coefficient greater than 1
  - Solving a word problem using a quadratic equation with rational roots
  - Applying the quadratic formula: Exact answers
  - Applying the quadratic formula: Decimal answers
  - Solving a word problem using a quadratic equation with irrational roots
- Quadratic Functions (3 topics)
  - Finding the vertex, intercepts, and axis of symmetry from the graph of a parabola
  - Graphing a parabola of the form $y = ax^2$
  - Finding the $x$-intercept(s) and the vertex of a parabola
- Exponential Functions (8 topics)
  - Table for an exponential function
  - Evaluating an exponential function that models a real-world situation
  - Finding a final amount in a word problem on exponential growth or decay
  - Finding the time to reach a limit in a word problem on exponential growth or decay
  - Finding the initial amount and rate of change given an exponential function
  - Writing an equation that models exponential growth or decay
  - Graphing an exponential function: $f(x) = a^x$
  - Finding the initial amount and asymptote given a graph of an exponential function
- Logarithmic Functions (3 topics)
  - Converting between logarithmic and exponential equations
  - Evaluating logarithmic expressions
  - Solving an equation of the form $\log_b a = c$

Other Topics Available(*) (788 additional topics)
- Arithmetic Readiness (114 topics)
  - Numeral translation: Problem type 1
  - Numeral translation: Problem type 2
  - Expanded form with zeros
  - Ordering large numbers
  - Division involving zero
  - Word problem with division of whole numbers and rounding: Problem type 1
  - Examining a savings plan for college
  - Calculations involving paying for college
  - Rounding to thousands, ten thousands, or hundred thousands
  - Estimating a difference of whole numbers: Problem type 2
  - Estimating a product or quotient of whole numbers
  - Power of 10: Positive exponent
  - Comparing numerical expressions with parentheses
  - Expanded forms of numbers less than 10,000 using powers of ten
  - Expanded forms of numbers greater than 10,000 using powers of ten
  - Divisibility rules for 3 and 9
  - Prime factorization
  - Greatest common factor of 3 numbers

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◊ Least common multiple of 3 numbers
◊ Word problem involving the least common multiple of 2 numbers
◊ Word problem with common multiples
◊ Constructing a two-way frequency table: Advanced
◊ Describing an increasing or decreasing pattern from a table of values
◊ Finding the next terms of a geometric sequence with whole numbers
◊ Plotting opposite integers on a number line
◊ Using a number line to compare integers
◊ Comparing signed numbers relating to a real-world situation
◊ Finding opposites of integers
◊ Finding all numbers with a given absolute value
◊ Identifying a sum as a point located a given distance from another point
◊ Addition and subtraction with 4 or 5 integers
◊ Operations with absolute value: Problem type 1
◊ Operations with absolute value: Problem type 2
◊ Computing the distance between two integers on a number line
◊ Computing and understanding distances between integers on a number line
◊ Identifying solutions to a one-step linear equation: Problem type 1
◊ Identifying solutions to a one-step linear equation: Problem type 2
◊ Writing an equation and solving a multiplicative comparison word problem
◊ Perimeter of a rectangle on a grid
◊ Word problem on finding the perimeter of a rectangle
◊ Area of a rectangle on a grid
◊ Word problem involving the area of a rectangle: Problem type 2
◊ Understanding equivalent fractions
◊ Modeling and writing equivalent fractions
◊ Fractional position on a number line
◊ Ordering fractions with the same denominator
◊ Ordering fractions with the same numerator
◊ Modeling multiplication of proper fractions
◊ Word problem involving multiplying a fraction and a whole number
◊ Multi-step word problem involving fractions and multiplication
◊ Determining if a quantity is increased or decreased when multiplied by a fraction
◊ Division involving a whole number and a fraction
◊ Fraction division
◊ Modeling division of a whole number by a fraction
◊ Word problem involving fractions and division
◊ Addition or subtraction of fractions with the same denominator
◊ Introduction to adding fractions with variables and common denominators
◊ Decomposing a fraction into a sum of fractions with the same denominator
◊ Word problem involving addition or subtraction of fractions with the same denominator
◊ Addition or subtraction of unit fractions
◊ Addition and subtraction of 3 fractions with different denominators
◊ Word problem involving addition or subtraction of fractions with different denominators
◊ Fractional part of a circle
◊ Complex fraction without variables: Problem type 1
◊ Writing a mixed number and an improper fraction for a shaded region
◊ Writing an improper fraction as a mixed number
◊ Writing a mixed number as an improper fraction
◊ Addition or subtraction of mixed numbers with the same denominator
◊ Mixed number addition with the same denominator and renaming
◊ Mixed number subtraction with the same denominator and renaming
◊ Addition or subtraction of mixed numbers with different denominators without renaming
Addition of mixed numbers with different denominators and renaming
Subtraction of mixed numbers with different denominators and renaming
Addition and subtraction of 3 mixed numbers with different denominators
Word problem involving addition or subtraction of mixed numbers with different denominators
Mixed number multiplication
Multiplication of a mixed number and a whole number
Division with a mixed number and a whole number
Mixed number division
Word problem involving multiplication or division with mixed numbers
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
Decimal addition and subtraction with 3 or more numbers
Average of two numbers
Word problem with subtraction of a whole number and a decimal: Regrouping with zeros
Decimal multiplication: Problem type 2
Multiplying decimals less than 1: Problem type 2
Word problem with multiplication of two decimals
Division of a decimal by a 2-digit decimal
Division of a decimal by a power of 0.1
Decimal division with rounding
Word problem with division of two decimals
Converting a decimal to a proper fraction without simplifying: Advanced
Converting a decimal to a proper fraction in simplest form: Advanced
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
Converting a fraction with a denominator of 100 or 1000 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: Advanced
Converting a fraction to a repeating decimal: Advanced
Converting a mixed number to a terminating decimal: Basic
Converting a mixed number to a terminating decimal: Advanced
Converting a fraction or mixed number to a rounded decimal
Ordering fractions and decimals
Addition or subtraction with a decimal and a mixed number
Multiplication with a decimal and a fraction

♦ Ratios, Proportions, and Percents (42 topics)
Writing ratios for real-world situations
Identifying statements that describe a ratio
Simplifying a ratio of decimals
Word problem on unit rates associated with ratios of fractions
Word problem on unit rates associated with ratios of whole numbers: Decimal answers
Word problem on proportions: Problem type 2
Word problem with powers of ten
Using a scale drawing to find actual area
Reproducing a scale drawing at a different scale
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
Investigating the effects on the area for non-proportional and proportional figures
Finding the percentage of a grid that is shaded
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
Finding benchmark fractions and percentages for a figure
Finding a percentage of a whole number without a calculator: Basic
Finding a percentage of a whole number without a calculator: Advanced
Applying the percent equation: Problem type 2
Finding the total amount given the percentage of a partial amount
Comparing discounts
Finding the original amount given the result of a percentage increase or decrease
Finding the original price given the sale price and percent discount
Gross pay with variable commission scale
Calculating income tax using a tax bracket table
Comparing costs of checking accounts
Distinguishing between fixed and variable expenses
Calculations involving purchases with debit and credit cards
Reading a credit report
Finding the principal, rate, or time of a simple interest loan or investment
Finding the principal, rate, or time for a simple interest loan whose term is given in months or days
Finding the effective annual interest rate of a loan or investment
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
Using the ALEKS periodic deposit calculator to compute savings which include periodic deposits

Measurement (36 topics)
Choosing U.S. Customary measurement units
Measuring length to the nearest inch
Measuring length to the nearest quarter or half inch
Adding measurements in feet and inches
Sides of polygons having the same perimeter
Perimeter of a polygon involving mixed numbers and fractions
Perimeter of a piecewise rectangular figure
Area between two rectangles
Area of a triangle
Area involving rectangles and triangles
Circumference and area of a circle
Word problem involving the volume of a rectangular prism
Computations involving density, mass, and volume
Word problem on density involving the volume of a rectangular solid
Surface area of a cube or a rectangular prism
Surface area of a rectangular prism made of unit cubes
Word problem involving the surface area of a rectangular prism
Word problem on area involving conversions of U.S. Customary units: Problem type 2
Word problem on volume involving conversions of U.S. Customary units
◊ Word problem involving U.S. Customary conversions, surface area, and cost
◊ Unit conversions involving acres and hectares
◊ U.S. Customary unit conversion with whole number values: Two−step conversion
◊ Converting between U.S. Customary units of volume: Problem type 1
◊ U.S. Customary unit conversion with mixed number values: One−step conversion
◊ U.S. Customary unit conversion with mixed number values: Two−step conversion
◊ Measuring length to the nearest centimeter
◊ Measuring length to the nearest millimeter
◊ Metric distance conversions between the base unit m and dm, dam, hm
◊ Metric conversion with decimal values: Two−step problem
◊ Metric area unit conversion with decimal values
◊ Converting between metric units of volume and capacity
◊ Word problem on area involving conversions between systems
◊ Word problem involving a conversion between U.S. Customary units of weight and metric units of mass
◊ Adding time
◊ Elapsed time
◊ Reading the temperature from a thermometer

♦ Real Numbers (48 topics)
◊ Plotting rational numbers on a number line
◊ Ordering real numbers
◊ 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
◊ Constructing a Venn diagram to classify rational numbers
◊ Constructing a Venn diagram to describe relationships between sets of rational numbers
◊ Constructing a Venn diagram to describe relationships between sets of real numbers
◊ Identifying equivalent signed fractions
◊ Signed fraction subtraction involving double negation
◊ Signed fraction addition or subtraction: Advanced
◊ Addition and subtraction of 3 fractions involving signs
◊ Signed fraction multiplication: Advanced
◊ Signed fraction division
◊ Signed decimal addition and subtraction with 3 numbers
◊ Signed decimal multiplication
◊ Signed decimal division
◊ Computing distances between decimals on a number line
◊ Finding a point on a number line given the length of a segment and another point
◊ Order of operations with whole numbers and grouping symbols
◊ Order of operations with whole numbers and exponents: Advanced
◊ Order of operations with fractions: Problem type 1
◊ Order of operations with fractions: Problem type 2
◊ Order of operations with fractions: Problem type 3
◊ 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
◊ Exponents and integers: Problem type 2
◊ Exponents and signed fractions
◊ Order of operations with integers and exponents
◊ Evaluating a linear expression: Signed fraction multiplication with addition or subtraction
◊ Evaluating a linear expression: Signed decimal addition and subtraction
◊ Evaluating a linear expression: Signed decimal multiplication with addition or subtraction
◊ Evaluating an algebraic expression: Whole number operations and exponents
◊ Combining like terms: Fractional coefficients
◊ Combining like terms: Decimal coefficients
◊ Introduction to the distributive property
◊ Understanding the distributive property
◊ Introduction to factoring with numbers
◊ Distributive property: Fractional coefficients
◊ Properties of addition
◊ Properties of real numbers
◊ Using algebra tiles to determine if two expressions are equivalent
◊ Identifying parts in an algebraic expression
◊ Using distribution with double negation and combining like terms to simplify: Multivariate
◊ Adding rational expressions with different denominators and a single occurrence of a variable

♦ Linear Equations and Inequalities (78 topics)
◊ Additive property of equality with fractions and mixed numbers
◊ Plotting the solution for a one–step equation on a number line
◊ Additive property of equality with signed fractions
◊ Multiplicative property of equality with whole numbers: Fractional answers
◊ Additive property of equality with a negative coefficient
◊ Solving an equation to find the value of an expression
◊ Solving a two–step equation with signed decimals
◊ Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions
◊ Clearing fractions in an equation
◊ Solving a linear equation with several occurrences of the variable: Fractional forms with monomial numerators
◊ Solving a two–step equation with signed fractions
◊ Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
◊ Solving a linear equation with several occurrences of the variable: Fractional forms with binomial numerators
◊ Solving equations with zero, one, or infinitely many solutions
◊ Solving a proportion of the form \((x+a)/b = c/d\)
◊ Introduction to solving an absolute value equation
◊ Solving an absolute value equation: Problem type 1
◊ Solving for a variable in terms of other variables using addition or subtraction: Advanced
◊ Solving for a variable inside parentheses in terms of other variables
◊ Solving for a variable in terms of other variables in a linear equation with fractions
◊ Translating a sentence into a multi–step equation
◊ Writing an equation of the form \(Ax + B = C\) to solve a word problem
◊ Comparing arithmetic and algebraic solutions to a word problem
◊ Writing an equation of the form \(A(x + B) = C\) to solve a word problem
◊ Writing a multi–step equation for a real–world situation
◊ Writing and solving a real–world problem given an equation with the variable on both sides
◊ Solving a fraction word problem using a linear equation with the variable on both sides
◊ Solving a word problem with three unknowns using a linear equation
◊ Solving a word problem involving consecutive integers
◊ Solving a value mixture problem using a linear equation
◊ Solving a word problem involving rates and time conversion
◊ Solving a distance, rate, time problem using a linear equation
◊ Computing a percent mixture
◊ Solving a percent mixture problem using a linear equation
◊ Writing algebraic expressions for the perimeter of a figure
◊ Finding a side length given the perimeter and side lengths with variables
◊ Finding side lengths of squares given an area and a perimeter
◊ Finding the perimeter or area of a rectangle given one of these values
◊ Converting a repeating decimal to a fraction
◊ Introduction to identifying solutions to an inequality
◊ 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
◊ Set–builder and interval notation
◊ Identifying solutions to a one–step linear inequality
◊ Additive property of inequality with whole numbers
◊ Additive property of inequality with signed fractions
◊ Multiplicative property of inequality with whole numbers
◊ 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 with a fractional coefficient
◊ Solving a linear inequality with multiple occurrences of the variable: Problem type 2
◊ Solving a linear inequality with multiple occurrences of the variable: Problem type 3
◊ Solving inequalities with no solution or all real numbers as solutions
◊ Solving a compound linear inequality: Graph solution, basic
◊ Solving a compound linear inequality: Interval notation
◊ Solving an absolute value inequality: Problem type 1
◊ Solving a word problem using a one–step linear inequality
◊ Translating a sentence into a multi–step inequality
◊ Writing sets of numbers using set–builder and roster forms
◊ Writing sets for a real–world situation using descriptive and roster forms
◊ Writing sets of integers using set–builder and roster forms
◊ Unions, intersections, and complements involving 2 sets
◊ Unions and intersections involving the empty set or universal set
◊ Constructing a Venn diagram with 3 sets
◊ Constructing a Venn diagram with 3 sets to solve a word problem
◊ Introduction to shading a Venn diagram with 2 sets
◊ Shading a Venn diagram with 2 sets: Unions, intersections, and complements
◊ Venn diagram with 2 sets: Unions, intersections, and complements
◊ Venn diagram with 2 sets: Unions, intersections, and complements for a real–world situation
◊ 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 the graph
◊ Finding distances between points that share a common coordinate given their coordinates

◆ Probability and Statistics (79 topics)
◊ Counting principle with repetition allowed
◊ Counting principle involving a specified arrangement
◊ Counting arrangements of objects that are not all distinct
◊ Permutations and combinations: Problem type 1
◊ Permutations and combinations: Problem type 2
◊ Permutations and combinations: Problem type 3
◊ Counting using combinations and addition
◊ Counting using combinations and a complement
Counting five-card hands from a standard deck
Probability of selecting one card from a standard deck
Experimental and theoretical probability for compound events
Probabilities of a permutation and a combination
Area as probability
Converting between probability and odds
Making predictions in favor and against drawing a card from a standard deck
Computing expected value in a business application
Making reasonable inferences based on proportion statistics
Identifying independent events given descriptions of experiments
Probabilities involving two rolls of a die: Decimal answers
Probability of independent events involving a standard deck of cards
Probability of dependent events involving a standard deck of cards
Probability of dependent events involving a survey
Probabilities of draws with replacement
Probabilities of draws without replacement
Using a Venn diagram to understand the multiplication rule for probability
Outcomes and event probability: Conditional probability
Identifying independent events given values of probabilities
Conditional probability: Basic
Outcomes and event probability: Addition rule
Using a Venn diagram to understand the addition rule for probability
Word problem involving the probability of a union
Probability of intersection or union: Word problems
Computing probability involving the addition rule using a two-way frequency table
Computing conditional probability using a large two-way frequency table
Probability of the union of two events
Choosing an appropriate method for gathering data: Problem type 1
Classifying samples
Interpreting a tally table
Interpreting a pictograph table
Interpreting a pie chart
Computations from pie charts
Constructing a percent bar graph
Constructing a line plot
Constructing a relative frequency distribution for grouped data
Constructing a frequency distribution and a frequency polygon
Finding if a question can be answered by the data
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
Summation of indexed data
Approximating the mean of a data set given a frequency distribution
Approximating the mean of a data set given a histogram
Comparing means without calculation
Finding the mode and range from a line plot
Identifying the center, spread, and shape of a data set
Comparing sample means
Comparing standard deviations without calculation
Sample standard deviation
Computing mean absolute deviation from a list of numerical values
◊ Percentiles
◊ Five-number summary and interquartile range
◊ Box-and-whisker plots
◊ Using box-and-whisker plots to compare data sets
◊ Using the graph of a distribution to find probabilities: Advanced
◊ Shading a region and finding its standard normal probability
◊ Normal versus standard normal density curves
◊ Computing standard normal probabilities
◊ Finding a probability given a normal distribution: Basic
◊ Finding a probability given a normal distribution: Advanced
◊ Identifying outcomes in a random number table used to simulate a simple event
◊ 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
◊ Generating random samples from a population with known characteristics
◊ Using a random number table to make a fair decision
♦ Lines (50 topics)
◊ 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
◊ Identifying proportional relationships in tables by calculating unit rates: Fractions
◊ Identifying proportional relationships in graphs: Basic
◊ Identifying proportional relationships in graphs: Advanced
◊ Classifying slopes given graphs of lines
◊ Finding the slope of horizontal and vertical lines
◊ Finding the coordinate that yields a given slope
◊ Using right triangles to find the slope of a line
◊ Graphing a line through a given point with a given slope
◊ Identifying linear equations: Basic
◊ Identifying linear equations: Advanced
◊ Identifying linear functions given ordered pairs
◊ 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
◊ Writing an equation in point-slope form given the slope and a point
◊ Writing the equations of vertical and horizontal lines through a given point
◊ Identifying parallel and perpendicular lines
◊ 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 outputs of a one-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
◊ Writing an equation and drawing its graph to model a real-world situation: Basic
◊ Writing a function rule given a table of ordered pairs: Two-step rules
◊ Comparing properties of linear functions given in different forms
◊ Application problem with a linear function: Finding a coordinate given the slope and a point
◊ Solving a linear equation by graphing
◊ 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
Constructing a scatter plot
Computing residuals
Interpreting residual plots
Identifying correlation and causation
Identifying direct variation equations
Identifying direct variation from ordered pairs and writing equations
Writing a direct variation equation
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 proportions
Word problem on combined variation

functions (32 topics)

Identifying functions from relations
Vertical line test
Domain and range from ordered pairs
Variable expressions as inputs of functions: Problem type 1
Finding outputs of a one-step function that models a real-world situation: Function notation
Domain and range of a linear function that models a real-world situation
Finding inputs and outputs of a function from its graph
Domain and range from the graph of a discrete relation
Finding domain and range from a linear graph in context
Finding intercepts of a nonlinear function given its graph
Finding where a function is increasing, decreasing, or constant given the graph: Interval notation
Finding local maxima and minima of a function given the graph
Choosing a graph to fit a narrative: Advanced
Graphing an integer function and finding its range for a given domain
Domain and range from the graph of a continuous function
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 a function of the form \( f(x) = ax^2 \)
Graphing a function of the form \( f(x) = ax^2 + c \)
Finding the first terms of an arithmetic sequence using an explicit rule
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 with integers
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 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

systems (24 topics)

Classifying systems of linear equations from graphs
Graphically solving a system of linear equations
Writing a system of linear equations given its graph
Solving a system of linear equations with fractional coefficients
Solving a system of linear equations with decimal coefficients
Solving systems of linear equations with 0, 1, or infinitely many solutions
Identifying the operations used to create equivalent systems of equations
Introduction to solving a 3x3 system of linear equations
Solving a 3x3 system of linear equations: Problem type 1
Solving a value mixture problem using a system of linear equations
Solving a percent mixture problem using a system of linear equations
Solving a distance, rate, time 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: Vertical or horizontal line
Graphing a linear inequality in the plane: Slope–intercept form
Graphing a linear inequality in the plane: Standard form
Graphing a system of two linear inequalities: Basic
Graphing a system of two linear inequalities: Advanced
Graphing a system of three linear inequalities
Writing a multi–step inequality for a real–world situation
Writing a linear inequality in two variables given a table of values
Solving a word problem using a system of linear inequalities: Problem type 1

- Exponents and Polynomials (85 topics)
  - Introduction to the product rule with positive exponents: Whole number base
  - Product rule with positive exponents: Multivariate
  - Ordering numbers with positive exponents
  - Introduction to the power of a power rule with positive exponents: Whole number base
  - Understanding the power rules of exponents
  - Power rules with positive exponents: Multivariate products
  - Power rules with positive exponents: Multivariate quotients
  - Power and product rules with positive exponents
  - Simplifying a ratio of multivariate monomials: Basic
  - Introduction to the quotient rule with positive exponents: Whole number base
  - Simplifying a ratio of univariate monomials
  - Quotient of expressions involving exponents
  - Simplifying a ratio of multivariate monomials: Advanced
  - Power and quotient rules with positive exponents
  - Power of 10: Negative exponent
  - Evaluating an expression with a negative exponent: Negative integer base
  - Ordering numbers with negative exponents
  - Rewriting an algebraic expression without a negative exponent
  - Introduction to the product rule with negative exponents: Whole number base
  - 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
  - Product rule with negative exponents
  - Quotient rule with negative exponents: Problem type 2
  - Power of a power rule with negative exponents
  - Power rules with negative exponents
  - Power and quotient rules with negative exponents: Problem type 1
  - Power and quotient rules with negative exponents: Problem type 2
  - Power, product, and quotient rules with negative exponents
  - Introduction to scientific notation with positive exponents
  - Introduction to scientific notation with negative exponents
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: Advanced
Dividing numbers written in scientific notation: Advanced
Adding or subtracting numbers written in scientific notation: Same exponents, basic
Adding or subtracting numbers written in scientific notation: Same exponents, advanced
Adding or subtracting numbers written in scientific notation: Different exponents
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 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
Multiplying binomials in two variables
Multiplying conjugate binomials: Univariate
Multiplying conjugate binomials: Multivariate
Squaring a binomial: Multivariate
Multiplying binomials with negative coefficients
Multiplication involving binomials and trinomials in one variable
Multiplication involving binomials and trinomials in two variables
Dividing a polynomial by a monomial: Univariate
Dividing a polynomial by a monomial: Multivariate
Polynomial long division: Problem type 1
Polynomial long division: Problem type 2
Polynomial long division: Problem type 3
Closure properties of integers and polynomials
Introduction to the GCF of two monomials
Greatest common factor of three univariate monomials
Greatest common factor of two multivariate monomials
Factoring out a monomial from a polynomial: Univariate
Factoring out a monomial from a polynomial: Multivariate
Factoring out a binomial from a polynomial: GCF factoring, basic
Factoring a univariate polynomial by grouping: Problem type 1
Factoring a univariate polynomial by grouping: Problem type 2
Factoring a multivariate polynomial by grouping: Problem type 1
Factoring a multivariate polynomial by grouping: Problem type 2
Factoring a quadratic 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 3
Factoring a quadratic by the ac–method
Factoring a quadratic in two variables with leading coefficient greater than 1
Factoring a quadratic with a negative leading coefficient
Factoring a perfect square trinomial with leading coefficient greater than 1
Factoring a perfect square trinomial in two variables
Factoring a difference of squares in one variable: Basic
Factoring a difference of squares in one variable: Advanced
Factoring a difference of squares in two variables
Factoring a polynomial involving a GCF and a difference of squares: Univariate
Factoring a polynomial involving a GCF and a difference of squares: Multivariate
Factoring a product of a quadratic trinomial and a monomial
Factoring with repeated use of the difference of squares formula
Factoring a sum or difference of two cubes

- Nonlinear Functions (86 topics)
  - Square root of a rational perfect square
  - Square roots of perfect squares with signs
  - Simplifying the square root of a whole number less than 100
  - Simplifying the square root of a whole number greater than 100
  - Introduction to square root addition or subtraction
  - Square root addition or subtraction
  - Introduction to square root multiplication
  - Square root multiplication: Basic
  - Rationalizing a denominator: Quotient involving square roots
  - Rationalizing a denominator: Square root of a fraction
  - Cube root of an integer
  - Finding $n^{th}$ roots of perfect $n^{th}$ powers with signs
  - 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
  - Converting between radical form and exponent form
  - Rational exponents: Unit fraction exponents and whole number bases
  - Rational exponents: Unit fraction exponents and bases involving signs
  - Rational exponents: Non-unit fraction exponent with a whole number base
  - Rational exponents: Negative exponents and fractional bases
  - Using the Pythagorean Theorem repeatedly
  - Using the Pythagorean Theorem to find distance on a grid
  - Distance between two points in the plane: Exact answers
  - Midpoint of a line segment in the plane
  - Finding the roots of a quadratic equation of the form $ax^2 + bx = 0$
  - Solving a quadratic equation needing simplification
  - Using the Pythagorean Theorem and a quadratic equation to find side lengths of a right triangle
  - Solving an equation of the form $x^2 = a$ using the square root property
  - Solving a quadratic equation using the square root property: Exact answers, basic
  - Solving a quadratic equation using the square root property: Exact answers, advanced
  - Completing the square
  - Solving a quadratic equation by completing the square: Exact answers
  - Discriminant of a quadratic equation
  - Graphing a parabola of the form $y = ax^2 + c$
  - 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 $y = a(x−h)^2 + k$
  - Graphing a parabola of the form $y = x^2 + bx + c$
  - Graphing a parabola of the form $y = ax^2 + bx + c$: Integer coefficients
  - Graphing a parabola of the form $y = ax^2 + bx + c$: Rational coefficients
  - Finding the maximum or minimum of a quadratic function
  - Word problem involving the maximum or minimum of a quadratic function
  - Rewriting a quadratic function to find its vertex and sketch its graph
  - Domain and range from the graph of a parabola
  - Range of a quadratic function
  - Solving a quadratic equation by graphing
  - Comparing properties of quadratic functions given in different forms
  - Classifying the graph of a function
  - How the leading coefficient affects the shape of a parabola
  - Choosing a quadratic model and using it to make a prediction
  - Using a calculator to evaluate exponential expressions involving base e
◊ Evaluating an exponential function with base e that models a real–world situation
◊ Solving an exponential equation by finding common bases: Linear exponents
◊ Graphing an exponential function: \( f(x) = a(b)^x \)
◊ Graphing an exponential function and its asymptote: \( f(x)=b^x \)
◊ Graphing an exponential function and its asymptote: \( f(x) = a(b)^x \)
◊ Graphing an exponential function and its asymptote: \( f(x)=b^{-x} \) or \( f(x)=-b^{ax} \)
◊ Writing an exponential function rule given a table of ordered pairs
◊ Finding domain and range from the graph of an exponential function
◊ Comparing linear, polynomial, and exponential functions
◊ Identifying linear, quadratic, and exponential functions given ordered pairs
◊ Choosing an exponential model and using it to make a prediction
◊ Using a calculator to evaluate natural and common logarithmic expressions
◊ Converting between natural logarithmic and exponential equations
◊ Graphing a logarithmic function: Basic
◊ Basic properties of logarithms
◊ Using properties of logarithms to evaluate expressions
◊ Expanding a logarithmic expression: Problem type 1
◊ Expanding a logarithmic expression: Problem type 2
◊ Expanding a logarithmic expression: Problem type 3
◊ Writing an expression as a single logarithm
◊ Change of base for logarithms: Problem type 1
◊ Solving a multi–step equation involving a single logarithm: Problem type 1
◊ Solving a multi–step equation involving a single logarithm: Problem type 2
◊ Solving a multi–step equation involving natural logarithms
◊ Solving an equation involving logarithms on both sides: Problem type 1
◊ Solving an equation involving logarithms on both sides: Problem type 2
◊ Solving an exponential equation by using logarithms: Decimal answers, basic
◊ Solving an exponential equation by using natural logarithms: Decimal answers
◊ Finding the time required for an investment earning compound interest
◊ Finding the time given an exponential function with base e that models a real–world situation
◊ Finding the final amount of a loan or investment earning continuous compound interest
◊ Finding the initial amount of an investment earning continuous compound interest
◊ Finding the final amount in a word problem on continuous exponential growth or decay
◊ Finding the rate or time in a word problem on continuous exponential growth or decay
◊ Finding half–life or doubling time
♦ Geometry (114 topics)
◊ Naming segments, rays, and lines
◊ Drawing an angle with the protractor
◊ Acute, obtuse, and right angles
◊ Naming angles, sides of angles, and vertices
◊ Finding supplementary and complementary angles
◊ Finding the complement or supplement of an angle given a figure
◊ Solving an equation involving complementary or supplementary angles
◊ Writing and solving an equation involving complementary or supplementary angles
◊ Identifying supplementary and vertical angles
◊ Finding angle measures given two intersecting lines
◊ Solving equations involving vertical angles
◊ 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
◊ 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
Finding an angle measure of a triangle given two angles
Finding an angle measure for a triangle with an extended side
Finding an angle measure given extended triangles
Finding an angle measure given a triangle and parallel lines
Finding angle measures of a triangle given angles with variables
Writing an equation to find angle measures of a triangle given angles with variables
Finding side lengths and angle measures of isosceles and equilateral triangles
Finding angle measures of an isosceles triangle given angles with variables
Identifying and naming congruent parts of congruent triangles
Identifying and naming congruent triangles
Naming polygons
Shared attributes among categories of quadrilaterals
Identifying parallelograms, rectangles, and squares
Properties of quadrilaterals
Classifying parallelograms
Area of a rectangle involving fractions
Area of a rectangle involving mixed numbers and fractions
Distinguishing between the area and perimeter of a rectangle
Areas of rectangles with the same perimeter
Word problem on optimizing an area or perimeter
Word problem involving the area between two rectangles
Solving a word problem involving area using a one-step linear inequality: Area and lengths
Area of a parallelogram
Area of a trapezoid
Finding counterexamples to conjectures
Introduction to a circle: Diameter, radius, and chord
Finding the radius or the diameter of a circle given its circumference
Circumference ratios
Perimeter involving rectangles and circles
Distinguishing between the area and circumference of a circle
Area involving rectangles and circles
Area between two concentric circles
Word problem involving the area between two concentric circles
Area involving inscribed figures
Classifying solids
Vertices, edges, and faces of a solid
Counting the cubes in a solid made of cubes
Word problem involving the rate of filling or emptying a rectangular prism
Volume of a piecewise rectangular prism
Word problem involving the volume of a piecewise rectangular prism
Volume of a triangular prism
Word problem involving the volume of a triangular prism
Volume of a pyramid
Volume of a cylinder
Word problem involving the volume of a cylinder
Word problem involving the rate of filling or emptying a cylinder
Word problem on density involving the volume of a cylindrical solid
Volume of a cone
Word problem involving the volume of a cone
Volume of a sphere
Word problem involving the volume of a sphere
Ratio of volumes
Nets of solids
Side views of a solid made of cubes
Distinguishing between surface area and volume
Surface area of a piecewise rectangular prism made of unit cubes
Surface area of a triangular prism
Surface area of a cylinder
Word problem involving the surface area of a cylinder
Surface area of a sphere
Word problem involving the surface area of rectangular prisms and cylinders
Word problem involving the surface area of rectangular prisms and pyramids
Computing ratios of side lengths, surface areas, and volumes for similar solids
Identifying transformations
Translating a point and giving its coordinates: Two steps
Translating a polygon
Determining if figures are related by a translation
Reflecting a point across an axis and giving its coordinates
Reflecting a polygon across the x-axis or y-axis
Reflecting a polygon over a vertical or horizontal line
Determining if figures are related by a reflection
Drawing lines of symmetry
Rotating a point and giving its coordinates
Rotating a figure about the origin
Determining if figures are related by a rotation
Determining if figures are congruent and related by a transformation
Finding an angle of rotation
Identifying rotational symmetry and angles of rotation
Dilating a segment and giving the coordinates of its endpoints
Dilating a figure
Determining if figures are related by a dilation
Special right triangles: Exact answers
Sine, cosine, and tangent ratios: Numbers for side lengths
Sine, cosine, and tangent ratios: Variables for side lengths
Using the Pythagorean Theorem to find a trigonometric ratio
Using a calculator to approximate sine, cosine, and tangent values
Finding trigonometric ratios given a right triangle
Understanding trigonometric ratios through similar right triangles
Relationship between the sines and cosines of complementary angles
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
Using a trigonometric ratio to find an angle measure in a right triangle
Using trigonometry to find the area of a right triangle
Using trigonometry to find angles of elevation or depression in a word problem
Solving a right triangle
Using trigonometry to find a length in a word problem with two right triangles
Simplifying trigonometric expressions

*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.