



Prep for Calculus with Limits

This course covers the topics outlined below. You can customize the scope and sequence of this course to meet your curricular needs.

Curriculum Show All (415 topics + 172 additional topics)

- Real Numbers and Geometry Review (48 topics)
 - ◆ Fractions (6 topics)
 - ◇ Simplifying a fraction
 - ◇ Addition or subtraction of fractions with different denominators
 - ◇ Fraction multiplication
 - ◇ Fraction division
 - ◇ Complex fraction without variables: Problem type 1
 - ◇ Using a common denominator to order fractions
 - ◆ Percents and Proportions (8 topics)
 - ◇ Converting between percentages and decimals
 - ◇ Applying the percent equation: Problem type 1
 - ◇ Applying the percent equation: Problem type 2
 - ◇ Finding the sale price without a calculator given the original price and percent discount
 - ◇ Finding the original price given the sale price and percent discount
 - ◇ Solving a proportion of the form $x/a = b/c$
 - ◇ Word problem on proportions: Problem type 1
 - ◇ Word problem on proportions: Problem type 2
 - ◆ Signed Numbers (18 topics)
 - ◇ Integer addition: Problem type 2
 - ◇ Integer subtraction: Problem type 3
 - ◇ Absolute value of a number
 - ◇ Operations with absolute value: Problem type 1
 - ◇ Operations with absolute value: Problem type 2
 - ◇ Integer multiplication and division
 - ◇ Signed fraction addition or subtraction: Basic
 - ◇ Signed fraction addition or subtraction: Advanced
 - ◇ Signed fraction multiplication: Basic
 - ◇ Signed fraction multiplication: Advanced
 - ◇ Complex fraction without variables: Problem type 2
 - ◇ Signed decimal addition and subtraction with 3 numbers
 - ◇ 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
 - ◆ Real Numbers and Properties of Operations (3 topics)
 - ◇ Square root of a rational perfect square
 - ◇ Using distribution and combining like terms to simplify: Univariate
 - ◇ Using distribution with double negation and combining like terms to simplify: Multivariate

- ◆ Geometry (13 topics)
 - ◇ Perimeter of a square or a rectangle
 - ◇ Area of a square or a rectangle
 - ◇ Area of a piecewise rectangular figure
 - ◇ Area of a parallelogram
 - ◇ Area of a triangle
 - ◇ Circumference and area of a circle
 - ◇ Perimeter involving rectangles and circles
 - ◇ Area involving inscribed figures
 - ◇ Volume of a rectangular prism
 - ◇ Volume of a cylinder
 - ◇ Surface area of a cube or a rectangular prism
 - ◇ Surface area of a cylinder: Exact answers in terms of π
 - ◇ Pythagorean Theorem
- Linear Equations and Inequalities (37 topics)
 - ◆ Linear Equations (11 topics)
 - ◇ Additive property of equality with integers
 - ◇ Multiplicative property of equality with signed fractions
 - ◇ Solving a two-step equation with integers
 - ◇ 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: 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 Formulas for a Variable (3 topics)
 - ◇ Solving for a variable in terms of other variables using addition or subtraction with division
 - ◇ Solving for a variable inside parentheses in terms of other variables
 - ◇ Solving for a variable in terms of other variables in a linear equation with fractions
 - ◆ Applications of Linear Equations (6 topics)
 - ◇ Solving a decimal word problem using a linear equation of the form $Ax + B = C$
 - ◇ Solving a word problem with two unknowns using a linear equation
 - ◇ Solving a value mixture problem using a linear equation
 - ◇ Solving a one-step word problem using the formula $d = rt$
 - ◇ Finding side lengths of rectangles given one dimension and an area or a perimeter
 - ◇ Finding the perimeter or area of a rectangle given one of these values
 - ◆ Linear Inequalities (5 topics)
 - ◇ Identifying solutions to a two-step linear inequality in one variable
 - ◇ 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 3
 - ◆ Sets and Compound Inequalities (6 topics)
 - ◇ Union and intersection of finite sets
 - ◇ Graphing a compound inequality on the number line

- ◇ Set-builder and interval notation
- ◇ Union and intersection of intervals
- ◇ Solving a compound linear inequality: Graph solution, basic
- ◇ Solving a compound linear inequality: Interval notation
- ◆ Absolute Value Equations (3 topics)
 - ◇ Introduction to solving an absolute value equation
 - ◇ Solving an absolute value equation: Problem type 1
 - ◇ Solving an absolute value equation: Problem type 2
- ◆ Absolute Value Inequalities (3 topics)
 - ◇ Solving an absolute value inequality: Problem type 1
 - ◇ Solving an absolute value inequality: Problem type 2
 - ◇ Solving an absolute value inequality: Problem type 3
- Exponents and Polynomials (54 topics)
 - ◆ Properties of Exponents (19 topics)
 - ◇ Introduction to the product rule of exponents
 - ◇ Product rule with positive exponents: Multivariate
 - ◇ Introduction to the power of a product rule of exponents
 - ◇ Introduction to the power of a power rule of exponents
 - ◇ Power rules with positive exponents: Multivariate products
 - ◇ Power rules with positive exponents: Multivariate quotients
 - ◇ Power and product rules with positive exponents
 - ◇ Introduction to the quotient rule of exponents
 - ◇ Quotient of expressions involving exponents
 - ◇ Evaluating an expression with a negative exponent: Whole number base
 - ◇ Evaluating an expression with a negative exponent: Positive fraction base
 - ◇ Evaluating an expression with a negative exponent: Negative integer base
 - ◇ Rewriting an algebraic expression without a negative exponent
 - ◇ Introduction to the product rule with negative exponents
 - ◇ Product rule with negative exponents
 - ◇ Quotient rule with negative exponents: Problem type 1
 - ◇ Power of a power rule with negative exponents
 - ◇ Power rules with negative exponents
 - ◇ Power, product, and quotient rules with negative exponents
 - ◆ Scientific Notation (2 topics)
 - ◇ Scientific notation with a positive exponent
 - ◇ Scientific notation with a negative exponent
 - ◆ Polynomial Expressions (10 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 a multivariate polynomial by a monomial
 - ◇ Multiplying binomials with leading coefficients of 1
 - ◇ Multiplying binomials in two variables
 - ◇ Multiplying conjugate binomials: Univariate
 - ◇ Squaring a binomial: Univariate
 - ◇ Squaring a binomial: Multivariate
 - ◇ Multiplication involving binomials and trinomials in two variables
 - ◆ Factoring (14 topics)
 - ◇ Introduction to the GCF of two 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 a univariate polynomial by grouping: Problem type 1

- ◇ Factoring a univariate polynomial by grouping: Problem type 2
- ◇ 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 a perfect square trinomial with leading coefficient 1
- ◇ Factoring a difference of squares in one variable: Basic
- ◇ Factoring a difference of squares in one variable: Advanced
- ◇ Factoring a difference of squares in two variables
- ◇ Factoring a product of a quadratic trinomial and a monomial
- ◆ Polynomial Division (3 topics)
 - ◇ Dividing a polynomial by a monomial: Univariate
 - ◇ Polynomial long division: Problem type 1
 - ◇ Polynomial long division: Problem type 2
- ◆ Solving Quadratic Equations by Factoring (6 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 quadratic equation needing simplification
 - ◇ Roots of a product of polynomials
 - ◇ Solving a word problem using a quadratic equation with rational roots
- Lines and Systems (42 topics)
 - ◆ The Coordinate Plane, Distance, and Midpoint (5 topics)
 - ◇ Plotting a point in the coordinate plane
 - ◇ Naming the quadrant or axis of a point given its graph
 - ◇ Naming the quadrant or axis of a point given the signs of its coordinates
 - ◇ Distance between two points in the plane: Exact answers
 - ◇ Finding a solution to a linear equation in two variables
 - ◆ Graphs of Lines and Intercepts (9 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 vertical or horizontal line
 - ◇ Finding x – and y –intercepts of a line given the equation: Basic
 - ◇ 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
 - ◆ Slope (4 topics)
 - ◇ Finding slope given the graph of a line on a grid
 - ◇ Finding slope given two points on a line
 - ◇ Finding the slopes of horizontal and vertical lines
 - ◇ Graphing a line through a given point with a given slope
 - ◆ Equations of Lines (8 topics)
 - ◇ Finding the slope and y –intercept of a line given its equation in the form $y = mx + b$
 - ◇ Finding the slope and y –intercept of a line given its equation in the form $Ax + By = C$
 - ◇ Graphing a line by first finding its slope and y –intercept
 - ◇ Writing an equation in slope–intercept form given the slope and a point
 - ◇ Writing the equation of a line given the y –intercept and another point
 - ◇ Writing the equation of a line through two given points
 - ◇ 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
 - ◆ Applications of Linear Equations with Two Variables (5 topics)
 - ◇ 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
- ◇ Interpreting the parameters of a linear function that models a real–world situation
- ◇ Application problem with a linear function: Finding a coordinate given the slope and a point
- ◇ Application problem with a linear function: Finding a coordinate given two points
- ◆ Systems of Linear Equations (8 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 multiplication and addition
 - ◇ 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 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
- ◆ Graphing Linear Inequalities (3 topics)
 - ◇ Identifying solutions to a linear inequality in two variables
 - ◇ Graphing a linear inequality in the plane: Vertical or horizontal line
 - ◇ Graphing a linear inequality in the plane: Standard form
- Functions and Graphs (32 topics)
 - ◆ Introduction to Functions (10 topics)
 - ◇ Identifying functions from relations
 - ◇ Vertical line test
 - ◇ Domain and range from ordered pairs
 - ◇ Evaluating functions: Linear and quadratic or cubic
 - ◇ Evaluating a rational function: Problem type 1
 - ◇ Evaluating a rational function: Problem type 2
 - ◇ Evaluating a piecewise–defined function
 - ◇ Variable expressions as inputs of functions: Problem type 1
 - ◇ Variable expressions as inputs of functions: Problem type 2
 - ◇ Finding a difference quotient for a linear or quadratic function
 - ◆ Graphs of Functions (10 topics)
 - ◇ Domain and range from the graph of a continuous function
 - ◇ Finding intercepts of a nonlinear function given its graph
 - ◇ Finding local maxima and minima of a function given the graph
 - ◇ Finding the absolute maximum and minimum of a function given the graph
 - ◇ Finding values and intervals where the graph of a function is zero, positive, or negative
 - ◇ Graphing an absolute value equation in the plane: Basic
 - ◇ Graphing an absolute value equation in the plane: Advanced
 - ◇ Graphing a parabola of the form $y = ax^2$
 - ◇ Graphing a parabola of the form $y = (x-h)^2 + k$
 - ◇ Graphing a cubic function of the form $y = ax^3$
 - ◆ Transformations (9 topics)
 - ◇ Translating the graph of a parabola: One step
 - ◇ Translating the graph of a parabola: Two steps
 - ◇ Writing an equation for a function after a vertical translation
 - ◇ Translating the graph of a function: One step
 - ◇ Translating the graph of a function: Two steps
 - ◇ Transforming the graph of a function by reflecting over an axis
 - ◇ Transforming the graph of a function by shrinking or stretching
 - ◇ Transforming the graph of a quadratic, cubic, square root, or absolute value function
 - ◇ Writing an equation for a function after a vertical and horizontal translation
 - ◆ Circles (3 topics)
 - ◇ Identifying the center and radius to graph a circle given its equation in standard form

- ◇ Completing the square
- ◇ Identifying the center and radius to graph a circle given its equation in general form: Basic
- Rational Expressions (41 topics)
 - ◆ Rational Expressions (21 topics)
 - ◇ Domain of a rational function: Excluded values
 - ◇ Domain of a rational function: Interval notation
 - ◇ Simplifying a ratio of polynomials: Problem type 1
 - ◇ Simplifying a ratio of polynomials: Problem type 2
 - ◇ Simplifying a ratio of multivariate polynomials
 - ◇ Multiplying rational expressions involving multivariate monomials
 - ◇ Multiplying rational expressions involving quadratics with leading coefficients of 1
 - ◇ Dividing rational expressions involving multivariate monomials
 - ◇ Introduction to the LCM of two monomials
 - ◇ Least common multiple of two monomials
 - ◇ Adding rational expressions with common denominators and binomial numerators
 - ◇ Adding rational expressions with denominators ax and bx : Basic
 - ◇ Adding rational expressions with denominators ax and bx : Advanced
 - ◇ Adding rational expressions with multivariate monomial denominators: Advanced
 - ◇ Adding rational expressions with linear denominators without common factors: Basic
 - ◇ Adding rational expressions with linear denominators without common factors: Advanced
 - ◇ Complex fraction involving univariate monomials
 - ◇ Complex fraction involving multivariate monomials
 - ◇ Complex fraction: GCF factoring
 - ◇ Complex fraction: Quadratic factoring
 - ◇ Finding a difference quotient for a rational function
 - ◆ Rational Equations (12 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: Denominators a , x , or ax
 - ◇ Solving a rational equation that simplifies to linear: Denominators ax and bx
 - ◇ Solving a rational equation that simplifies to linear: Like binomial denominators
 - ◇ Solving a rational equation that simplifies to linear: Unlike binomial denominators
 - ◇ Solving a rational equation that simplifies to linear: Factorable quadratic denominator
 - ◇ Solving a rational equation that simplifies to quadratic: Denominator x
 - ◇ Solving a rational equation that simplifies to quadratic: Binomial denominators, constant numerators
 - ◇ Solving a rational equation that simplifies to quadratic: Binomial denominators and numerators
 - ◇ Solving for a variable in terms of other variables in a rational equation: Problem type 1
 - ◇ Solving for a variable in terms of other variables in a rational equation: Problem type 2
 - ◆ Applications of Rational Expressions (4 topics)
 - ◇ Word problem on direct variation
 - ◇ Word problem on inverse variation
 - ◇ Similar polygons
 - ◇ Indirect measurement
 - ◆ Rational Functions (4 topics)
 - ◇ Finding the intercepts, asymptotes, domain, and range from the graph of a rational function
 - ◇ Graphing a rational function: Constant over linear
 - ◇ Graphing a rational function: Linear over linear
 - ◇ Transforming the graph of a rational function
- Radical Expressions (51 topics)
 - ◆ Perfect Squares and n th Roots (4 topics)
 - ◇ Introduction to simplifying a radical expression with an even exponent
 - ◇ Square root of a perfect square monomial
 - ◇ Cube root of an integer

- ◇ Finding n^{th} roots of perfect n^{th} powers with signs
- ◆ Rational Exponents (9 topics)
 - ◇ Converting between radical form and exponent form
 - ◇ Rational exponents: Unit fraction exponents and whole number bases
 - ◇ Rational exponents: Non–unit fraction exponent with a whole number base
 - ◇ Rational exponents: Negative exponents and fractional bases
 - ◇ Rational exponents: Product rule
 - ◇ Rational exponents: Quotient rule
 - ◇ Rational exponents: Products and quotients with negative exponents
 - ◇ Rational exponents: Power of a power rule
 - ◇ Rational exponents: Powers of powers with negative exponents
- ◆ Radical Expressions (22 topics)
 - ◇ Simplifying the square root of a whole number less than 100
 - ◇ Simplifying a radical expression with an even exponent
 - ◇ Simplifying a radical expression with an odd exponent
 - ◇ Simplifying a radical expression with two variables
 - ◇ Simplifying a higher root of a whole number
 - ◇ Simplifying a higher radical expression: Univariate
 - ◇ Simplifying a higher radical expression: Multivariate
 - ◇ Square root addition or subtraction
 - ◇ Simplifying a sum or difference of radical expressions: Multivariate
 - ◇ Square root multiplication: Advanced
 - ◇ Introduction to simplifying a product of radical expressions: Univariate
 - ◇ Simplifying a product of radical expressions: Univariate
 - ◇ Simplifying a product of radical expressions: Multivariate
 - ◇ Introduction to simplifying a product involving square roots using the distributive property
 - ◇ Simplifying a product involving square roots using the distributive property: Basic
 - ◇ Simplifying a product involving square roots using the distributive property: Advanced
 - ◇ Simplifying a quotient of square roots
 - ◇ Simplifying a quotient involving a sum or difference with a square root
 - ◇ Rationalizing a denominator: Quotient involving square roots
 - ◇ Rationalizing a denominator: Square root of a fraction
 - ◇ Rationalizing a denominator using conjugates: Integer numerator
 - ◇ Rationalizing a denominator using conjugates: Square root in numerator
- ◆ Radical Equations (8 topics)
 - ◇ Introduction to solving a radical equation
 - ◇ Solving a radical equation that simplifies to a linear equation: One radical, basic
 - ◇ Solving a radical equation that simplifies to a linear equation: One radical, advanced
 - ◇ Solving a radical equation that simplifies to a linear equation: Two radicals
 - ◇ Solving a radical equation that simplifies to a quadratic equation: One radical, basic
 - ◇ Solving a radical equation that simplifies to a quadratic equation: One radical, advanced
 - ◇ Solving for a variable in terms of other variables in an equation involving radicals
 - ◇ Solving an equation using the odd–root property: Problem type 1
- ◆ Radical Functions (8 topics)
 - ◇ Table for a square root function
 - ◇ Evaluating functions: Absolute value, rational, radical
 - ◇ Variable expressions as inputs of functions: Problem type 3
 - ◇ Domain of a square root function: Basic
 - ◇ Domain of a square root function: Advanced
 - ◇ Graphing a square root function: Problem type 1
 - ◇ Graphing a square root function: Problem type 2
 - ◇ Matching parent graphs with their equations
- Quadratic Functions and Equations (25 topics)

- ◆ Quadratic Functions (11 topics)
 - ◇ Finding the vertex, intercepts, and axis of symmetry from the graph of a parabola
 - ◇ Graphing a parabola of the form $y = a(x-h)^2 + k$
 - ◇ Graphing a parabola of the form $y = x^2 + bx + c$
 - ◇ Graphing a parabola of the form $y = ax^2 + bx + c$: Integer coefficients
 - ◇ Finding the zeros of a quadratic function given its equation
 - ◇ Finding the x–intercept(s) and the vertex of a parabola
 - ◇ Rewriting a quadratic function to find its vertex and sketch its graph
 - ◇ Finding the maximum or minimum of a quadratic function
 - ◇ Word problem involving the maximum or minimum of a quadratic function
 - ◇ Word problem involving optimizing area by using a quadratic function
 - ◇ Finding x– and y–intercepts of the graph of a nonlinear equation
- ◆ Square Root Property (1 topics)
 - ◇ Solving a quadratic equation using the square root property: Exact answers, basic
- ◆ Completing the Square and the Quadratic Formula (2 topics)
 - ◇ Applying the quadratic formula: Exact answers
 - ◇ Solving a word problem using a quadratic equation with irrational roots
- ◆ Quadratic Inequalities (1 topics)
 - ◇ Solving a quadratic inequality written in factored form
- ◆ Polynomial Functions (2 topics)
 - ◇ Finding zeros of a polynomial function written in factored form
 - ◇ Finding x– and y–intercepts given a polynomial function
- ◆ Combining Functions; Composite Functions; Inverse Functions (8 topics)
 - ◇ Sum, difference, and product of two functions
 - ◇ Quotient of two functions: Basic
 - ◇ Composition of two functions: Basic
 - ◇ Expressing a function as a composition of two functions
 - ◇ Composition of two functions: Advanced
 - ◇ Composition of two rational functions
 - ◇ Inverse functions: Linear, discrete
 - ◇ Inverse functions: Rational
- Exponential and Logarithmic Functions (29 topics)
 - ◆ Graphs of Exponential Functions (5 topics)
 - ◇ Table for an exponential function
 - ◇ Graphing an exponential function and its asymptote: $f(x)=b^x$
 - ◇ Graphing an exponential function and its asymptote: $f(x) = b^{-x}$ or $f(x) = -b^x$ or $f(x) = -b^{-x}$
 - ◇ Translating the graph of an exponential function
 - ◇ Graphing an exponential function and finding its domain and range
 - ◆ Applications of Exponential Equations (3 topics)
 - ◇ Evaluating an exponential function that models a real–world situation
 - ◇ Evaluating an exponential function with base e that models a real–world situation
 - ◇ Finding a final amount in a word problem on exponential growth or decay
 - ◆ Logarithmic Functions (6 topics)
 - ◇ Converting between logarithmic and exponential equations
 - ◇ Converting between natural logarithmic and exponential equations
 - ◇ Evaluating logarithmic expressions
 - ◇ Translating the graph of a logarithmic function
 - ◇ Graphing a logarithmic function: Basic
 - ◇ Graphing a logarithmic function and finding its domain and range
 - ◆ Properties of Logarithms (5 topics)
 - ◇ Basic properties of logarithms
 - ◇ Using properties of logarithms to evaluate expressions
 - ◇ Expanding a logarithmic expression: Problem type 1

- ◇ Writing an expression as a single logarithm
- ◇ Change of base for logarithms: Problem type 1
- ◆ Logarithmic and Exponential Equations (8 topics)
 - ◇ Solving an equation of the form $\log_b a = c$
 - ◇ 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 2
 - ◇ Solving an exponential equation by using logarithms: Decimal answers, basic
 - ◇ Solving an exponential equation by using natural logarithms: Decimal answers
 - ◇ Solving an exponential equation by using logarithms: Exact answers in logarithmic form
- ◆ Applications (2 topics)
 - ◇ Finding the time to reach a limit in a word problem on exponential growth or decay
 - ◇ Finding the time given an exponential function with base e that models a real-world situation
- Trigonometry (41 topics)
 - ◆ Angles and Their Measure (5 topics)
 - ◇ Converting degrees to radians and radians to degrees: Problem type 1
 - ◇ Sketching an angle with absolute value less than 360 degrees in standard position
 - ◇ Sketching an angle with absolute value less than 2 radians in standard position
 - ◇ Coterminal angles
 - ◇ Arc length and central angle measure
 - ◆ The Unit Circle and Evaluating Trigonometric Functions (7 topics)
 - ◇ Finding coordinates on the unit circle for special angles
 - ◇ Special triangles with a hypotenuse of length 1
 - ◇ Drawing a reference triangle on the unit circle and using it to derive values of trigonometric functions: Radians
 - ◇ Trigonometric functions and special angles: Problem type 1: Degrees
 - ◇ Trigonometric functions and special angles: Problem type 1: Radians
 - ◇ Trigonometric functions and special angles: Problem type 2
 - ◇ Trigonometric functions and special angles: Problem type 3
 - ◆ Right Triangle Trigonometry (9 topics)
 - ◇ Sine, cosine, and tangent ratios: Variables for side lengths
 - ◇ Using the Pythagorean Theorem to find a sine, cosine, or tangent ratio in a right triangle
 - ◇ Using the Pythagorean Theorem to find several trigonometric ratios in a right triangle
 - ◇ Using a trigonometric ratio to find a side length in a right triangle
 - ◇ Using a trigonometric ratio to find an angle measure in a right triangle
 - ◇ Solving a right triangle
 - ◇ Using trigonometry to find a length in a word problem with two right triangles
 - ◇ Solving a triangle with the law of sines: Problem type 1
 - ◇ Solving a triangle with the law of cosines
 - ◆ Trigonometric Functions of Angles (8 topics)
 - ◇ Sketching an angle with absolute value less than 360 degrees, and also its reference angle
 - ◇ Reference angles in degrees: Problem type 1
 - ◇ Sketching an angle with absolute value less than 2 radians, and also its reference angle
 - ◇ Reference angles in radians: Problem type 1
 - ◇ Finding values of trigonometric functions given information about an angle: Problem type 1
 - ◇ Finding values of trigonometric functions given information about an angle: Problem type 2
 - ◇ Finding values of trigonometric functions given information about an angle: Problem type 3
 - ◇ Finding values of trigonometric functions given information about an angle: Problem type 4
 - ◆ Graphing Trigonometric Functions (4 topics)
 - ◇ Sketching the graph of $y = a \sin(x)$ or $y = a \cos(x)$
 - ◇ Sketching the graph of $y = \sin(bx)$ or $y = \cos(bx)$
 - ◇ Sketching the graph of $y = a \sin(x+c)$ or $y = a \cos(x+c)$

- ◇ Sketching the graph of $y = a \sin(bx)$ or $y = a \cos(bx)$
- ◆ Inverse Trigonometric Functions (1 topics)
 - ◇ Values of inverse trigonometric functions
- ◆ Trigonometric Identities (2 topics)
 - ◇ Using reciprocal and quotient identities to simplify a trigonometric expression
 - ◇ Using Pythagorean identities to simplify a trigonometric expression
- ◆ Trigonometric Equations (5 topics)
 - ◇ Finding solutions in an interval for a basic trigonometric equation involving sine or cosine
 - ◇ Finding solutions in an interval for a basic trigonometric equation involving tangent, cotangent, secant, or cosecant
 - ◇ Solving a basic trigonometric equation involving sine or cosine
 - ◇ Using a Pythagorean identity to find solutions in an interval for a trigonometric equation involving sine and cosine: Problem type 1
 - ◇ Using a Pythagorean identity to find solutions in an interval for a trigonometric equation: Problem type 1
- Limits and Continuity (15 topics)
 - ◆ Introduction to Limits (2 topics)
 - ◇ Estimating a limit numerically
 - ◇ Finding limits from a graph
 - ◆ Computing Limits Algebraically (5 topics)
 - ◇ Finding a limit by using the limit laws: Problem type 1
 - ◇ Finding limits for a piecewise-defined function
 - ◇ Finding a limit by using the limit laws: Problem type 2
 - ◇ Finding a limit by using the limit laws: Problem type 3
 - ◇ Squeeze Theorem
 - ◆ Continuity (2 topics)
 - ◇ Determining points of discontinuity from a graph
 - ◇ Determining a parameter to make a function continuous
 - ◆ Limits Involving Infinity (4 topics)
 - ◇ Limits at infinity and graphs
 - ◇ Limits at infinity and rational functions
 - ◇ Infinite limits and graphs
 - ◇ Infinite limits and rational functions
 - ◆ Limits of Trigonometric Functions (2 topics)
 - ◇ Finding a limit of a trigonometric function by using continuity
 - ◇ Finding a limit by using special trigonometric limits
- Other Topics Available(*) (172 additional topics)
 - ◆ Real Numbers and Geometry Review (16 topics)
 - ◇ Fractional part of a circle
 - ◇ Finding the percentage increase or decrease: Advanced
 - ◇ Word problem on unit rates associated with ratios of whole numbers: Decimal answers
 - ◇ Exponents and integers: Problem type 2
 - ◇ Identifying numbers as integers or non-integers
 - ◇ Identifying numbers as rational or irrational
 - ◇ Properties of addition
 - ◇ Properties of real numbers
 - ◇ Areas of rectangles with the same perimeter
 - ◇ Finding the radius or the diameter of a circle given its circumference
 - ◇ Circumference ratios
 - ◇ Area involving rectangles and circles
 - ◇ Word problem involving the area between two concentric circles

- ◇ 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
- ◆ Linear Equations and Inequalities (11 topics)
 - ◇ Solving an equation to find the value of an expression
 - ◇ 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
 - ◇ Finding a side length given the perimeter and side lengths with variables
 - ◇ Solving a two-step linear inequality with a fractional coefficient
 - ◇ Solving a linear inequality with multiple occurrences of the variable: Problem type 2
 - ◇ Writing a multi-step inequality for a real-world situation
 - ◇ 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 sets of integers using set-builder and roster forms
 - ◇ Solving an absolute value equation of the form $|ax+b| = |cx+d|$
- ◆ Exponents and Polynomials (15 topics)
 - ◇ Ordering numbers with positive exponents
 - ◇ Power and quotient rules with positive exponents
 - ◇ Evaluating expressions with exponents of zero
 - ◇ Ordering numbers with negative exponents
 - ◇ Quotient rule with negative exponents: Problem type 2
 - ◇ Multiplying numbers written in scientific notation: Basic
 - ◇ Dividing numbers written in scientific notation: Basic
 - ◇ Degree of a multivariate polynomial
 - ◇ Simplifying a sum or difference of three univariate polynomials
 - ◇ Multiplying conjugate binomials: Multivariate
 - ◇ Greatest common factor of three univariate monomials
 - ◇ Factoring a perfect square trinomial with leading coefficient greater than 1
 - ◇ Factoring with repeated use of the difference of squares formula
 - ◇ Factoring a sum or difference of two cubes
 - ◇ Writing a quadratic equation given the roots and the leading coefficient
- ◆ Lines and Systems (11 topics)
 - ◇ Midpoint of a line segment in the plane
 - ◇ Identifying solutions to a linear equation in two variables
 - ◇ Identifying linear functions given ordered pairs
 - ◇ Writing the equations of vertical and horizontal lines through a given point
 - ◇ Identifying solutions to a system of linear equations
 - ◇ Solving a 2x2 system of linear equations that is inconsistent or consistent dependent
 - ◇ Solving a tax rate or interest rate problem using a system of linear equations
 - ◇ Introduction to solving a 3x3 system of linear equations
 - ◇ Solving a 3x3 system of linear equations: Problem type 1
 - ◇ Solving a word problem using a 3x3 system of linear equations: Problem type 1
 - ◇ Graphing a system of two linear inequalities: Basic
- ◆ Functions and Graphs (16 topics)
 - ◇ Rewriting a multivariate function as a univariate function given a relationship between its variables
 - ◇ Finding inputs and outputs of a function from its graph
 - ◇ Domain and range from the graph of a piecewise function
 - ◇ Finding where a function is increasing, decreasing, or constant given the graph: Interval notation
 - ◇ Choosing a graph to fit a narrative: Advanced
 - ◇ Graphing a piecewise-defined function: Problem type 1
 - ◇ Introduction to graphing a piecewise-defined function involving lines with non-zero slope
 - ◇ Graphing a piecewise-defined function: Problem type 2
 - ◇ Graphing a piecewise-defined function: Problem type 3

- ◇ Finding the average rate of change of a function
- ◇ Finding the average rate of change of a function given its graph
- ◇ Word problem involving average rate of change
- ◇ Writing the equation of a secant line
- ◇ Writing an equation of a circle given its center and radius or diameter
- ◇ Writing an equation of a circle given its center and a point on the circle
- ◇ Writing an equation of a circle given the endpoints of a diameter
- ◆ Rational Expressions (21 topics)
 - ◇ Ordering fractions with variables
 - ◇ Dividing rational expressions involving quadratics with leading coefficients of 1
 - ◇ Adding rational expressions with denominators ax^n and bx^m
 - ◇ Complex fraction made of sums involving rational expressions: Problem type 1
 - ◇ Complex fraction made of sums involving rational expressions: Problem type 2
 - ◇ Complex fraction made of sums involving rational expressions: Problem type 3
 - ◇ Solving a proportion of the form $a/(x+b) = c/x$
 - ◇ Solving a rational equation that simplifies to quadratic: Proportional form, advanced
 - ◇ Solving for a variable in terms of other variables in a rational equation: Problem type 3
 - ◇ Introduction to partial fraction decomposition with distinct linear factors
 - ◇ Partial fraction decomposition with distinct linear factors
 - ◇ Partial fraction decomposition with repeated linear factors
 - ◇ Partial fraction decomposition with an irreducible quadratic factor
 - ◇ Partial fraction decomposition with repeated, irreducible quadratic factors
 - ◇ Writing an equation that models variation
 - ◇ Word problem on combined variation
 - ◇ Word problem on inverse variation involving the completion of a task
 - ◇ Word problem involving multiple rates
 - ◇ Ratio of volumes
 - ◇ Graphing a rational function: Quadratic over linear
 - ◇ Graphing rational functions with holes
- ◆ Radical Expressions (12 topics)
 - ◇ Finding the n^{th} root of a perfect n^{th} power fraction
 - ◇ Finding the n^{th} root of a perfect n^{th} power monomial
 - ◇ Introduction to simplifying a product of higher roots
 - ◇ Special products of radical expressions: Conjugates and squaring
 - ◇ Rationalizing a denominator: Quotient involving a monomial
 - ◇ Rationalizing a denominator: Quotient involving higher radicals and monomials
 - ◇ Using i to rewrite square roots of negative numbers
 - ◇ Simplifying a product and quotient involving square roots of negative numbers
 - ◇ Adding or subtracting complex numbers
 - ◇ Multiplying complex numbers
 - ◇ Dividing complex numbers
 - ◇ Simplifying a power of i
- ◆ Quadratic Functions and Equations (14 topics)
 - ◇ Graphing a parabola of the form $y = ax^2 + bx + c$: Rational coefficients
 - ◇ Range of a quadratic function
 - ◇ Classifying the graph of a function
 - ◇ Solving a quadratic equation using the square root property: Exact answers, advanced
 - ◇ Solving an equation that can be written in quadratic form: Problem type 1
 - ◇ Solving a quadratic equation by completing the square: Exact answers
 - ◇ Solving a quadratic equation with complex roots
 - ◇ Discriminant of a quadratic equation
 - ◇ Solving a quadratic inequality
 - ◇ Determining the end behavior of the graph of a polynomial function

- ◇ Inferring properties of a polynomial function from its graph
- ◇ Word problem involving composition of two functions
- ◇ Horizontal line test
- ◇ Determining whether two functions are inverses of each other
- ◆ Exponential and Logarithmic Functions (12 topics)
 - ◇ Transforming the graph of a natural exponential function and finding its domain and range
 - ◇ Graphing an exponential function and its asymptote: $f(x) = a(e)^{x-b} + c$
 - ◇ Graphing a logarithmic function: Advanced
 - ◇ Change of base for logarithms: Problem type 2
 - ◇ Solving an equation involving logarithms on both sides: Problem type 1
 - ◇ Solving an exponential equation by finding common bases: Linear exponents
 - ◇ Solving an exponential equation by finding common bases: Linear and quadratic exponents
 - ◇ Finding the final amount in a word problem on continuous compound interest
 - ◇ Finding the initial amount in a word problem on 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
- ◆ Trigonometry (44 topics)
 - ◇ Sketching an angle in standard position given in degrees and finding a coterminal angle
 - ◇ Sketching an angle in standard position given in radians and finding a coterminal angle
 - ◇ Area of a sector of a circle
 - ◇ Drawing a reference triangle on the unit circle and using it to derive values of trigonometric functions: Degrees
 - ◇ Using the unit circle to understand that sine and cosine are periodic
 - ◇ Using trigonometry to find a length in a word problem with one right triangle
 - ◇ Using trigonometric functions and the formula $d = rt$ in a real-world situation
 - ◇ Using trigonometry to find angles of elevation or depression in a word problem
 - ◇ Word problem involving a triangle whose side lengths change with time: Problem type 1
 - ◇ Word problem involving a triangle whose side lengths change with time: Problem type 2
 - ◇ Using trigonometry to find lengths in a figure involving two right triangles
 - ◇ Using transformations to graph $y = \sin(bx)$ or $y = \cos(bx)$
 - ◇ Using transformations to graph $y = \sin(bx) + d$ or $y = \cos(bx) + d$
 - ◇ Using transformations to graph $y = a \sin(x+c) + d$ or $y = a \cos(x+c) + d$
 - ◇ Average rate of change involving a sinusoidal function
 - ◇ Amplitude and period of a sine or cosine function
 - ◇ Amplitude, period, and phase shift of a sine or cosine function
 - ◇ Composition of a trigonometric function with its inverse trigonometric function: Problem type 1
 - ◇ Composition of a trigonometric function with its inverse trigonometric function: Problem type 2
 - ◇ Composition of a trigonometric function with the inverse of another trigonometric function: Problem type 1
 - ◇ Composition of a trigonometric function with the inverse of another trigonometric function: Problem type 2
 - ◇ Composition of a trigonometric function with the inverse of another trigonometric function: Problem type 3
 - ◇ Composition of trigonometric functions with variable expressions as inputs: Problem type 1
 - ◇ Composition of trigonometric functions with variable expressions as inputs: Problem type 2
 - ◇ Using cofunction identities
 - ◇ Sum and difference identities: Problem type 1: Degrees
 - ◇ Sum and difference identities: Problem type 1: Radians
 - ◇ Sum and difference identities: Problem type 2: Degrees
 - ◇ Sum and difference identities: Problem type 2: Radians
 - ◇ Double-angle identities: Problem type 1
 - ◇ Double-angle identities: Problem type 2

- ◇ Using a double–angle identity to find the exact value of a composition of trigonometric functions
- ◇ Double–angle identities: Problem type 3
- ◇ Product–to–sum and sum–to–product identities: Problem type 1: Degrees
- ◇ Product–to–sum and sum–to–product identities: Problem type 1: Radians
- ◇ Solving a basic trigonometric equation involving tangent, cotangent, secant, or cosecant
- ◇ Plotting points in polar coordinates
- ◇ Multiple representations of polar coordinates
- ◇ Converting rectangular coordinates to polar coordinates: Special angles
- ◇ Converting rectangular coordinates to polar coordinates: Decimal answers
- ◇ Converting polar coordinates to rectangular coordinates
- ◇ Converting an equation written in rectangular form to one written in polar form
- ◇ Converting an equation written in polar form to one written in rectangular form: Problem type 1
- ◇ Converting an equation written in polar form to one written in rectangular form: Problem type 2

***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.*