MATH 095, College Prep Mathematics: Unit Coverage - *Summer & Fall 2017 / Spring 2018*

Spring 2017 Curriculum Starts on Page 9

Pre-algebra topics (arithmetic skills) offered through BSE (Basic Skills Education)

Accurately add, subtract, multiply, and divide whole numbers, integers, fractions, mixed numbers, and decimals without the use of a calculator.

Accurately place several given values in ascending order when the values are any mixture of whole numbers, integers, fractions, mixed numbers, and decimals.

Currently using Trigsted, Bodden, & Gallaher text, *Developmental Mathematics*

MATH 095: Units 1-4 are prerequisite skills for transfer course MATH 123, Math in Modern Society

Unit 1: Math Topics-- Basic Geometry Formulas, Basic Statistics, and Basic Algebraic Expressions & Equations

Unit 2: Linear Equations and Algebra Basics

Unit 3: Ratios, Proportions and Percents

Unit 4: Lines

Comprehensive Exam over Units 1-4: required score of 70% or better

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MATH 095: Units 5-6 and all items above are prerequisite skills for transfer course MATH 153, Elementary Statistics

Unit 5: Exponents and Polynomials

Unit 6: Factoring Polynomials

Comprehensive Exam over Units 5-6: required score of 70% or better

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MATH 095: Units 7-12 and all items above are prerequisite skills for transfer courses MATH 143, College Algebra, and MATH 147, Pre-calculus

Unit 7: Quadratic Equations and Relations & Functions

Unit 8: Rational Expressions and Equations

Unit 9: Radical Functions

Comprehensive Exam over Units 7-9: required score of 70% or better

Unit 10: Systems of Linear Equations

Unit 11: Inequalities in One and Two Variables, Systems of Linear Inequalities

Unit 12: Transformations of Graphs and Intro to Exponential & Logarithmic Functions

Comprehensive Exam over Units 10-12: required score of 70% or better

MATH 095, College Prep Mathematics: Unit Coverage

MATH 095: Units 1-4, with appropriate comprehensive exam, are prerequisite skills for transfer course MATH 123, Math in Modern Society

MATH 095: Units 1-6, with appropriate comprehensive exams, are prerequisite skills for transfer course MATH 153, Elementary Statistics

MATH 095: Units 1-12, with appropriate comprehensive exams, are prerequisite skills for transfer course MATH 143, College Algebra and MATH 147, Precalculus

Unit 1: Math Topics-- Basic Geometry Formulas, Basic Statistics, and Basic Algebraic Expressions & Equations

Find the mean, median, and mode.
Read a histogram.
Use a tree diagram to count outcomes.
Estimate the probability of an event.
Find the perimeter and area of common polygons.
Find the circumference and area of circles.
Find the perimeter and area of figures formed from two or more common polygons.
Solve applications involving perimeter, circumference, or area.
Make conversions involving mixed units of length.
Make conversions involving American and Metric units of length.
Plot real numbers on a number line.
Find the opposite of a real number.
Find the absolute value of a real number.
Translate word statements involving addition and subtraction.
Solve applications involving addition and subtraction of real numbers.
Solve applications involving multiplication and division of real numbers.
Evaluate exponential expressions.
Use the order of operations to evaluate numeric expressions.
Evaluate algebraic expressions.
Use the commutative and associative properties.
Use the distributive property.
Use the identity and inverse properties.
Identify terms, coefficients, and like terms of an algebraic expression.
Simplify algebraic expressions.
Solve applied problems involving algebraic expressions.
Write word statements as algebraic expressions.

Unit 2: Linear Equations and Algebra Basics

Solve equations using both the addition and the multiplication properties of equality.
Identify linear equations in one variable.
Solve linear equations involving non-simplified expressions.
Solve linear equations involving grouping symbols.
Multiply and divide fractions.
Add and subtract fractions.

Determine if a fraction is a solution to an equation.
Use the properties of equality to solve linear equations involving fractions.
Solve linear equations by clearing fractions.
Determine if a decimal is a solution to an equation.
Use the properties of equality to solve linear equations involving decimals.
Solve linear equations by clearing decimals.
Use linear equations to solve application problems involving decimals.
Solve linear equations containing non-simplified expressions.
Solve linear equations containing fractions or decimals.
Identify contradictions and identities.
Use linear equations to solve application problems.
Translate word statements into equations.
Solve applications using linear equations.
Use the problem solving strategy to solve direct translation problems.
Solve problems involving geometry formulas.
Solve problems involving related quantities, consecutive integers, or cost.
Evaluate a formula.
Find the value of a non-isolated variable in a formula.
Solve a formula for a given variable.

Unit 3: Ratios, Proportions, and Percents

Write two quantities as a ratio or a rate.
Find a unit rate.
Compare unit prices.
Write proportions.
Determine whether proportions are true or false.
Solve proportions.
Use proportions to solve applications.
Find unknown lengths of sides in similar triangles.
Solve applications involving similar triangles.
Find square roots.
Approximate square roots.
Use the Pythagorean Theorem.
Solve applications using the Pythagorean Theorem.
Translate word statements into percent equations.
Solve percent equations.
Solve problems by using a percent equation.
Write percent problems as proportions.
Solve percent problems using proportions.
Solve applications involving percent.
Compute simple interest.
Compute compound interest.
Solve percent problems involving discount, markups, and sales tax.
Solve percent of change problems.
Solve mixture problems.

Unit 4: Lines

Read line graphs.
Identify points in the rectangular coordinate system.
Plot ordered pairs in the rectangular coordinate system.
Create scatter plots.
Determine if an ordered pair is a solution to an equation.
Determine the unknown coordinate of an ordered pair solution.
Graph linear equations by plotting points.
Graph simple functions by plotting points.
Find x- and y- intercepts.
Graph linear equations using intercepts.
Use linear equations to model data.
Graph horizontal and vertical lines.
Find the slope of a line given two points.
Find the slope of horizontal and vertical lines.
Graph a line using the slope and a point.
Find and use the slopes of parallel and perpendicular lines.
Use slope in applications.
Determine the slope and y-intercept from a linear equation.
Use the slope-intercept form to graph a linear equation.
Write the equation of a line given its slope and y-intercept.
Write the equation of a line given its slope and a point on the line.
Write the equation of a line given two points.
Determine the relationship between two lines.
Use linear equations to solve applications.

Unit 5: Exponents and Polynomials

Simplify exponential expressions using the product rule or the quotient rule.
Use the zero-power rule.
Use the power-to-power rule.
Use the product-to-power rule.
Use the quotient-to-power rule.
Simplify exponential expressions using a combination of rules.
Use the negative power rule.
Simplify expressions containing negative exponents using a combination of rules.
Classify polynomials as monomial, binomial, or trinomial.
Determine the degree and coefficient of a monomial.
Determine the degree and leading coefficient of a polynomial.
Evaluate a polynomial for a given value.
Simplify polynomials by combining like terms.
Add polynomials.
Find the opposite of a polynomial.
Subtract polynomials.
Multiply monomials.

Multiply a polynomial by a monomial.
Multiply two binomials.
Multiply two or more polynomials.
Square a binomial sum.
Square a binomial difference.
Multiply the sum and difference of two terms.
Determine the degree of a polynomial in several variables.
Evaluate polynomials in several variables.
Add or subtract polynomials in several variables.
Multiply polynomials in several variables.

Unit 6: Factoring Polynomials

Find the greatest common factor of a group of integers.
Find the greatest common factor of a group of monomials.
Factor out the greatest common factor from a polynomial.
Factor by grouping.
Factor trinomials of the form $x^2 + bx + c$
Factor trinomials of the form $x^2 + bxy + cy^2$
Factor trinomials of the form $ax^2 + bx + c$
Factor trinomials of the form $ax^2 + bxy + cy^2$
Factor trinomials of the form $ax^2 + bx + c$ after factoring out the GCF.
Factor trinomials of the form $ax^2 + bx + c$ using the ac method.
Factor the difference of two squares.
Factor perfect square trinomials.
Factor the sum or difference of two cubes.
Factor polynomials completely.

Unit 7: Quadratic Equations and Relations & Functions

Solve quadratic equations by factoring.
Solve polynomial equations by factoring.
Solve quadratic equations using the square root property.
Use the discriminant to determine the number of and type of solutions to a quadratic function.
Solve quadratic equations using the quadratic formula.
Solve application problems involving geometric figures.
Solve application problems using the Pythagorean Theorem.
Solve application problems involving quadratic models.
Solve applications involving unknown numbers.
Solve applications involving projectile motion.
Solve applications involving geometric formulas.
Solve applications involving distance, rate, and time.
Solve applications involving work.
Find the distance between two points.
Find the midpoint of a line segment.
Write the standard form of an equation of a circle.
Sketch the graph of a circle given in standard form.

Find the domain and range of a relation.
Determine if relations are functions.
Identify a function with the vertical line test.
Express equations of functions using function notation.
Evaluate functions.
Find the domain of a polynomial or rational function.
Find the sum, difference, and product of functions.
Interpret graphs of functions.
Solve application problems involving functions.

Unit 8: Rational Expressions and Equations

Evaluate rational expressions.
Find restricted values for rational expressions.
Simplify rational expressions.
Divide monomials.
Divide a polynomial by a monomial.
Multiply and divide rational expressions.
Find the least common denominator of rational expressions.
Write equivalent rational expressions.
Add and subtract rational expressions with common denominators.
Add and subtract rational expressions with unlike denominators.
Simplify complex fractions.
Simplify complex rational expressions by first simplifying the numerator and denominator.
Simplify complex rational expressions by multiplying by a common denominator.
Identify rational equations.
Solve rational equations.
Identify and solve proportions.
Solve a formula containing rational expressions for a given variable.
Use proportions to solve problems.
Use formulas containing rational expressions to solve problems.
Solve uniform motion problems involving rational equations.
Solve problems involving rate of work.

Unit 9: Radical Functions

Find square roots of perfect squares.
Approximate square roots.
Simplify radical expressions of the form $\sqrt{a^2}$
Find cube roots.
Find and approximate n^{th} roots.
Evaluate radical functions.
Use the definition for rational exponents of the form $a^{\frac{1}{n}}$
Use the definition for rational exponents of the form $a^{\frac{n}{m}}$
Simplify exponential expressions involving rational exponents.
Use rational exponents to simplify radical expressions.
Simplify radical expressions using the product rule.

Simplify radical expressions using the quotient rule.
Add and subtract radical expressions.
Multiply radical expressions.
Rationalize denominators of radical expressions.
Solve equations involving one radical expression.
Solve equations involving two radical expressions.
Use radical equations and models to solve application problems.
Simplify powers of *i*.
Simplify radicals with negative radicands.
Add and subtract complex numbers.
Multiply and divide complex numbers.

Unit 10: Systems of Linear Equations

Determine if an ordered pair is a solution to a system of linear equations in two variables.
Determine the number of solutions to a system without graphing.
Solve systems of linear equations by graphing.
Solve systems of linear equations by substitution.
Solve special systems by substitution.
Solve systems of linear equations by elimination.
Solve special systems by elimination.
Solve related quantity applications using systems of equations.
Solve geometry applications using systems of equations.
Solve uniform motion applications using systems of equations.
Solve mixture applications using systems of equations.

Unit 11: Inequalities in One and Two Variables, Systems of Linear Inequalities

Write the solution set of an inequality in set-builder notation.
Graph the solution set of an inequality on a number line.
Use interval notation to express the solution set of an inequality.
Solve linear inequalities in one variable.
Solve three-part inequalities.
Use linear inequalities to solve application problems.
Find the union and intersection of two sets.
Solve compound linear inequalities in one variable.
Solve absolute value equations and inequalities.
Determine if an ordered pair is a solution to a linear inequality in two variables.
Graph a linear inequality in two variables.
Solve applications involving linear inequalities in two variables.
Determine if an ordered pair is a solution to a system of linear inequalities in two variables.
Graph systems of linear inequalities.
Solve applications involving systems of linear inequalities.
Solve polynomial inequalities.
Solve rational inequalities.

Unit 12: Transformations of Graphs and Intro to Exponential & Logarithm Functions

Identify the characteristics of a quadratic function from its graph.
Graph quadratic functions by using translations.
Graph quadratic functions of the form $f(x) = a(x – h)^2 + k$
Find the vertex of a quadratic function by using the vertex formula.
Maximize quadratic functions to solve application problems.
Minimize quadratic functions to solve application problems.
Evaluate radical functions.
Find the domain of a radical function.
Graph functions that contain square roots or cube roots.
Use vertical shifts to graph functions.
Use horizontal shifts to graph functions.
Use reflections to graph functions.
Use combinations of transformations to graph functions.
Form and evaluate composite functions.
Determine if a function is one-to-one using the horizontal line test.
Find the inverse of a one-to-one function.
Use the characteristics of exponential functions.
Sketch the graphs of exponential functions using transformations.
Solve exponential equations by relating the bases.
Solve applications of exponential functions.
Use the characteristics of the natural exponential function.
Sketch the graphs of natural exponential functions using transformations.
Solve natural exponential equations by relating the bases.
Solve applications of the natural exponential function.
Change from exponential to logarithmic form and vice versa.
Evaluate logarithmic expressions.
Use the properties of logarithms.
Use the common and natural logarithms.
Use the characteristics of logarithmic functions.

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Pre-algebra topics (arithmetic skills) offered through BSE (Basic Skills Education)

Accurately add, subtract, multiply, and divide whole numbers, integers, fractions, mixed numbers, and decimals without the use of a calculator.

Accurately place several given values in ascending order when the values are any mixture of whole numbers, integers, fractions, mixed numbers, and decimals.

Currently using Trigsted, Bodden, & Gallaher text, *Developmental Mathematics*

MATH 095: Units 1-6 are prerequisite skills for transfer course MATH 123, Math in Modern Society

Unit 1: Basic Algebraic Equations, Solving Equations, Using Equations in Problem Solving, Equations Including Fractions & Decimals, Basic Geometry Formulas, and Mean, Median, & Mode.

Unit 2: Ratios, Proportions, and Percents

Unit 3: Real Numbers & Algebraic Expressions, and Linear Equations

Unit 4: Inequalities in One Variable and Graphs of Linear Equations

Unit 5: Exponents & Polynomials

Unit 6: Factoring Polynomials

Math 095: Units 7-12 (in addition to Units 1-6 above) are prerequisite skills for transfer courses MATH 143, College Algebra, MATH 147, Pre-calculus, or MATH 153, Elementary Statistics

Unit 7: Inequalities in Two Variables, System of Linear Equations & Inequalities

Unit 8: Rational Expressions & Equations

Unit 9: Rational Equations, Introduction to Functions, and Radicals

Unit 10: Radicals & Rational Exponents, Quadratic Equations/Functions

Unit 11: Quadratic Equations & Functions, Transformations, Composites, and Inverses

Unit 12: Exponential & Logarithmic Functions and Equations

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MATH 095: Units 1-6 are prerequisite skills for transfer course MATH 123, Math in Modern Society
and
MATH 095: Units 1-12 are prerequisite skills for transfer course MATH 143, College Algebra, MATH 147, Precalculus, and MATH 153, Elementary Statistics

MATH 095: Units 1-6 are prerequisite skills for transfer course MATH 123, Math in Modern Society

Unit 1: Basic Algebra Equations, Solving Equations, Using Equations in Problem-Solving, Equations Including Fractions & Decimals, Basic Geometry Formulas, and Mean, Median & Mode

Determine if an integer is a solution to an equation.
Use the addition property of equality to solve equations.
Use the multiplication property of equality to solve equations.
Identify terms, coefficients, and like terms.
Combine like terms.
Multiply algebraic expressions.
Multiply expressions using the distributive property.
Simplify algebraic expressions.
Solve equations using both the addition and the multiplication properties of equality.
Identify linear equations in one variable.
Solve linear equations involving non-simplified expressions.
Solve linear equations involving grouping symbols.
Translate word statements into equations.
Solve problems involving perimeter and area.
Solve applications using linear equations.
Determine if a fraction is a solution to an equation.
Use the properties of equality to solve linear equations involving fractions.
Solve linear equations by clearing fractions.
Determine if a decimal is a solution to an equation.
Use the properties of equality to solve linear equations involving decimals.
Solve linear equations by clearing decimals.
Use linear equations to solve application problems involving decimals.
Find the perimeter and area of common polygons.
Find the circumference and area of circles.
Find the perimeter and area of figures formed from two or more common polygons.
Solve applications involving perimeter, circumference, or area.
Find the mean, median, and mode.

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Unit 2: Ratios, Proportions, and Percents

Write two quantities as a ratio or a rate.
Find a unit rate.
Compare unit prices.
Write proportions.
Determine whether proportions are true or false.
Solve proportions.
Use proportions to solve applications.
Identify the corresponding parts of congruent triangles.
Determine whether two triangles are congruent.
Identify the corresponding parts of similar triangles.
Find unknown lengths of sides in similar triangles.
Solve applications involving similar triangles.
Find square roots.
Approximate square roots.
Use the Pythagorean theorem.
Solve applications using the Pythagorean theorem.
Write percents as decimals and decimals as percents.
Write percents as fractions and fractions as percents.
Perform conversions among percents,decimals, and fractions.
Translate word statements into percent equations.
Solve percent equations.
Write percent problems as proportions.
Solve percent problems using proportions.
Solve applications involving percents.
Solve applications involving percent increase or percent decrease.
Compute sales tax, overall price, and tax rates.
Compute commission and commission rate.
Compute discount, sale price, and discount rate.
Compute simple interest.
Compute compound interest.

Unit 3: Real Numbers & Algebraic Expressions, and Linear Equations

Classify real numbers.
Plot real numbers on a number line.
Find the opposite of a real number.
Find the absolute value of a real number.
Use inequality symbols to order real numbers.
Translate word statements involving inequalities.
Translate word statements involving addition or subtraction.
Solve applications involving addition or subtraction of real numbers.

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Unit 3 Continued: Real Numbers & Algebraic Expressions, and Linear Equations

Translate word statements involving multiplication or division.
Solve applications involving multiplication or division.
Evaluate exponential expressions.
Use the order of operations to evaluate numeric expressions.
Evaluate algebraic expressions.
Use the commutative and associative properties.
Use the distributive property.
Use the identity and inverse properties.
Identify terms, coefficients, and like terms of an algebraic expression.
Simplify algebraic expressions.
Write word statements as algebraic expressions.
Solve applied problems involving algebraic expressions.
Identify linear equations in one variable.
Determine if a given value is a solution to an equation.
Solve linear equations using the addition property and the multiplication property of equality.
Solve linear equations containing non-simplified expressions.
Solve linear equations containing fractions or decimals.
Identify contradictions and identities.
Use linear equations to solve application problems.
Translate sentences into equations.
Use the problem solving strategy to solve direct translation problems.
Solve problems involving related quantities, consecutive integers, or cost.
Evaluate a formula.
Find the value of a non-isolated variable in a formula.
Solve a formula for a given variable.
Use geometric formulas to solve applications.
Solve problems involving geometry formulas.
Solve problems involving angles.
Solve problems involving uniform motion.
Solve problems by using a percent equation.
Solve percent problems involving discounts, markups, and sales tax.
Solve percent of change problems.
Solve mixture problems.

Unit 4: Inequalities in One Variable and Graphs of Linear Equations

Write the solution set of an inequality in set-builder notation.
Graph the solution set of an inequality on a number line.
Use interval notation to express the solution set of an inequality.
Solve linear inequalities in one variable.
Solve three-part inequalities.

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Unit 4 Continued: Inequalities in One Variable and Graphs of Linear Equations

Use linear inequalities to solve application problems.
Find the union and intersection of two sets.
Solve compound linear inequalities in one variable.
Solve absolute value equations and inequalities.
Read line graphs.
Identify points in the rectangular coordinate system.
Plot ordered pairs in the rectangular coordinate system.
Create scatter plots.
Determine if an ordered pair is a solution to an equation.
Determine the unknown coordinate of an ordered pair solution.
Graph linear equations by plotting points.
Find x- and y- intercepts.
Graph linear equations using intercepts.
Use linear equations to model data.
Graph horizontal and vertical lines.
Find the slope of a line given two points.
Find the slope of horizontal and vertical lines.
Graph a line using the slope and a point.
Find and use the slopes of parallel and perpendicular lines.
Use slope in applications.
Determine the slope and y-intercept from a linear equation.
Use the slope-intercept form to graph a linear equation.
Write the equation of a line given its slope and y-intercept.
Write the equation of a line given its slope and a point on the line.
Write the equation of a line given two points.
Determine the relationship between two lines.
Write the equation of a line parallel or perpendicular to a given line.
Use linear equations to solve applications.

Unit 5: Exponents and Polynomials

Simplify exponential expressions using the product rule or the quotient rule.
Use the zero-power rule.
Use the power-to-power rule.
Use the product-to-power rule.
Use the quotient-to-power rule.
Simplify exponential expressions using a combination of rules.
Classify polynomials as monomial, binomial, or trinomial.
Determine the degree and coefficient of a monomial.
Determine the degree and leading coefficient of a polynomial.
Evaluate a polynomial for a given value.

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Unit 5 Continued: Exponents and Polynomials

Simplify polynomials by combining like terms.
Add polynomials.
Find the opposite of a polynomial.
Subtract polynomials.
Multiply monomials.
Multiply a polynomial by a monomial.
Multiply two binomials.
Multiply two or more polynomials.
Square a binomial sum.
Square a binomial difference.
Multiply the sum and difference of two terms.
Use the negative power rule.
Simplify expressions containing negative exponents using a combination of rules.
Convert a number from standard form to scientific form.
Convert a number from scientific form to standard form.
Multiply and divide with scientific notation.
Divide monomials.
Divide a polynomial by a monomial.
Divide polynomials using long division.
Determine the degree of a polynomial in several variables.
Evaluate polynomials in several variables.
Add or subtract polynomials in several variables.
Multiply polynomials in several variables.

Unit 6: Factoring Polynomials

Find the greatest common factor of a group of integers.
Find the greatest common factor of a group of monomials.
Factor out the greatest common factor from a polynomial.
Factor by grouping.
Factor trinomials of the form $x^2 + bx + c$
Factor trinomials of the form $x^2 + bxy + cy^2$
Factor trinomials of the form $ax^2 + bx + c$
Factor trinomials of the form $ax^2 + bxy + cy^2$
Factor trinomials of the form $ax^2 + bx + c$ after factoring out the GCF.
Factor the difference of two squares.
Factor perfect square trinomials.
Factor the sum or difference of two cubes.
Factor polynomials completely.
Solve quadratic equations by factoring.
Solve polynomial equations by factoring.

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Unit 6 continued: Factoring Polynomials

Solve application problems involving consecutive integers.
Solve application problems involving geometric figures.
Solve application problems using the Pythagorean theorem.
Solve application problems involving quadratic models.

MATH 095: Units 1-12 are prerequisite skills for transfer course MATH 143, College Algebra, MATH 147, Precalculus, and MATH 153, Elementary Statistics

Unit 7: Inequalities in Two Variables, Systems of Linear Equations & Inequalities

Determine if an ordered pair is a solution to a linear inequality in two variables.
Graph a linear inequality in two variables.
Solve applications involving linear inequalities in two variables.
Determine if an ordered pair is a solution to a system of linear equations in two variables.
Determine the number of solutions to a system without graphing.
Solve systems of linear equations by graphing.
Solve systems of linear equations by substitution.
Solve special systems by substitution.
Solve systems of linear equations by elimination.
Solve special systems by elimination.
Solve related quantity applications using systems of equations.
Solve geometry applications using systems of equations.
Solve uniform motion applications using systems of equations.
Solve mixture applications using systems of equations.
Determine if an ordered pair is a solution to a system of linear inequalities in two variables.
Graph systems of linear inequalities.
Solve applications involving systems of linear inequalities.

Unit 8: Rational Expressions & Equations

Evaluate rational expressions.
Find restricted values for rational expressions.
Simplify rational expressions.
Multiply and divide rational expressions.
Find the least common denominator of rational expressions.
Write equivalent rational expressions.
Add and subtract rational expressions with common denominators.
Add and subtract rational expressions with unlike denominators.
Simplify complex rational expressions by first simplifying the numerator and denominator.
Simplify complex rational expressions by multiplying by a common denominator.
Identify rational equations.

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Unit 8 continued: Rational Expressions & Equations

Solve rational equations.
Identify and solve proportions.
Solve a formula containing rational expressions for a given variable.
Use proportions to solve problems.
Use formulas containing rational expressions to solve problems.
Solve uniform motion problems involving rational equations.
Solve problems involving rate of work.

Unit 9: Rational Equations, Introduction to Functions, and Radicals

Solve problems involving direct variation.
Solve problems involving inverse variation.
Identify independent and dependent variables.
Find the domain and range of a relation.
Determine if relations are functions.
Determine if graphs are functions.
Solve application problems involving relations and functions.
Express equations of functions using function notation.
Evaluate functions.
Find the domain of a polynomial or rational function.
Find the sum, difference, product, and quotient of functions.
Graph simple functions by plotting points.
Interpret graphs of functions.
Solve application problems involving functions.
Find square roots of perfect squares.
Approximate square roots.
Simplify radical expressions of the form $\sqrt{a^2}$
Find cube roots.
Find and approximate n^{th} roots.
Evaluate radical functions.
Find the domain of a radical function.
Graph functions that contain square roots or cube roots.

Unit 10: Radicals & Rational Exponents, Quadratic Equations/Functions

Use the definition for rational exponents of the form $a^{\frac{1}{n}}$

Use the definition for rational exponents of the form $a^{\frac{m}{n}}$
Simplify exponential expressions involving rational exponents.
Use rational exponents to simplify radical expressions.
Simplify radical expressions using the product rule.
Simplify radical expressions using the quotient rule.
Add and subtract radical expressions.

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Unit 10 Continued: Radicals & Rational Exponents, Quadratic Equations/Functions

Multiply radical expressions.
Rationalize denominators of radical expressions.
Solve equations involving one radical expression.
Solve equations involving two radical expressions.
Use radical equations and models to solve application problems.
Simplify powers of *i*.
Add and subtract complex numbers.
Multiply and divide complex numbers.
Simplify radicals with negative radicands.
Solve quadratic equations using the square root property.
Solve quadratic equations by completing the square.
Solve quadratic equations using the quadratic formula.
Use the discriminant to determine the number and type of solutions to a quadratic function.
Solve equations that are quadratic in form.
Identify the characteristics of a quadratic function from its graph.
Graph quadratic functions by using translations.
Graph quadratic functions of the form $f(x) = a(x - h)^2 + k$
Find the vertex of a quadratic function by completing the square.
Graph quadratic functions of the form $f(x) = ax^2 + bx + c$ by completing the square.
Find the vertex of a quadratic function by using the vertex formula.
Graph quadratic functions of the form $f(x) = ax^2 + bx + c$ by using the vertex formula.

Unit 11: Quadratic Equations & Functions, Transformations, Composites, and Inverses

Solve applications involving unknown numbers.
Solve applications involving projectile motion.
Solve applications involving geometric formulas.
Solve applications involving distance, rate, and time.
Solve applications involving work.
Maximize quadratic functions to solve application problems.
Minimize quadratic functions to solve application problems.
Find the distance between two points.
Find the midpoint of a line segment.
Write the standard form of an equation of a circle.
Sketch the graph of a circle given in standard form.
Write the general form of a circle in standard form and sketch its graph.
Solve polynomial inequalities.
Solve rational inequalities.
Use vertical shifts to graph functions.
Use horizontal shifts to graph functions.
Use reflections to graph functions.

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Unit 11 continued: Quadratic Equations & Functions, Transformations, Composites, and Inverses

Use vertical stretches and compressions to graph functions. Use horizontal stretches and compressions to graph functions. Use combinations of transformations to graph functions.
Form and evaluate composite functions. Determine the domain of composite functions.
Determine if a function is one-to-one using the horizontal line test.
Verify inverse functions.
Sketch the graphs of inverse functions. Find the inverse of a one-to-one function.

Unit 12: Exponential & Logarithmic Functions and Equations

Use the characteristics of exponential functions.
Sketch the graphs of exponential functions using transformations.
Solve exponential equations by relating the bases.
Solve applications of exponential functions.
Use the characteristics of the natural exponential function.
Sketch the graphs of natural exponential functions using transformations.
Solve natural exponential equations by relating the bases.
Solve applications of the natural exponential function. Use the definition of a logarithmic function.
Evaluate logarithmic expressions. Use the properties of logarithms.
Use the common and natural logarithms.
Use the characteristics of logarithmic functions.
Sketch the graphs of logarithmic function using transformations. Find the domain of logarithmic functions.
Use the product rule, quotient rule, and power rule for logarithms.
Expand and condense logarithmic expressions.
Solve exponential equations.
Solve logarithmic equations.
Solve compound interest problems
Solve exponential growth and decay problems
Solve logistic growth problems
Use Newton's law of cooling