EOCEP Tutorials for South Carolina are designed specifically for the South Carolina College- and Career-Ready Standards , to prepare students for the End-of-Course Examination Program (EOCEP). EOC Categories are at the heart of EOCEP Tutorial structure – bringing category-based learning to the student experience, and category-based performance and progress tracking to the teacher experience.

Math Tutorials offer targeted instruction, practice and review designed to develop computational fluency, deepen conceptual understanding, and apply mathematical practices. They automatically identify and address learning gaps down to elementary-level content, using adaptive remediation to bring students to grade-level no matter where they start. Students engage with the content in an interactive, feedback-rich environment as they progress through standards-aligned modules. By constantly honing the ability to apply their knowledge in abstract and real world scenarios, students build the depth of knowledge and higher order skills required to demonstrate their mastery when put to the test.

In each module, the Learn It and Try It make complex ideas accessible to students through focused content, modeled logic and process, multi-modal representations, and personalized feedback as students reason through increasingly challenging problems. The Review It offers a high impact summary of key concepts and relates those concepts to students' lives. The Test It assesses students' mastery of the module's concepts, providing granular performance data to students and teachers after each attempt. To help students focus on the content most relevant to them, unit-level pretests and posttests can quickly identify where students are strong and where they're still learning.

Test-Taking Strategies for EOC Tutorials allow students to practice and apply learning approaches that will hone their test-taking skills and focus them for success on the day of their EOC test.

Unit 1: Real Number System

- **LAWS OF EXPONENTS**
  - A1.NRNS.1: Real Number System Rewrite expressions involving simple radicals and rational exponents in different forms.
  - A1.NRNS.2: Real Number System Use the definition of the meaning of rational exponents to translate between rational exponent and radical forms.
- **OPERATIONS ON RATIONAL AND IRRATIONAL NUMBERS**
  - A1.NRNS.3: Real Number System Explain why the sum or product of rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational.

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- **MONITORING PRECISION AND ACCURACY**
  - A1.NQ.1: Quantities Use units of measurement to guide the solution of multi-step tasks. Choose and interpret appropriate labels, units, and scales when constructing graphs and other data displays.
  - A1.NQ.2: Quantities Label and define appropriate quantities in descriptive modeling contexts.
  - A1.NQ.3: Quantities Choose a level of accuracy appropriate to limitations on measurement when reporting quantities in context.

Unit 2: Equations and Inequalities

- **ONE-STEP EQUATIONS AND INEQUALITIES**
  - A1.ACE.1: Creating Equations Create and solve equations and inequalities in one variable that model real-world problems involving linear, quadratic, simple rational, and exponential relationships. Interpret the solutions and determine whether they are reasonable.
  - A1.AREI.3: Reasoning with Equations and Inequalities Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.
- **MULTI-STEP EQUATIONS AND INEQUALITIES**
  - A1.ACE.1: Creating Equations Create and solve equations and inequalities in one variable that model real-world problems involving linear, quadratic, simple rational, and exponential relationships. Interpret the solutions and determine whether they are reasonable.
  - A1.AREI.3: Reasoning with Equations and Inequalities Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.
- **AXIOMS OF EQUALITY**
  - A1.AREI.1: Reasoning with Equations and Inequalities Understand and justify that the steps taken when solving simple equations in one variable create new equations that have the same solution as the original.
- **LITERAL EQUATIONS**
  - A1.AREI.3: Reasoning with Equations and Inequalities Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.
  - A1.ACE.4: Creating Equations Solve literal equations and formulas for a specified variable including equations and formulas that arise in a variety of disciplines.

Unit 3: Writing Expressions and Equations

- **FORMULATING AND SIMPLIFYING ALGEBRAIC EXPRESSIONS**
  - A1.ASE.1: Structure and Expressions Interpret the meanings of coefficients, factors, terms, and expressions based on their real-world contexts. Interpret complicated expressions as being composed of simpler expressions.
- **FORMULATING AND SOLVING EQUATIONS FROM WORD PROBLEMS**
  - A1.ACE.1: Creating Equations Create and solve equations and inequalities in one variable that model real-world problems involving linear, quadratic, simple rational, and exponential relationships.

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Interpret the solutions and determine whether they are reasonable.

- A1.ASE.1: Structure and Expressions Interpret the meanings of coefficients, factors, terms, and expressions based on their real-world contexts. Interpret complicated expressions as being composed of simpler expressions.

- **FORMULATING AND SOLVING INEQUALITIES FROM WORD PROBLEMS**
  - A1.ACE.1: Creating Equations Create and solve equations and inequalities in one variable that model real-world problems involving linear, quadratic, simple rational, and exponential relationships. Interpret the solutions and determine whether they are reasonable.
  - A1.ASE.1: Structure and Expressions Interpret the meanings of coefficients, factors, terms, and expressions based on their real-world contexts. Interpret complicated expressions as being composed of simpler expressions.

Unit 4: Functions

- **FUNCTIONS AND RELATIONS**
  - A1.FIF.2: Interpreting Functions Evaluate functions and interpret the meaning of expressions involving function notation from a mathematical perspective and in terms of the context when the function describes a real-world situation.
  - A1.FIF.1.b: Interpreting Functions Extend previous knowledge of a function to apply to general behavior and features of a function. Represent a function using function notation and explain that f(x) denotes the output of function f that corresponds to the input x.
  - A1.FIF.1.a: Interpreting Functions Extend previous knowledge of a function to apply to general behavior and features of a function. Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range.
  - A1.FIF.1.c: Interpreting Functions Extend previous knowledge of a function to apply to general behavior and features of a function. Understand that the graph of a function labeled as f is the set of all ordered pairs (x,y) that satisfy the equation y = f(x).
- **DOMAIN AND RANGE**
  - A1.FIF.5: Interpreting Functions Relate the domain and range of a function to its graph and, where applicable, to the quantitative relationship it describes.
- **EVALUATING FUNCTIONS**
  - A1.FIF.2: Interpreting Functions Evaluate functions and interpret the meaning of expressions involving function notation from a mathematical perspective and in terms of the context when the function describes a real-world situation.

Unit 5: Slope

- **SLOPE**
  - A1.FIF.6: Interpreting Functions Given a function in graphical, symbolic, or tabular form, determine the average rate of change of the function over a specified interval. Interpret the meaning of the

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average rate of change in a given context.

- A1.FIF.4: Interpreting Functions Interpret key features of a function that models the relationship between two quantities when given in graphical or tabular form. Sketch the graph of a function from a verbal description showing key features. Key features include intercepts; intervals where the function is increasing, decreasing, constant, positive, or negative; relative maximums and minimums; symmetries; end behavior and periodicity.

Unit 6: Graphs of Linear Equations

- **GRAPHING AND ANALYZING LINEAR FUNCTIONS**
  - A1.FIF.4: Interpreting Functions Interpret key features of a function that models the relationship between two quantities when given in graphical or tabular form. Sketch the graph of a function from a verbal description showing key features. Key features include intercepts; intervals where the function is increasing, decreasing, constant, positive, or negative; relative maximums and minimums; symmetries; end behavior and periodicity.
  - A1.ACE.2: Creating Equations Create equations in two or more variables to represent relationships between quantities. Graph the equations on coordinate axes using appropriate labels, units, and scales.
  - A1.FLQE.2: Linear, Quadratic, and Exponential Create symbolic representations of linear and exponential functions, including arithmetic and geometric sequences, given graphs, verbal descriptions, and tables.
- **GRAPHING AND MANIPULATING Y = MX + B**
  - A1.FIF.6: Interpreting Functions Given a function in graphical, symbolic, or tabular form, determine the average rate of change of the function over a specified interval. Interpret the meaning of the average rate of change in a given context.
  - A1.FLQE.5: Linear, Quadratic, and Exponential Interpret the parameters in a linear or exponential function in terms of the context.
  - A1.FIF.4: Interpreting Functions Interpret key features of a function that models the relationship between two quantities when given in graphical or tabular form. Sketch the graph of a function from a verbal description showing key features. Key features include intercepts; intervals where the function is increasing, decreasing, constant, positive, or negative; relative maximums and minimums; symmetries; end behavior and periodicity.
  - A1.ACE.2: Creating Equations Create equations in two or more variables to represent relationships between quantities. Graph the equations on coordinate axes using appropriate labels, units, and scales.
  - A1.FLQE.2: Linear, Quadratic, and Exponential Create symbolic representations of linear and exponential functions, including arithmetic and geometric sequences, given graphs, verbal descriptions, and tables.
  - A1.FIF.7: Interpreting Functions Graph functions from their symbolic representations. Indicate key features including intercepts; intervals where the function is increasing, decreasing, positive, or

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negative; relative maximums and minimums; symmetries; end behavior and periodicity. Graph simple cases by hand and use technology for complicated cases.

Unit 7: Graphs of Linear Inequalities

- **GRAPHS OF LINEAR INEQUALITIES**
  - A1.AREI.12: Reasoning with Equations and Inequalities Graph the solutions to a linear inequality in two variables.

Unit 8: Linear Equations

- **SLOPE-INTERCEPT FORM OF A LINEAR EQUATION**
  - A1.FIF.7: Interpreting Functions Graph functions from their symbolic representations. Indicate key features including intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior and periodicity. Graph simple cases by hand and use technology for complicated cases.
  - A1.FLQE.2: Linear, Quadratic, and Exponential Create symbolic representations of linear and exponential functions, including arithmetic and geometric sequences, given graphs, verbal descriptions, and tables.
- **POINT-SLOPE FORM OF A LINEAR EQUATION**
  - A1.FIF.7: Interpreting Functions Graph functions from their symbolic representations. Indicate key features including intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior and periodicity. Graph simple cases by hand and use technology for complicated cases.
  - A1.AREI.10: Reasoning with Equations and Inequalities Explain that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane.
  - A1.FLQE.2: Linear, Quadratic, and Exponential Create symbolic representations of linear and exponential functions, including arithmetic and geometric sequences, given graphs, verbal descriptions, and tables.

Unit 9: Two-Variable Linear Systems

- **SOLVING SYSTEMS OF LINEAR EQUATIONS: GRAPHING**
  - A1.AREI.11: Reasoning with Equations and Inequalities Solve an equation of the form f(x) = g(x) graphically by identifying the x-coordinate(s) of the point(s) of intersection of the graphs of y = f(x) and y = g(x).
  - A1.ACE.2: Creating Equations Create equations in two or more variables to represent relationships between quantities. Graph the equations on coordinate axes using appropriate labels, units, and scales.
- **SOLVING SYSTEMS OF LINEAR EQUATIONS: SUBSTITUTION**
  - A1.ACE.2: Creating Equations Create equations in two or more variables to represent relationships between quantities. Graph the equations on coordinate axes using appropriate labels, units, and scales.

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- A1.AREI.6.a: Reasoning with Equations and Inequalities Solve systems of linear equations algebraically and graphically focusing on pairs of linear equations in two variables. Solve systems of linear equations using the substitution method.

- **SOLVING SYSTEMS OF LINEAR EQUATIONS: ELIMINATION**
  - A1.ACE.2: Creating Equations Create equations in two or more variables to represent relationships between quantities. Graph the equations on coordinate axes using appropriate labels, units, and scales.
  - A1.AREI.6.b: Reasoning with Equations and Inequalities Solve systems of linear equations algebraically and graphically focusing on pairs of linear equations in two variables. Solve systems of linear equations using linear combination.
  - A1.AREI.5: Reasoning with Equations and Inequalities Justify that the solution to a system of linear equations is not changed when one of the equations is replaced by a linear combination of the other equation.

Unit 10: Linear Systems

- **SOLVING SYSTEMS OF LINEAR INEQUALITIES**
  - A1.AREI.12: Reasoning with Equations and Inequalities Graph the solutions to a linear inequality in two variables.
- **SOLVING THREE-VARIABLE SYSTEMS OF LINEAR EQUATIONS**
  - A1.AREI.5: Reasoning with Equations and Inequalities Justify that the solution to a system of linear equations is not changed when one of the equations is replaced by a linear combination of the other equation.

Unit 11: Exponential Functions and Equations

- **EXPONENTIAL FUNCTIONS**
  - A1.ASE.1: Structure and Expressions Interpret the meanings of coefficients, factors, terms, and expressions based on their real-world contexts. Interpret complicated expressions as being composed of simpler expressions.
  - A1.FLQE.5: Linear, Quadratic, and Exponential Interpret the parameters in a linear or exponential function in terms of the context.
  - A1.FLQE.2: Linear, Quadratic, and Exponential Create symbolic representations of linear and exponential functions, including arithmetic and geometric sequences, given graphs, verbal descriptions, and tables.
  - A1.FIF.4: Interpreting Functions Interpret key features of a function that models the relationship between two quantities when given in graphical or tabular form. Sketch the graph of a function from a verbal description showing key features. Key features include intercepts; intervals where the function is increasing, decreasing, constant, positive, or negative; relative maximums and minimums; symmetries; end behavior and periodicity.
- **EXPONENTIAL GROWTH AND DECAY**

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- A1.ASE.1: Structure and Expressions Interpret the meanings of coefficients, factors, terms, and expressions based on their real-world contexts. Interpret complicated expressions as being composed of simpler expressions.
- A1.FLQE.5: Linear, Quadratic, and Exponential Interpret the parameters in a linear or exponential function in terms of the context.
- A1.FLQE.1.a: Linear, Quadratic, and Exponential Distinguish between situations that can be modeled with linear functions or exponential functions by recognizing situations in which one quantity changes at a constant rate per unit interval as opposed to those in which a quantity changes by a constant percent rate per unit interval. Prove that linear functions grow by equal differences over equal intervals and that exponential functions grow by equal factors over equal intervals.
- A1.FLQE.3: Linear, Quadratic, and Exponential Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or more generally as a polynomial function.
- A1.ACE.2: Creating Equations Create equations in two or more variables to represent relationships between quantities. Graph the equations on coordinate axes using appropriate labels, units, and scales.
- A1.FLQE.2: Linear, Quadratic, and Exponential Create symbolic representations of linear and exponential functions, including arithmetic and geometric sequences, given graphs, verbal descriptions, and tables.

Unit 12: Exponential Inequalities

- **SOLVING EXPONENTIAL INEQUALITIES**
  - A1.ASE.1: Structure and Expressions Interpret the meanings of coefficients, factors, terms, and expressions based on their real-world contexts. Interpret complicated expressions as being composed of simpler expressions.

Unit 13: Sequences

- **SEQUENCES**
  - A1.FLQE.2: Linear, Quadratic, and Exponential Create symbolic representations of linear and exponential functions, including arithmetic and geometric sequences, given graphs, verbal descriptions, and tables.
- **ARITHMETIC AND GEOMETRIC SEQUENCES**
  - A1.FLQE.2: Linear, Quadratic, and Exponential Create symbolic representations of linear and exponential functions, including arithmetic and geometric sequences, given graphs, verbal descriptions, and tables.

Unit 14: Polynomials

- **POLYNOMIAL BASICS**
  - A1.ASE.1: Structure and Expressions Interpret the meanings of coefficients, factors, terms, and expressions based on their real-world contexts. Interpret complicated expressions as being composed of simpler expressions.

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- **ADDITION AND SUBTRACTION OF POLYNOMIALS**
  - A1.AAPR.1: Arithmetic with Polynomials and Rational Expressions Add, subtract, and multiply polynomials and understand that polynomials are closed under these operations.
- **MULTIPLICATION OF POLYNOMIALS**
  - A1.AAPR.1: Arithmetic with Polynomials and Rational Expressions Add, subtract, and multiply polynomials and understand that polynomials are closed under these operations.

Unit 15: Factoring

- **FACTORING QUADRATIC TRINOMIALS**
  - A1.AREI.4.b: Reasoning with Equations and Inequalities Solve mathematical and real-world problems involving quadratic equations in one variable. Solve quadratic equations by inspection, taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as a + bi for real numbers a and b. (Limit to non-complex roots.)
  - A1.ASE.3.a: Structure and Expressions Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression. Find the zeros of a quadratic function by rewriting it in equivalent factored form and explain the connection between the zeros of the function, its linear factors, the x-intercepts of its graph, and the solutions to the corresponding quadratic equation.
- **FACTORING SPECIAL CASES**
  - A1.ASE.2: Structure and Expressions Analyze the structure of binomials, trinomials, and other polynomials in order to rewrite equivalent expressions.
  - A1.ASE.1: Structure and Expressions Interpret the meanings of coefficients, factors, terms, and expressions based on their real-world contexts. Interpret complicated expressions as being composed of simpler expressions.
- **FACTORING HIGHER-ORDER POLYNOMIALS**
  - A1.ASE.2: Structure and Expressions Analyze the structure of binomials, trinomials, and other polynomials in order to rewrite equivalent expressions.

Unit 16: Graphs of Quadratic Functions

- **QUADRATIC FUNCTIONS**
  - A1.FIF.4: Interpreting Functions Interpret key features of a function that models the relationship between two quantities when given in graphical or tabular form. Sketch the graph of a function from a verbal description showing key features. Key features include intercepts; intervals where the function is increasing, decreasing, constant, positive, or negative; relative maximums and minimums; symmetries; end behavior and periodicity.
  - A1.AREI.4.a: Reasoning with Equations and Inequalities Solve mathematical and real-world problems involving quadratic equations in one variable. Use the method of completing the square to transform

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any quadratic equation in x into an equation of the form (x h) = k that has the same solutions. Derive the quadratic formula from this form.

- **ANALYZING GRAPHS OF QUADRATIC FUNCTIONS**
  - A1.FIF.1.c: Interpreting Functions Extend previous knowledge of a function to apply to general behavior and features of a function. Understand that the graph of a function labeled as f is the set of all ordered pairs (x,y) that satisfy the equation y = f(x).
  - A1.FIF.5: Interpreting Functions Relate the domain and range of a function to its graph and, where applicable, to the quantitative relationship it describes.
  - A1.FIF.1.a: Interpreting Functions Extend previous knowledge of a function to apply to general behavior and features of a function. Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range.
  - A1.FIF.7: Interpreting Functions Graph functions from their symbolic representations. Indicate key features including intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior and periodicity. Graph simple cases by hand and use technology for complicated cases.
  - A1.FIF.1.b: Interpreting Functions Extend previous knowledge of a function to apply to general behavior and features of a function. Represent a function using function notation and explain that f(x) denotes the output of function f that corresponds to the input x.
  - A1.FIF.4: Interpreting Functions Interpret key features of a function that models the relationship between two quantities when given in graphical or tabular form. Sketch the graph of a function from a verbal description showing key features. Key features include intercepts; intervals where the function is increasing, decreasing, constant, positive, or negative; relative maximums and minimums; symmetries; end behavior and periodicity.
  - A1.AREI.4.b: Reasoning with Equations and Inequalities Solve mathematical and real-world problems involving quadratic equations in one variable. Solve quadratic equations by inspection, taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as a + bi for real numbers a and b. (Limit to non-complex roots.)
- **LINEAR VERSUS NONLINEAR FUNCTIONS**
  - A1.FLQE.1.a: Linear, Quadratic, and Exponential Distinguish between situations that can be modeled with linear functions or exponential functions by recognizing situations in which one quantity changes at a constant rate per unit interval as opposed to those in which a quantity changes by a constant percent rate per unit interval. Prove that linear functions grow by equal differences over equal intervals and that exponential functions grow by equal factors over equal intervals.
  - A1.FIF.6: Interpreting Functions Given a function in graphical, symbolic, or tabular form, determine the average rate of change of the function over a specified interval. Interpret the meaning of the average rate of change in a given context.

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- A1.FIF.4: Interpreting Functions Interpret key features of a function that models the relationship between two quantities when given in graphical or tabular form. Sketch the graph of a function from a verbal description showing key features. Key features include intercepts; intervals where the function is increasing, decreasing, constant, positive, or negative; relative maximums and minimums; symmetries; end behavior and periodicity.
- A1.FIF.9: Interpreting Functions Compare properties of two functions given in different representations such as algebraic, graphical, tabular, or verbal.

Unit 17: Solving Quadratic Equations

- **SOLVING QUADRATIC FUNCTIONS WITH FACTORING**
  - A1.FIF.8.a: Interpreting Functions Translate between different but equivalent forms of a function equation to reveal and explain different properties of the function. Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context.
  - A1.AREI.4.b: Reasoning with Equations and Inequalities Solve mathematical and real-world problems involving quadratic equations in one variable. Solve quadratic equations by inspection, taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as a + bi for real numbers a and b. (Limit to non-complex roots.)
  - A1.ASE.3.a: Structure and Expressions Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression. Find the zeros of a quadratic function by rewriting it in equivalent factored form and explain the connection between the zeros of the function, its linear factors, the x-intercepts of its graph, and the solutions to the corresponding quadratic equation.
  - A1.FIF.7: Interpreting Functions Graph functions from their symbolic representations. Indicate key features including intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior and periodicity. Graph simple cases by hand and use technology for complicated cases.
- **COMPLETING THE SQUARE**
  - A1.FIF.8.a: Interpreting Functions Translate between different but equivalent forms of a function equation to reveal and explain different properties of the function. Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context.
  - A1.AREI.4.b: Reasoning with Equations and Inequalities Solve mathematical and real-world problems involving quadratic equations in one variable. Solve quadratic equations by inspection, taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as a + bi for real numbers a and b. (Limit to non-complex roots.)
  - A1.AREI.4.a: Reasoning with Equations and Inequalities Solve mathematical and real-world problems involving quadratic equations in one variable. Use the method of completing the square to transform

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any quadratic equation in x into an equation of the form (x h) = k that has the same solutions. Derive the quadratic formula from this form.

- A1.FIF.7: Interpreting Functions Graph functions from their symbolic representations. Indicate key features including intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior and periodicity. Graph simple cases by hand and use technology for complicated cases.

Unit 18: The Quadratic Formula

- **QUADRATIC FORMULA**
  - A1.AREI.4.b: Reasoning with Equations and Inequalities Solve mathematical and real-world problems involving quadratic equations in one variable. Solve quadratic equations by inspection, taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as a + bi for real numbers a and b. (Limit to non-complex roots.)
  - A1.FIF.4: Interpreting Functions Interpret key features of a function that models the relationship between two quantities when given in graphical or tabular form. Sketch the graph of a function from a verbal description showing key features. Key features include intercepts; intervals where the function is increasing, decreasing, constant, positive, or negative; relative maximums and minimums; symmetries; end behavior and periodicity.

Unit 19: Representations of Functions

- **REPRESENTATIONS OF QUADRATIC FUNCTIONS**
  - A1.AREI.4.a: Reasoning with Equations and Inequalities Solve mathematical and real-world problems involving quadratic equations in one variable. Use the method of completing the square to transform any quadratic equation in x into an equation of the form (x h) = k that has the same solutions. Derive the quadratic formula from this form.
  - A1.ASE.2: Structure and Expressions Analyze the structure of binomials, trinomials, and other polynomials in order to rewrite equivalent expressions.
  - A1.FIF.4: Interpreting Functions Interpret key features of a function that models the relationship between two quantities when given in graphical or tabular form. Sketch the graph of a function from a verbal description showing key features. Key features include intercepts; intervals where the function is increasing, decreasing, constant, positive, or negative; relative maximums and minimums; symmetries; end behavior and periodicity.
  - A1.ACE.1: Creating Equations Create and solve equations and inequalities in one variable that model real-world problems involving linear, quadratic, simple rational, and exponential relationships. Interpret the solutions and determine whether they are reasonable.
  - A1.ACE.2: Creating Equations Create equations in two or more variables to represent relationships between quantities. Graph the equations on coordinate axes using appropriate labels, units, and scales.
  - A1.ASE.3.a: Structure and Expressions Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression. Find the zeros of a

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quadratic function by rewriting it in equivalent factored form and explain the connection between the zeros of the function, its linear factors, the x-intercepts of its graph, and the solutions to the corresponding quadratic equation.

- A1.FIF.8.a: Interpreting Functions Translate between different but equivalent forms of a function equation to reveal and explain different properties of the function. Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context.

- **MULTIPLE REPRESENTATIONS OF FUNCTIONS**
  - A1.FIF.9: Interpreting Functions Compare properties of two functions given in different representations such as algebraic, graphical, tabular, or verbal.
  - A1.ACE.2: Creating Equations Create equations in two or more variables to represent relationships between quantities. Graph the equations on coordinate axes using appropriate labels, units, and scales.

Unit 20: Parent Functions and Transformations

- **LINEAR AND EXPONENTIAL PARENT FUNCTIONS**
  - A1.FIF.5: Interpreting Functions Relate the domain and range of a function to its graph and, where applicable, to the quantitative relationship it describes.
- **QUADRATIC PARENT FUNCTION**
  - A1.FIF.5: Interpreting Functions Relate the domain and range of a function to its graph and, where applicable, to the quantitative relationship it describes.
- **TRANSFORMATIONS OF THE LINEAR AND EXPONENTIAL PARENT FUNCTIONS**
  - A1.FBF.3: Building Functions Describe the effect of the transformations kf(x), f(x) + k, f(x + k), and combinations of such transformations on the graph of y = f(x) for any real number k. Find the value of k given the graphs and write the equation of a transformed parent function given its graph.
- **TRANSFORMATIONS OF THE QUADRATIC PARENT FUNCTION**
  - A1.FBF.3: Building Functions Describe the effect of the transformations kf(x), f(x) + k, f(x + k), and combinations of such transformations on the graph of y = f(x) for any real number k. Find the value of k given the graphs and write the equation of a transformed parent function given its graph.

Unit 21: Systems of Nonlinear Equations

- **SYSTEMS OF NONLINEAR EQUATIONS**
  - A1.AREI.11: Reasoning with Equations and Inequalities Solve an equation of the form f(x) = g(x) graphically by identifying the x-coordinate(s) of the point(s) of intersection of the graphs of y = f(x) and y = g(x).

Unit 22: Statistics

- **SCATTERPLOTS**

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- A1.SPID.6: Interpreting Data Using technology, create scatterplots and analyze those plots to compare the fit of linear, quadratic, or exponential models to a given data set. Select the appropriate model, fit a function to the data set, and use the function to solve problems in the context of the data.
- A1.SPID.7: Interpreting Data Create a linear function to graphically model data from a real-world problem and interpret the meaning of the slope and intercept(s) in the context of the given problem.

- **SCATTERPLOTS AND MODELING**
- A1.SPID.6: Interpreting Data Using technology, create scatterplots and analyze those plots to compare the fit of linear, quadratic, or exponential models to a given data set. Select the appropriate model, fit a function to the data set, and use the function to solve problems in the context of the data.
- A1.SPID.8: Interpreting Data Using technology, compute and interpret the correlation coefficient of a linear fit.
- A1.SPID.7: Interpreting Data Create a linear function to graphically model data from a real-world problem and interpret the meaning of the slope and intercept(s) in the context of the given problem.

Unit 23: Test-Taking Strategies

- **STUDY HABITS**
- **BEING PREPARED AND GETTING STARTED**
- **WORDING IN TEST QUESTIONS**
- **WORDING IN ANSWER CHOICES**
- **QUESTIONS WITH PASSAGES AND VISUAL DATA**
- **ESSAY AND SHORT ANSWER QUESTIONS**
- **WORD PROBLEMS**

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