South Carolina Tutorials are designed specifically for the South Carolina College and Career Readiness Standards and the South Carolina Academic Standards to prepare students for the South Carolina End-of-Course Examination Program (EOCEP), ACT Aspire, and the South Carolina Palmetto Assessment of State Standards (SCPASS).

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.

Unit 1: Functions

- **FUNCTIONS AND RELATIONS**
  - A2P.PAFR.5.1: Graph piecewise functions and describe their key features.
- **INVERSE FUNCTIONS**
  - A2P.PAFR.6.1: Find the inverse of functions and verify graphically.
- **LINEAR AND NONLINEAR FUNCTIONS**
  - A2P.PAFR.6.2: Calculate and interpret the average rate of change of the function over a specified interval, given a function in graphical, symbolic, or numerical form.

Unit 2: Exponential Functions

- **EXPONENTIAL FUNCTIONS**
  - A2P.PAFR.3.1: Create, solve, and graph exponential functions, including those that model real-life situations.
- **EXPONENTIAL GROWTH AND DECAY**

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- A2P.PAFR.3.1: Create, solve, and graph exponential functions, including those that model real-life situations.
- A2P.PAFR.6.2: Calculate and interpret the average rate of change of the function over a specified interval, given a function in graphical, symbolic, or numerical form.

- **SUMS OF GEOMETRIC SEQUENCES**
  - A2P.PAFR.3.2: Find the sum of the terms of arithmetic and geometric sequences.

Unit 3: Graphs and Representations of Quadratic Functions

- **ANALYZING GRAPHS OF QUADRATIC FUNCTIONS**
  - A2P.PAFR.1.1: Graph, identify roots, and analyze quadratic functions in mathematical and real-world situations.
- **REPRESENTATIONS OF QUADRATIC FUNCTIONS**
  - A2P.PAFR.1.1: Graph, identify roots, and analyze quadratic functions in mathematical and real-world situations.
- **COMPLETING THE SQUARE**
  - A2P.PAFR.1.1: Graph, identify roots, and analyze quadratic functions in mathematical and real-world situations.

Unit 4: Solving Quadratics

- **SOLVING QUADRATIC FUNCTIONS BY FACTORING**
  - A2P.PAFR.1.1: Graph, identify roots, and analyze quadratic functions in mathematical and real-world situations.
- **QUADRATIC FORMULA**
  - A2P.PAFR.1.1: Graph, identify roots, and analyze quadratic functions in mathematical and real-world situations.
- **COMPLEX NUMBERS AND QUADRATIC FUNCTIONS**
  - A2P.PAFR.1.1: Graph, identify roots, and analyze quadratic functions in mathematical and real-world situations.
- **SOLVING QUADRATIC INEQUALITIES**
  - A2P.PAFR.1.2: Solve quadratic inequalities that model mathematical and real-world situations.

Unit 5: Factoring Polynomials

- **FACTORING POLYNOMIALS: SPECIAL CASES**
  - A2P.PAFR.1.5: Recognize perfect squares and perfect cubes and use them to describe the structure of polynomials.
- **FACTORING CUBIC POLYNOMIALS**

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- A2P.PAFR.1.5: Recognize perfect squares and perfect cubes and use them to describe the structure of polynomials.

Unit 6: Polynomial Functions and Polynomial Identities

- **GRAPHS OF POLYNOMIAL FUNCTIONS**
  - A2P.PAFR.1.3: Graph and analyze polynomial functions in mathematical and real-world situations.
- **COMPLEX NUMBERS**
  - A2P.NR.1.1: Understand that there is an imaginary unit such that = 1 and explain the structure of a complex number as + , where and are real.
  - A2P.NR.1.2: Add, subtract, and multiply complex numbers.
- **POLYNOMIAL IDENTITIES**
  - A2P.PAFR.1.5: Recognize perfect squares and perfect cubes and use them to describe the structure of polynomials.

Unit 7: Radical Equations and Functions

- **ANALYZING GRAPHS OF SQUARE ROOT FUNCTIONS**
  - A2P.PAFR.2.1: Graph rational and radical functions and describe their key features. Limit to square roots and cube roots only.
- **SOLVING SQUARE ROOT EQUATIONS**
  - A2P.PAFR.2.3: Create and solve rational and radical equations in one variable, including those that model real-life situations, and verify solutions to identify extraneous solutions if they appear.

Unit 8: Rational Expressions, Equations, and Functions

- **OPERATIONS WITH RATIONAL EXPRESSIONS**
  - A2P.PAFR.2.2: Perform arithmetic operations on rational expressions, including problems in context, and express rational expressions in irreducible form.
- **ANALYZING GRAPHS OF RATIONAL FUNCTIONS**
  - A2P.PAFR.2.1: Graph rational and radical functions and describe their key features. Limit to square roots and cube roots only.
- **SOLVING RATIONAL EQUATIONS**
  - A2P.PAFR.2.3: Create and solve rational and radical equations in one variable, including those that model real-life situations, and verify solutions to identify extraneous solutions if they appear.
- **MODELING SITUATIONS WITH RATIONAL FUNCTIONS**
  - A2P.PAFR.2.3: Create and solve rational and radical equations in one variable, including those that model real-life situations, and verify solutions to identify extraneous solutions if they appear.

Unit 9: Transformations of Parent Functions

- **TRANSFORMATIONS OF PARENT FUNCTIONS**

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- A2P.PAFR.4.1: Identify the effect on the graph of replacing () by (), () + , () for any real number including multiple transformations; write an equation of a transformed parent function given its graph. Extend to equations involving rational, polynomial, radical, exponential, and piecewise.

- **MULTIPLE TRANSFORMATIONS OF PARENT FUNCTIONS**
  - A2P.PAFR.4.1: Identify the effect on the graph of replacing () by (), () + , () for any real number including multiple transformations; write an equation of a transformed parent function given its graph. Extend to equations involving rational, polynomial, radical, exponential, and piecewise.

Unit 10: Systems of Equations and Inequalities

- **SOLVING SYSTEMS OF LINEAR EQUATIONS: GRAPHING**
  - A2P.PAFR.6.3: Use linear programming to solve systems of equations and inequalities by addressing the constraints that arise in real-world situations.
- **SOLVING SYSTEMS OF LINEAR EQUATIONS: SUBSTITUTION**
  - A2P.PAFR.6.3: Use linear programming to solve systems of equations and inequalities by addressing the constraints that arise in real-world situations.
- **SOLVING SYSTEMS OF LINEAR EQUATIONS: ELIMINATION**
  - A2P.PAFR.6.3: Use linear programming to solve systems of equations and inequalities by addressing the constraints that arise in real-world situations.
- **SOLVING SYSTEMS OF LINEAR INEQUALITIES**
  - A2P.PAFR.6.3: Use linear programming to solve systems of equations and inequalities by addressing the constraints that arise in real-world situations.

Unit 11: Probability

- **INTRODUCTION TO PROBABILITY**
  - A2P.DPSR.1.1: Describe events as subsets of a sample space using characteristics or categories of the outcomes, or as unions, intersections, or complements of other events.
  - A2P.DPSR.1.2: Explain whether two events, and , are independent if and only if the probability of and occurring together is the product of their probabilities and use this characterization to determine if they are independent.
  - A2P.DPSR.2.2: Apply the Addition Rule, (or) = () + () - (and) and interpret the answer in terms of the model.
  - A2P.DPSR.2.3: Apply the general Multiplication Rule in a uniform probability model, (and) = () () = () () and interpret the answer in terms of the model.
- **COMBINATIONS AND PERMUTATIONS**
  - A2P.DPSR.2.4: Use permutations and combinations to determine the number of possible outcomes in a sample space.
- **CONDITIONAL PROBABILITY**

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- A2P.DPSR.1.3: Determine whether the conditional probability of given as (and)/() and interpret independence of and as saying that the conditional probability of given is the same as the probability of , and the conditional probability of given is the same as the probability of in mathematical and real-world situations.
- A2P.DPSR.1.4: Recognize and explain the concepts of conditional probability and independence.
- A2P.DPSR.2.1: Find the conditional probability of given as the fraction of 's outcomes that also belong to and interpret the answer in terms of the model.

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