THE PHILLIPS ACADEMY

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Algebra II

This course is designed to cover all of the advanced algebra concepts found in a standard college preparatory Algebra II curriculum. It is the fourth course in a six-course sequence that tells the story of mathematics. Topics include: Review of Number Systems, Operations on Rational Numbers, Variable Expressions, Verbal and Variable Expressions, Solving Equations, Coin, Integer, Mixture and Motion Problems, Inequalities in One Variable, Absolute Value Equations and Inequalities, Rectangular Coordinate System, Properties of Functions, Linear Functions, Slope, Equations of Lines, Parallel and Perpendicular Lines, Linear Inequalities, Inequalities in Two Variables, Introduction to Conic Sections, Equations, Graphing, and Applications of Circles, Solving Systems by Graphing, Substitution, and Elimination, Applications of Solving Systems, Systems of Linear Inequalities, Exponential Expressions, Introduction to Polynomials, Multiplying, Dividing, and Graphing Polynomials, Translations of Polynomials and Other Functions, General and Special Factoring, Operations on Rational Expressions, Restrictions and Domain, Complex Fractions, Rational Equations, Ratio and Proportion, Variation, Solving Quadratic Equations by Factoring, by Taking Square Roots, by Using the Quadratic Formula, and by Completing the Square, Determining the Vertex, Intercepts, and Maximum/Minimum of Parabolic Equations, Graphing Quadratic Equations, Applications Involving Quadratic Equations, Rational Exponents, Radical Expressions, Conversions Between Rational Exponents and Radicals, Operations on Rational Expressions, Solving Radical Equations, Operations on Imaginary Numbers, Operations on Complex Numbers, Introduction to Exponential Functions, Graphing Exponential Functions, Operations on Logarithms, Exponential and Logarithmic Equations, Trigonometric Functions and the Unit Circle, Using Trigonometry to Solve Right Triangles, Applications Involving Basic Trigonometric Functions. By the end of this course, students will be prepared to tackle the Pre-Calculus curriculum.