

Algebra 2

State Standard Number	State Standard Area/Description	Unit Name	Course Topic Description
	Number and Operations		
All.1	Understand relationships among numbers and compute fluently. Verify with technology.	Unit I: Linear and Quadratic Functions	Functions and Relations Solving Linear Equations and Inequalities
All.1.a	Diagram the relationship among the subsets of the complex number system.		
All.1.b	Compute with rational and radical expressions and complex numbers, expressing in simplest form.	Unit II: Radical Functions Unit III: Rational Functions	Roots and Properties of Exponents Solving Rational Equations and Inequalities
All.1.c	Evaluate powers of the imaginary unit, i .	Unit I: Linear and Quadratic Functions	Solving Quadratic Functions
All.1.d	Perform computations, including addition, scalar multiplication, multiplication, determinants, and inverses on matrices.	Unit VI: Systems of Equations and Inequalities	Matrices and Determinants
All.1.e	Solve applications and problems in mathematical settings involving arithmetic and geometric sequences and series.	Unit X: Patterns and Sequences, Logic and Reasoning	Arithmetic Sequences and Series Geometric Sequences and Series
All.1.f	Explain and use the inverse relationship between exponential and logarithmic expressions.	Unit IV: Exponential and Logarithmic Functions	Comparing Logarithmic and Exponential Functions
All.1.g	Use the properties of logarithms to simplify logarithmic expressions and to find their approximate values.	Unit IV: Exponential and Logarithmic Functions	Solving Exponential and Logarithmic Equations

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All.1.h	Solve application problems involving exponential functions related to growth and decay.	Unit IV: Exponential and Logarithmic Functions	Exponential Growth and Decay
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All.2	Use algebraic concepts to identify patterns, use multiple representations of relations and functions, and apply operations to expressions, equations, and inequalities.	Unit VI: Systems of Equations and Inequalities	Systems of Equations Systems of Inequalities Systems of Equations with Three Variables
All.2.a	Solve compound and absolute value inequalities, graphing and writing solutions in interval notation.	Unit I: Linear and Quadratic Functions	Solving Linear Equations and Inequalities
All.2.b	Solve systems of absolute value and quadratic equations using a variety of solution methods including graphing.	Unit VI: Systems of Equations and Inequalities	Systems of Equations Systems of Inequalities Systems of Equations with Three Variables
All.2.c	Given constraints, find the maximum and minimum value(s) of a system of linear inequalities and explain your reasoning.	Unit VI: Systems of Equations and Inequalities	Systems of Inequalities
All.2.d	Given the solution(s) to a quadratic equation, find a quadratic equation to fit the solution(s) and explain or justify the solution process.	Unit I: Linear and Quadratic Functions	Graphing Quadratic Functions Solving Quadratic Functions

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All.2.e	Use the discriminant to classify and predict the types of solutions of quadratic equations and justify the classification.	Unit I: Linear and Quadratic Functions	Solving Quadratic Functions
All.2.f	Factor sums and differences of cubes and factor polynomials by grouping.	Unit I: Linear and Quadratic Functions	Solving Quadratic Functions
All.2.g	Solve radical equations.	Unit II: Radical Functions	Solving Radical Equations and Inequalities
All.2.h	Write equivalent forms of rational expressions using real and complex conjugates.	Unit III: Rational Functions	Solving Rational Equations and Inequalities
All.2.i	Solve equations involving rational expressions and verify solutions.	Unit III: Rational Functions	Solving Rational Equations and Inequalities
All.2.j	Explain the results of compositions of functions.	Unit I: Linear and Quadratic Functions	Functions and Relations
All.2.k	Explain the Binomial Theorem and use it to expand binomial expressions raised to positive integral powers.		
All.2.l	Interpret the zeros and maximum or minimum value(s) of quadratic functions.	Unit I: Linear and Quadratic Functions	Graphing Zeros and Min/Max Values

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	Geometry		
All.3	Use coordinate geometry to specify locations, describe relationships, and apply transformations to analyze algebraic relationships.	Unit I: Linear and Quadratic Functions	Functions and Relations Solving Linear Equations and Inequalities Graphing Quadratic Functions
All.3.a	Determine and justify whether the inverse of a relation or a function exists.	Unit I: Linear and Quadratic Functions	Functions and Relations
All.3.b	Classify functions based on sketches of their graphs.	Unit I: Linear and Quadratic Functions	Functions and Relations Solving Linear Equations and Inequalities Graphing Quadratic Functions
All.3.c	Sketch and describe transformations of quadratic and absolute value functions.	Unit I: Linear and Quadratic Functions	Functions and Relations Solving Linear Equations and Inequalities Graphing Quadratic Functions
All.3.d	Represent complex numbers and the sum of complex numbers in a complex coordinate plane.		
All.3.e	Identify and sketch the essential graphs of the four conic sections: circle, parabola, ellipse, and hyperbola.	Unit VIII: Conic Sections	Introduction to Conic Sections Parabolas Circles Ellipses Hyperbolas
	Measurement		

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All.4	Understand measurable attributes of objects and apply appropriate techniques and formulas to determine measurements.	Unit VII: Geometry	Geometry of Quadrilaterals Geometry of Triangles Geometry of Circles
All.4.a	Verify the appropriateness of the numerical value and the units of a variable in an equation.		
All.4.b	Describe the level of accuracy of measurements in real-world situations by using absolute value inequalities.		
	Data Analysis & Probability		
All.5	Use technology to represent, analyze, and make inferences based on data.	Unit IX, Probability and Statistics	Scatterplots and Lines of Best Fit Scatterplots and Curves of Best Fit Sampling Methods and Experimental Designs The Normal Curve
All.5.a	Through the use of technology, use scatter plots and linear and quadratic regression analysis to determine an appropriate function to model real-life data.	Unit IX, Probability and Statistics	Scatterplots and Lines of Best Fit Scatterplots and Curves of Best Fit Sampling Methods and Experimental Designs The Normal Curve
All.5.b	Solve simple combinations.	Unit IX, Probability and Statistics	Permutations and Combinations
All.5.c	Model a data set using the median-fit-method with a linear equation and make predictions based on the model and the equation.	Unit IX, Probability and Statistics	Scatterplots and Lines of Best Fit Scatterplots and Curves of Best Fit
All.5.d	Identify the difference between permutations and combinations and use them to solve real-world problems.	Unit IX, Probability and Statistics	Permutations and Combinations