

Algebra 2

State Standard Number	State Standard Area/Description	Unit Name	Course Topic Description
1	Students engage in the mathematical processes of problem solving and reasoning, estimation, communication, connections and applications, and using appropriate technology.		
1.1	recognize and formulate problems from situations within and outside mathematics and apply solution strategies to those problems.	Probability and Statistics	Permutations and Combinations
1.2	select, apply, and evaluate appropriate estimation strategies throughout the problem-solving process.		
1.3	formulate definitions, make and justify inferences, express generalizations, and communicate mathematical ideas and relationships.	All units	All units
1.4	apply and translate among different representations of the same problem situation or of the same mathematical concept. Model connections between problem situations that arise in disciplines other than mathematics.	Exponential and Logarithmic Functions	Exponential Growth and Decay
1.5	select and use appropriate technology to enhance mathematical understanding. Appropriate technology may include, but is not limited to, paper and pencil, calculator, computer, and data collection devices.	All units	All units
2	Students demonstrate understanding of and an ability to use numbers and operations.		
2.1	use and understand the real number system, its operations, notations, and the various subsystems.	All units	All units
2.2	use definitions and basic operations of the complex number		

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	system.		
3	Students use algebraic concepts, processes, and language to model and solve a variety of real-world and mathematical problems.		
3.1	use algebra to represent patterns of change.	Exponential and Logarithmic Functions	Solving Exponential and Logarithmic Equations
3.2	use basic operations with algebraic expressions.	Geometry	Geometry of Quadrilaterals
3.3	solve algebraic equations and inequalities: linear, quadratic, exponential, logarithmic, and power.	Linear and Quadratic Functions Exponential and Logarithmic Functions	Solving Linear Equations and Inequalities Solving Exponential and Logarithmic Equations
3.4	solve systems of algebraic equations and inequalities, including use of matrices.	Systems of Equations and Inequalities	Systems of Equations Systems of Inequalities
3.5	use algebraic models to solve mathematical and real-world problems.	Rational Functions	Direct and Inverse Variation
4	Students demonstrate understanding of shape and an ability to use geometry.		

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4.1	construct, interpret, and draw three-dimensional objects.		
4.2	classify figures in terms of congruence and similarity and apply these relationships.	Geometry	Geometry of Triangles
4.3	translate between synthetic and coordinate representations.		
4.4	deduce properties of figures using transformations, coordinates, and vectors in problem solving.		
4.5	apply trigonometric ratios (sine, cosine and tangent) to problem situations involving triangles.	Trigonometric Functions	Right Triangle Trigonometry
5	Students demonstrate understanding of measurable attributes and an ability to use measurement processes.		
5.1	apply concepts of indirect measurements (e.g., using similar triangles to calculate a distance).	Geometry	Geometry of Triangles
5.2	use dimensional analysis to check reasonableness of procedures.		

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5.3	investigate systems of derived measures (e.g., km/sec, g/cm ³).		
5.4	apply the appropriate concepts of estimates in measurement, error in measurement, tolerance, and precision.		
6	The students demonstrate understanding of and an ability to use data analysis, probability, and statistics.		
6.1	use curve fitting to make predictions from data.		
6.2	apply measures of central tendency and demonstrate understanding of the concepts of variability and correlation.	Probability and Statistics	Statistics
6.3	select an appropriate sampling method for a given statistical analysis.	Probability and Statistics	Statistics
6.4	use experimental probability, theoretical probability, and simulation methods to represent and solve problems, including expected values.	Probability and Statistics	Introduction to Probability
6.5	design a statistical experiment to study a problem and communicate the outcomes.		

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6.6	describe, in general terms, the normal curve and use its properties to answer questions about sets of data that are assumed to be normally distributed.	Probability and Statistics	Normal Distribution
7	Students demonstrate understanding of and an ability to use patterns, relations and functions.		
7.1	describe functions and their inverses using graphical, numerical, physical, algebraic, and verbal mathematical models or representations.	Exponential and Logarithmic Functions	Comparing Logarithmic and Exponential Functions
7.2	analyze the graphs of the families of polynomial, rational, power, exponential, logarithmic, and periodic functions.	Linear and Quadratic Functions Radical Functions Rational Functions Exponential and Logarithmic Functions	Graphing Quadratic Functions Graphing Radical Functions Graphing Rational Functions Graphing Exponential Functions Graphing Logarithmic Functions
7.3	analyze the effects of parameter changes on the graphs of functions and relations, including translations.	Linear and Quadratic Functions	Graphing Quadratic Functions
7.4	model real-world phenomena with a variety of functions.	Linear and Quadratic Functions	Graphing Zeros and Min/Max Values
7.5	use graphing for parametric equations, three-dimensional equations, and recursive relations.		