

Algebra 2

State Standard Number	State Standard Area/Description	Unit Name	Course Topic Description
	Expressions and Operations		
All.1	The student, given rational, radical, or polynomial expressions, will		
All.1.a	add, subtract, multiply, divide, and simplify rational algebraic expressions;		
All.1.b	add, subtract, multiply, divide, and simplify radical expressions containing rational numbers and variables, and expressions containing rational exponents;		
All.1.c	write radical expressions as expressions containing rational exponents and vice versa; and	Radical Functions	Roots and Properties of Exponents
All.1.d	factor polynomials completely.	Linear and Quadratic Functions	Solving Quadratic Functions
All.2	The student will investigate and apply the properties of arithmetic and geometric sequences and series to solve real-world problems, including writing the first n terms, finding the nth term, and evaluating summation formulas. Notation will include "Sigma" and a subscript n.	Patterns and Sequences and Logic	Arithmetic Sequences and Series Geometric Sequences and Series
All.3	The student will perform operations on complex numbers, express the results in simplest form using patterns of the powers of i, and identify field properties that are valid for the complex numbers.		
	Equations and Inequalities		

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All.4	Graphing calculators will be used for solving and for confirming the algebraic solutions. The student will solve, algebraically and graphically,		
All.4.a	absolute value equations and inequalities;	Linear and Quadratic Functions	Solving Linear Equations and Inequalities
All.4.b	quadratic equations over the set of complex numbers;	Linear and Quadratic Functions	Solving Quadratic Functions
All.4.c	equations containing rational algebraic expressions; and	Rational Functions	Solving Rational Equations and Inequalities
All.4.d	equations containing radical expressions.	Radical Functions	Solving Radical Equations and Inequalities
All.5	The student will solve nonlinear systems of equations, including linear-quadratic and quadratic-quadratic, algebraically and graphically. Graphing calculators will be used as a tool to visualize graphs and predict the number of solutions.		
	Functions		

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All.6	The student will recognize the general shape of function (absolute value, square root, cube root, rational, polynomial, exponential, and logarithmic) families and will convert between graphic and symbolic forms of functions. A transformational approach to graphing will be employed. Graphing calculators will be used as a tool to investigate the shapes and behaviors of these functions.	Covered throughout course	Covered throughout course
All.7	Graphing calculators will be used as a tool to assist in investigation of functions. The student will investigate and analyze functions algebraically and graphically. Key concepts include	Covered throughout course	Covered throughout course
All.7.a	domain and range, including limited and discontinuous domains and ranges;	Linear and Quadratic Functions	Functions and Relations
All.7.b	zeros;	Linear and Quadratic Functions	Graphing Zeros and Min/Max Values
All.7.c	x- and y-intercepts;	Linear and Quadratic Functions	Graphing Zeros and Min/Max Values
All.7.d	intervals in which a function is increasing or decreasing;		
All.7.e	asymptotes;		

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All.7.f	end behavior;		
All.7.g	inverse of a function; and	Linear and Quadratic Functions	Functions and Relations
All.7.h	composition of multiple functions.	Linear and Quadratic Functions	Functions and Relations
All.8	The student will investigate and describe the relationships among solutions of an equation, zeros of a function, x-intercepts of a graph, and factors of a polynomial expression.	Linear and Quadratic Functions	Covered throughout unit
	Statistics		
All.9	The student will collect and analyze data, determine the equation of the curve of best fit, make predictions, and solve real-world problems, using mathematical models. Mathematical models will include polynomial, exponential, and logarithmic functions.		
All.10	The student will identify, create, and solve real-world problems involving inverse variation, joint variation, and a combination of direct and inverse variations.	Rational Functions	Direct and Inverse Variation

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All.11	The student will identify properties of a normal distribution and apply those properties to determine probabilities associated with areas under the standard normal curve.	Probability and Statistics	The Normal Curve
All.12	The student will compute and distinguish between permutations and combinations and use technology for applications.	Probability and Statistics	Permutations and Combinations