

Algebra 2

State Standard Number	State Standard Area/Description	Unit Name	Course Topic Description
All.1	The student will perform operations with rational, radical, and polynomial expressions, as well as expressions involving complex numbers.		
All.1.1	Rational Exponents		
All.1.1.a	Convert expressions from radical notations to rational exponents and vice versa.	Radical Functions	Roots and Properties of Exponents
All.1.1.b	Add, subtract, multiply, divide, and simplify radical expressions and expressions containing rational exponents.	Radical Functions	Solving Radical Equations and Inequalities
All.1.2	Polynomial and Rational Expressions		
All.1.2.a	Divide polynomial expressions by lower degree polynomials.		
All.1.2.b	Add, subtract, multiply, divide, and simplify rational expressions, including complex fractions.	Rational Functions	Solving Rational Equations and Inequalities (complex fractions not included)
All.1.3	Complex Numbers		
All.1.3.a	Recognize that to solve certain problems and equations, number systems need to be extended from real numbers to complex numbers.	Linear and Quadratic Functions	Solving Quadratic Functions
All.1.3.b	Add, subtract, multiply, divide, and simplify expressions involving complex numbers.		
All.2	The student will use the relationships among the solution of an equation, zero of a function, x-intercepts of a graph, and factors of a polynomial expression to solve problems involving relations and		

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	functions.		
All.2.1	Functions and Function Notation		
All.2.1.a	Recognize the parent graphs of polynomial, exponential, radical, quadratic, and logarithmic functions and predict the effects of transformations on the parent graphs, using various methods and tools which may include graphing calculators.	Covered throughout course	Covered throughout course
All.2.1.b	Add, subtract, multiply, and divide functions using function notation.	Linear and Quadratic Functions	Functions and Relations
All.2.1.c	Combine functions by composition.	Linear and Quadratic Functions	Functions and Relations
All.2.1.d	Use algebraic, interval, and set notations to specify the domain and range of functions of various types.	Linear and Quadratic Functions	Functions and Relations
All.2.1.e	Find and graph the inverse of a function, if it exists.	Linear and Quadratic Functions	Functions and Relations

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All.2.2	Systems of Equations		
All.2.2.a	Model a situation that can be described by a system of equations or inequalities and use the model to answer questions about the situation.	Systems of Equations and Inequalities	Systems of Equations
All.2.2.b	Solve systems of linear equations and inequalities using various methods and tools which may include substitution, elimination, matrices, graphing, and graphing calculators.	Systems of Equations and Inequalities	Systems of Equations Systems of Inequalities
All.2.2.c	Use either one quadratic equation and one linear equation or two quadratic equations to solve problems.		
All.2.3	Quadratic Equations and Functions		
All.2.3.a	Solve quadratic equations by graphing, factoring, completing the square and quadratic formula.	Linear and Quadratic Functions	Solving Quadratic Functions
All.2.3.b	Graph a quadratic function and identify the x- and y-intercepts and maximum or minimum value, using various methods and tools which may include a graphing calculator.	Linear and Quadratic Functions	Graphing Quadratic Functions
All.2.3.c	Model a situation that can be described by a quadratic function and use the model to answer questions about the situation.	Linear and Quadratic Functions	Determining a Quadratic Function

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All.2.4	Identify, graph, and write the equations of the conic sections (circle, ellipse, parabola, and hyperbola).	Conic Sections	Covered throughout unit
All.2.5	Exponential and Logarithmic Functions		
All.2.5.a	Graph exponential and logarithmic functions.	Exponential and Logarithmic Functions	Graphing Logarithmic Functions and Domain and Range Graphing Exponential Functions and Domain and Range
All.2.5.b	Apply the inverse relationship between exponential and logarithmic functions to convert from one form to another.	Exponential and Logarithmic Functions	Comparing Logarithmic and Exponential Functions
All.2.5.c	Model a situation that can be described by an exponential or logarithmic function and use the model to answer questions about the situation.	Exponential and Logarithmic Functions	Exponential Growth and Decay
All.2.6	Polynomial Equations and Functions		
All.2.6.a	Solve polynomial equations using various methods and tools which may include factoring and synthetic division.	Linear and Quadratic Functions	Solving Quadratic Equations
All.2.6.b	Sketch the graph of a polynomial function.	Linear and Quadratic Functions	Graphing Quadratic Equations and Domain and Range

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All.2.6.c	Given the graph of a polynomial function, identify the x- and y-intercepts, relative maximums and relative minimums, using various methods and tools which may include a graphing calculator.	Linear and Quadratic Functions	Graphing Zeros and Min/Max Values
All.2.6.d	Model a situation that can be described by a polynomial function and use the model to answer questions about the situation.	Linear and Quadratic Functions	Graphing Zeros and Min/Max Values
All.2.7	Rational Equations and Functions		
All.2.7.a	Solve rational equations.	Rational Functions	Solving Rational Equations
All.2.7.b	Sketch the graph of a rational function.	Rational Functions	Graphing Rational Functions and Domain and Range
All.2.7.c	Given the graph of a rational function, identify the x- and y-intercepts, vertical asymptotes, using various methods and tools which may include a graphing calculator.	Rational Functions	Graphing Rational Functions and Domain and Range
All.2.7.d	Model a situation that can be described by a rational function and use the model to answer questions about the situation.		
All.3	The student will use data analysis and statistics to formulate and justify predictions from a set of data.		

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All.3.1	Analysis of Collected Data Involving Two Variables		
All.3.1.a	Interpret data on a scatter plot using a linear, exponential, or quadratic model/equation.	Probability and Statistics	Lines of Best Fit Curves of Fit (These sections are listed in the Syllabus, but content could not be located.)
All.3.1.b	Identify whether the model/equation is a curve of best fit for the data, using various methods and tools which may include a graphing calculator.	Probability and Statistics	Curves of Fit (This section is listed in the Syllabus, but content could not be located.)
All.3.2	Measures of Central Tendency and Variability		
All.3.2.a	Analyze and synthesize data from a sample using appropriate measures of central tendency (mean, median, mode, weighted average).	Probability and Statistics	Statistics
All.3.2.b	Analyze and synthesize data from a sample using appropriate measures of variability (range, variance, standard deviation).	Probability and Statistics	Statistics
All.3.2.c	Use the characteristics of the Gaussian normal distribution (bell-shaped curve) to solve problems.	Probability and Statistics	Normal Distribution
All.3.2.d	Identify how given outliers affect representations of data.		

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All.3.3	Identify and use arithmetic and geometric sequences and series to solve problems.	Sequences and Series	Arithmetic Sequences and Series Geometric Sequences and Series
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