

Algebra 2 CR

State Standard Number	State Standard Area/Description	Unit Name	Course Topic Description
2	Students will represent and analyze mathematical situations and properties using patterns, relations, functions and algebraic symbols.		
LEI.2.AII.1	Determine, with or without technology, the domain and range of a relation defined by a graph, a table of values, or a symbolic equation including those with restricted domains and whether a relation is a function	Unit 1: Linear and Quadratic Functions	Section A
LEI.2.AII.2	Evaluate, add, subtract, multiply, and divide functions and give appropriate domain and range restrictions	Unit 1: Linear and Quadratic Functions	Section A
LEI.2.AII.3	Determine the inverse of a function (Graph, with and without appropriate technology, functions and their inverses)	Unit 1: Linear and Quadratic Functions	Section A
LEI.2.AII.4	Analyze and report, with and without appropriate technology, the effect of changing coefficients, exponents, and other parameters on functions and their graphs (linear, quadratic, and higher degree polynomial)	Unit 1: Linear and Quadratic Functions	Section D
LEI.2.AII.5	Graph, with and without appropriate technology, functions defined as piece-wise and step		
3	Recognize periodic phenomena (sine or cosine functions such as sound waves, length of daylight, circular motion)	Unit 5: Trigonometric Functions	Section E
QEF.3.AII.1	Investigate and identify key characteristics of period functions and their graphs (period, amplitude, maximum, and minimum)	Unit 5: Trigonometric Functions	Section E
QEF.3.AII.1.a	Use basic properties of frequency and amplitude to solve problems	Unit 5: Trigonometric Functions	Section E

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QEF.3.AII.1.b	Apply the concepts of functions to real world situations	Unit 1: Linear and Quadratic Functions	Section G
QEF.3.AII.1.c	Students will analyze and apply various methods to model, graph and solve linear and absolute value equations and inequalities.	Unit 1: Linear and Quadratic Equations	Section D
QEF.3.AII.1.d	Solve, with and without appropriate technology, absolute value equations and inequalities written in one or two variables, and graph solutions.	Unit 1: Linear and Quadratic Functions	Section B
QEF.3.AII.2	Solve, with and without appropriate technology, systems of linear equations with two variables and graph the solution set		
QEF.3.AII.2.a	Develop and apply, with and without appropriate technology, the basic operations and properties of matrices (associative, commutative, identity, and inverse)	Unit 6: Systems of Equations and Inequalities	Section A
QEF.3.AII.2.b	Solve, with and without appropriate technology, systems of linear equations with three variables using algebraic methods, including matrices	Unit 6: Systems of Equations and Inequalities	Section D
QEF.3.AII.2.c	Apply, with or without technology, the concepts of linear and absolute value equations and inequalities and systems of linear equations and inequalities to model real world situations including linear programming		
QEF.3.AII.3	Students will use algebraic, graphical, and numerical methods to analyze, compare, translate, and solve quadratic equations.	Unit 1: Linear and Quadratic Functions	Section D, E

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QEF.3.AII.3.a	Perform computations with radicals	Unit 2: Radical Functions	Section C
QEF.3.AII.3.b	simplify radicals with different indices	Unit 2: Radical Functions	Section A
QEF.3.AII.3.c	add, subtract, multiply and divide radicals	Unit 2: Radical Functions	Section C
QEF.3.AII.3.d	rationalize denominators		
QEF.3.AII.3.e	solve equations that contain radicals or radical expressions	Unit 2: Radical Functions	Section C
QEF.3.AII.4	Extend the number system to include the complex numbers	Unit 1: Linear and Quadratic Functions	Section E
QEF.3.AII.5	define the set of complex numbers	Unit 1: Linear and Quadratic Functions	Section E
QEF.3.AII.5.a	add, subtract, multiply, and divide complex numbers	Unit 1: Linear and Quadratic Functions	Section E

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QEF.3.AII.5.b	rationalize denominators		
QEF.3.AII.5.c	Analyze and solve quadratic equations with and without appropriate technology by	Unit 1: Linear and Quadratic Functions	Section E
QEF.3.AII.5.d	factoring	Unit 1: Linear and Quadratic Equations	Section E
QEF.3.AII.6	graphing	Unit 1: Linear and Quadratic Equations	Section D
4	extracting the square root		
PRF.4.AII.1	completing the square	Unit 1: Linear and Quadratic Equations	Section E

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PRF.4.AII.1.a	using the quadratic formula	Unit 1: Linear and Quadratic Equations	Section E
PRF.4.AII.1.b	Derive the quadratic formula and use it to solve equations	Unit 1: Linear and Quadratic Equations	Section E
PRF.4.AII.1.c	Develop and analyze, with and without appropriate technology, quadratic relations	Unit 1: Linear and Quadratic Functions	Section E
PRF.4.AII.2	graph a parabolic relationship when given its equation	Unit 1: Linear and Quadratic Equations	Section F
PRF.4.AII.3	write an equation when given its roots (zeros or solutions) or graph	Unit 1: Linear and Quadratic Equations	Section G
PRF.4.AII.4	determine the nature of the solutions graphically and by evaluating the discriminant	Unit 1: Linear and Quadratic Equations	Section E

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PRF.4.AII.5	determine the maximum or minimum values and the axis of symmetry both graphically and algebraically		
PRF.4.AII.6	Apply the concepts of quadratic equations and functions to model real world situations by using appropriate technology when needed	Unit 1: Linear and Quadratic Equations	Section G
PRF.4.AII.7	Students will use algebraic, graphical, and numerical methods to analyze, compare, translate, and solve polynomial and rational equations.	Unit 3: Rational Functions	Section B, C
PRF.4.AII.8	Determine the factors of polynomials by		
5	using factoring techniques including grouping and the sum or difference of two cubes		
ELF.5.AII.1	using long division		

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ELF.5.AII.2	using synthetic division		
ELF.5.AII.3	Analyze and sketch, with and without appropriate technology, the graph of a given polynomial function, determining the characteristics of domain and range, maximum and minimum points, end behavior, zeros, multiplicity of zeros, y-intercept, and symmetry		
ELF.5.AII.4	Write the equation of a polynomial function given its roots		
ELF.5.AII.5	Identify the equation of a polynomial function given its graph or table		
ELF.5.AII.6	Identify the characteristics of graphs of power functions of the form $f(x) = ax$ to the n power, for negative integral values of n , including domain, range, end behavior, and behavior at $x = 0$, and compare these characteristics to the graphs of related positive integral power functions	Unit 4: Exponential and Logarithmic Functions	Section B

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ELF.5.AII.7	Simplify, add, subtract, multiply, and divide with rational expressions	Unit 3: Rational Functions	Section C
6	Establish the relationship between radical expressions and expressions containing rational exponents	Unit 2: Radical Functions	Section B
DAP.6.AII.1	Simplify variable expressions containing rational exponents using the laws of exponents	Unit 2: Radical Functions	Section A
DAP.6.AII.2	Students will graph exponential functions and relate them to logarithms. They will solve real world problems using exponential functions.	Unit 4: Exponential and Logarithmic Functions	Section A
DAP.6.AII.3	Recognize the graphs of exponential functions distinguishing between growth and decay	Unit 4: Exponential and Logarithmic Functions	Section C
DAP.6.AII.4	Graph exponential functions and identify key characteristics: domain, range, intercepts, asymptotes, and end behavior	Unit 4: Exponential and Logarithmic Functions	Section B

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DAP.6.AII.5	Identify the effect that changes in the parameters of the base have on the graph of the exponential function	Unit 4: Exponential and Logarithmic Functions	Section B
DAP.6.AII.6	Recognize and solve problems that can be modeled using exponential functions	Unit 4: Exponential and Logarithmic Functions	Section C