

Algebra II CR

State Standard Number	State Standard Area/Description	Unit Name	Course Topic Description
All.1	Number and Operation		
All.1.1	Understand numbers, ways of representing numbers, relationships among numbers, and number system.		
All.1.1.1	Compare and contrast the properties of numbers and number systems within the complex number system to include rational, irrational, and imaginary numbers and factorials.		
All.1.1.1.a	Define and explain the meaning of i as a solution to the equation $x^2 = -1$.	Linear and Quadratic Functions	Solving Quadratic Functions
All.1.1.1.b	Identify expressions of the form $a + bi$ as complex numbers.		
All.1.1.1.c	Identify complex conjugates.		
All.1.1.1.d	Demonstrate the meaning of $x!$.		
All.1.1.2	Demonstrate meaning of complex numbers as solutions to polynomial equations that do not have real solutions.		
All.1.1.2.a	Identify real and imaginary roots for polynomial equations.		
All.1.1.3	Recognize matrices as a method of arranging data.	Systems of Equations and Inequalities	Matrices and Determinants
All.1.1.3.a	Identify the dimensions of a matrix.	Systems of Equations and Inequalities	Matrices and Determinants
All.1.1.4	Develop an understanding of the properties of logarithmic expressions and expressions with rational exponents.		

Algebra II CR

All.1.1.4.a	Identify a logarithmic function as the inverse of an exponential function.	Exponential and Logarithmic Functions	Comparing Exponential and Logarithmic Functions
All.1.1.4.b	Convert between expressions containing radical form and those containing rational exponents.	Radical Functions	Roots and Properties of Exponents
All.1.2	Understand meanings of operations and how they relate to one another.		
All.1.2.1	Develop an understanding of the properties of, and representations for, the addition, subtraction, and multiplication of matrices.		
All.1.2.1.a	Identify which real number properties apply to matrices.	Systems of Equations and Inequalities	Matrices and Determinants
All.1.3	Compute fluently and make reasonable estimates.		
All.1.3.1	Simplify expressions within the complex number system.		

Algebra II CR

All.1.3.1.a	Simplify rational expressions, expressions with rational exponents, and logarithmic expressions.	Rational Functions	Solving Rational Functions
All.1.3.1.b	Simplify and estimate radical expressions having various indices.	Radical Functions	Solving Radical Functions
All.1.3.1.c	Express the square root of a negative number in the form bi , where b is real.		
All.1.3.1.d	Simplify complex fractions.	Rational Functions	Solving Rational Functions
All.1.3.1.e	Convert between radical expressions and expressions with rational exponents.		
All.1.3.1.f	Use properties of logarithms to simplify logarithmic expressions.	Exponential and Logarithmic Functions	Solving Exponential and Logarithmic Functions
All.1.3.2	Perform computations on expressions within the complex number system.		
All.1.3.2.a	Perform operations with matrices to include scalar multiplication, addition, subtraction, and matrix multiplication (2 by 2).	Systems of Equations and Inequalities	Matrices and Determinants
All.1.3.2.b	Add, subtract, and multiply radical expressions and expressions containing rational exponents.		

Algebra II CR

All.1.3.2.c	Use long division or synthetic division to divide a polynomial by a lower degree polynomial.		
All.1.3.2.d	Add, subtract, multiply, and divide rational expressions.	Rational Functions	Solving Rational Functions
All.1.3.2.e	Perform computations in the complex number system.		
All.2	Concepts and Principles of Measurement		
All.2.1	Understand measurable attributes of objects and the units, systems, and processes of measurement.		
All.2.1.1	Recognize the relationship between radian and degree measures.		
All.2.1.1.a	Convert between degree and radian measures.		
All.2.2	Apply appropriate techniques, tools, and formulas to determine measurements.		

Algebra II CR

0	No objectives at this course level.		
All.3	Concepts and Language of Algebra and Functions		
All.3.1	Understand patterns, relations, and functions.		
All.3.1.1	Represent patterns and functional relationships in a table and as a graph.		
All.3.1.1.a	Graph absolute value functions.		
All.3.1.1.b	Graph quadratic equations and inequalities.	Linear and Quadratic Functions	Graphing Quadratic Functions Writing and Graphing Linear Equations and Inequalities
All.3.1.1.c	Graph polynomial functions.	Linear and Quadratic Functions	Graphing Quadratic Functions
All.3.1.1.d	Graph exponential functions.	Exponential and Logarithmic Functions	Graphing Exponential Functions and Domain and Range

Algebra II CR

All.3.1.1.e	Graph circles.	Geometry	Geometry of Circles
All.3.1.2	Describe the graphs of polynomial and absolute value functions and discuss their attributes in terms of the basic concepts of maximum, minimum, intercepts, and roots.		
All.3.1.2.a	Determine the nature of the roots of an equation by using the discriminant.	Linear and Quadratic Functions	Solving Quadratic Functions
All.3.1.2.b	Recognize contexts in which quadratic models are appropriate.		
All.3.1.2.c	Identify the graphs of absolute value functions and identify their key characteristics.		
All.3.1.2.d	Identify a polynomial function by its degree.		
All.3.1.2.e	Identify the graphs of polynomial functions.		
All.3.1.2.f	Relate the solutions of polynomial functions to the points where the graphs cross the x-axis.		

Algebra II CR

All.3.2	Represent and analyze mathematical situations and structures using algebraic symbols.		
All.3.2.1	Write equations and inequalities in multiple forms.		
All.3.2.1.a	Rewrite equations of parabolas and circles in standard form.		
All.3.2.2	Recognize and generate equivalent forms of algebraic expressions and solve equations, inequalities, and systems of equations and inequalities.		
All.3.2.2.a	Solve systems of linear equations and linear inequalities.	Systems of Equations and Inequalities	Systems of Equations Systems of Inequalities
All.3.2.2.b	Solve radical equations and inequalities.	Radical Functions	Solving Radical Functions
All.3.2.2.c	Solve rational equations.	Rational Functions	Solving Rational Functions
All.3.2.2.d	Solve logarithmic equations.	Exponential and Logarithmic Functions	Solving Exponential and Logarithmic Functions

Algebra II CR

All.3.2.2.e	Solve equations containing a variable in the exponent.	Exponential and Logarithmic Functions	Exponential Growth and Decay
All.3.2.2.f	Use the quadratic formula, factoring, and completing the square to solve quadratic equations.	Linear and Quadratic Functions	Solving Quadratic Functions
All.3.2.2.g	Find all roots of polynomial functions using various methods.		
All.3.3	Use mathematical models to represent and understand quantitative relationships.		
0	No objectives at this course level.		
All.3.4	Analyze change in various contexts.		
All.3.4.1	Interpret how changes to an equation affect the parent graph of the equation.		
All.3.4.1.a	Compare and contrast the graphs of $f(x) = x^2$ to $f(x) = a(x - h)^2 + k$.	Linear and Quadratic Functions	Graphing Quadratic Functions

Algebra II CR

All.3.4.1.b	Recognize graphs of the following and how changes impact them: $y = x$, $y = x^2$, $y = x^3$, $y = 1/x$, $y = \sqrt{x}$, and $y = \sqrt{ x }$	Covered throughout course	Covered throughout course
All.4	Concepts and Principles of Geometry		
All.4.1	Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships.		
All.4.1.1	Use trigonometric relationships to determine lengths and angle measures.		
All.4.1.1.a	Demonstrate the proper use of the Law of Sines and the Law of Cosines to solve triangles.		
All.4.2	Specify locations and describe spatial relationships using coordinate geometry and other representational systems.		
All.4.2.1	Analyze the graphs of circles and parabolas.		
All.4.2.1.a	Graph circles and parabolas and their transformations.	Conic Sections	Circles Parabolas

Algebra II CR

All.4.3	Apply transformations and use symmetry to analyze mathematical situations.		
0	No objectives at this course level.		
All.4.4	Use visualization, spatial reasoning, and geometric models to solve problems.		
0	No objectives at this course level.		
All.5	Data Analysis, Probability, and Statistics		
All.	No objectives at this course level.		