

## Algebra II CR

State Standard Number	State Standard Area/Description	Unit Name	Course Topic Description
6	Demonstrate and apply a knowledge and sense of numbers, including numeration and operations (addition, subtraction, multiplication, division), patterns, ratios and proportions.		
6.A	Demonstrate knowledge and use of numbers and their representations in a broad range of theoretical and practical settings.	Covered throughout course	Covered throughout course
6.A.5	Perform addition, subtraction and multiplication of complex numbers and graph the results in the complex plane.		
6.B	Investigate, represent and solve problems using number facts, operations (addition, subtraction, multiplication, division) and their properties, algorithms and relationships.	Linear and Quadratic Functions	Solving Linear Equations and Inequalities
6.B.5	Identify, represent and apply numbers expressed in exponential, logarithmic and scientific notation using contemporary technology.		
6.C	Compute and estimate using mental mathematics, paper-and-pencil methods, calculators and computers.	Covered throughout course	Covered throughout course
6.C.5	Determine the level of accuracy needed for computations involving measurement and irrational numbers.		
6.D	Solve problems using comparison of quantities, ratios, proportions and percents.	Geometry	Geometry of Triangles
6.D.5	Solve problems involving loans, mortgages and other practical applications involving geometric patterns of growth.		

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7	Estimate, make and use measurements of objects, quantities and relationships and determine acceptable levels of accuracy.		
7.A	Measure and compare quantities using appropriate units, instruments and methods.		
7.A.5	Apply nonlinear scales (e.g., Richter, decibel, pH) to solve practical problems.		
7.B	Estimate measurements and determine acceptable levels of accuracy.		
7.B.5	Estimate perimeter, area, volume, and capacity of irregular shapes, regions and solids and explain the reasoning supporting the estimate.		
7.C	Select and use appropriate technology, instruments and formulas to solve problems, interpret results and communicate findings.	Geometry	Geometry of Triangles
7.C.5a	Use dimensional analysis to determine units and check answers in applied measurement problems.		

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7.C.5b	Determine how changes in one measure may affect other measures (e.g., what happens to the volume and surface area of a cube when the side of the cube is halved).		
8	Use algebraic and analytical methods to identify and describe patterns and relationships in data, solve problems and predict results.		
8.A	Describe numerical relationships using variables and patterns.	Patterns and Sequences	Arithmetic Sequences and Series
8.A.5	Solve mathematical problems involving recursive patterns and use models that employ such relationships.	Patterns and Sequences	Arithmetic Sequences and Series  Geometric Sequences and Series
8.B	Interpret and describe numerical relationships using tables, graphs and symbols.	Linear and Quadratic Functions	Functions and Relations
8.B.5	Use functions including exponential, polynomial, rational, parametric, logarithmic, and trigonometric to describe numerical relationships.	Covered throughout course	Covered throughout course
8.C	Solve problems using systems of numbers and their properties.	Systems of Equations and Inequalities	Systems of Equations
8.C.5	Use polynomial, exponential, logarithmic and trigonometric functions to model situations.	Exponential and Logarithmic Functions  Trigonometric Functions	Comparing Exponential and Logarithmic Functions  Graphing Trigonometric Functions

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8.D	Use algebraic concepts and procedures to represent and solve problems.	Systems of Equations and Inequalities	Systems of Equations
8.D.5	Formulate and solve nonlinear equations and systems including problems involving inverse variation and exponential and logarithmic growth and decay.	Linear and Quadratic Equations  Systems of Equations and Inequalities  Rational Functions  Exponential and Logarithmic Functions	Solving Quadratic Equations and Inequalities  Systems of Equations  Direct and Inverse Variation  Exponential Growth and Decay
9	Use geometric methods to analyze, categorize and draw conclusions about points, lines, planes and space.		
9.A	Demonstrate and apply geometric concepts involving points, lines, planes and space.		
9.A.5	Use geometric figures and their properties to solve problems in the arts, the physical and life sciences and the building trades, with and without the use of technology.		
9.B	Identify, describe, classify and compare relationships using points, lines, planes and solids.		
9.B.5	Construct and use two- and three-dimensional models of objects that have practical applications (e.g., blueprints, topographical maps, scale models).		

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9.C	Construct convincing arguments and proofs to solve problems.		
9.C.5a	Perform and describe an original investigation of a geometric problem and verify the analysis and conclusions to an audience.		
9.C.5b	Apply physical models, graphs, coordinate systems, networks and vectors to develop solutions in applied contexts (e.g., bus routing, areas of irregular shapes, describing forces and other physical quantities).		
9.D	Use trigonometric ratios and circular functions to solve problems.	Trigonometric Functions	Right Triangle Trigonometry
9.D.5	Analyze and solve problems involving periodic patterns (e.g., sound waves, tide variations) using circular functions and communicate results orally and in writing.		
10	Collect, organize and analyze data using statistical methods; predict results; and interpret uncertainty using concepts of probability.	Probability and Statistics	Introduction to Probability  Statistics
10.A	Organize, describe and make predictions from existing data.	Probability and Statistics	Introduction to Probability  Statistics
10.A.5	Construct a statistics-based presentation, individually and as members of a team, to communicate and justify the results of a project.		

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10.B	Formulate questions, design data collection methods, gather and analyze data and communicate findings.	Probability and Statistics	Introduction to Probability Statistics
10.B.5	Design a statistical experiment to answer a question about a realistic situation, conduct the experiment, use statistics to interpret the data, and communicate the results, individually and as members of a team.		
10.C	Determine, describe and apply the probabilities of events.	Probability and Statistics	Introduction to Probability
10.C.5a	Compute conditional probabilities and the probabilities of independent events.	Probability and Statistics	Introduction to Probability
10.C.5b	Compute probabilities in counting situations involving permutations and combinations.	Probability and Statistics	Permutations and Combinations
10.C.5c	Make predictions using probabilities associated with normally distributed events.	Probability and Statistics	The Normal Distribution