Algebra I 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.	Numbers and Expressions	Evaluating Expressions
6.A.4	Identify and apply the associative, commutative, distributive and identity properties of real numbers, including special numbers such as pi and square roots.	Numbers and Expressions	Some Useful Properties
6.B	Investigate, represent and solve problems using number facts, operations (addition, subtraction, multiplication, division) and their properties, algorithms and relationships.	Equations	Equations
6.B.4	Select and use appropriate arithmetic operations in practical situations including calculating wages after taxes, developing a budget and balancing a checkbook.		
6.C	Compute and estimate using mental mathematics, paper-and-pencil methods, calculators and computers.	Equations	Equations
6.C.4	Determine whether exact values or approximations are appropriate (e.g., bid a job, determine gas mileage for a trip).		
6.D	Solve problems using comparison of quantities, ratios, proportions and percents.	Equations	Proportions and Percent
6.D.4	Solve problems involving recipes or mixtures, financial calculations and geometric similarity using ratios, proportions and percents.	Equations	Proportions and Percent Formulas and Absolute Value

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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.	Real Numbers	Estimation and Problem Solving
7.A.4a	Apply units and scales to describe and compare numerical data and physical objects.		
7.A.4b	Apply formulas in a wide variety of theoretical and practical real-world measurement applications involving perimeter, area, volume, angle, time, temperature, mass, speed, distance, density and monetary values.		
7.B	Estimate measurements and determine acceptable levels of accuracy.		
7.B.4	Estimate and measure the magnitude and directions of physical quantities (e.g., velocity, force, slope) using rulers, protractors and other scientific instruments including timers, calculators and computers.		
7.C	Select and use appropriate technology, instruments and formulas to solve problems, interpret results and communicate findings.		

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7.C.4a	Make indirect measurements, including heights and distances, using proportions (e.g., finding the height of a tower by its shadow).		
7.C.4b	Interpret scale drawings and models using maps and blueprints.		
7.C.4c	Convert within and between measurement systems and monetary systems using technology where appropriate.		
8	Use algebraic and analytical methods to identify and describe patterns and relationships in data, solve problems and predict results.	Functions and Linear Equations	Patterns and Sequences
8.A	Describe numerical relationships using variables and patterns.	Functions and Linear Equations	Patterns and Sequences
8.A.4a	Use algebraic methods to convert repeating decimals to fractions.	Real Numbers	Rational Numbers
8.A.4b	Represent mathematical patterns and describe their properties using variables and mathematical symbols.	Functions and Linear Equations	Patterns and Sequences
8.B	Interpret and describe numerical relationships using tables, graphs and symbols.	Functions and Linear Equations	The Coordinate Plane and Relations Graphing Linear Equations

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8.B.4a	Represent algebraic concepts with physical materials, words, diagrams, tables, graphs, equations and inequalities and use appropriate technology.	Functions and Linear Equations Inequalities	The Coordinate Plane and Relations Graphing Linear Equations Graphing Inequalities in Two Variables
8.B.4b	Use the basic functions of absolute value, square root, linear, quadratic and step to describe numerical relationships.		
8.C	Solve problems using systems of numbers and their properties.	Solving Systems	Solving Systems
8.C.4a	Analyze and report the effects of changing coefficients, exponents and other parameters on functions and their graphs.		
8.C.4b	Apply algebraic properties and procedures with matrices, vectors, functions and sequences using data found in business, industry and consumer situations.		
8.D	Use algebraic concepts and procedures to represent and solve problems.	Polynomials	Add and Subtract Polynomials
8.D.4	Formulate and solve linear and quadratic equations and linear inequalities algebraically and investigate nonlinear inequalities using graphs, tables, calculators and computers.	Functions and Linear Equations Inequalities Quadratics and Radicals	Linear Equations Simple Inequalities Solving Quadratic Equations
9	Use geometric methods to analyze, categorize and draw conclusions about points, lines, planes and space.		

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9.A	Demonstrate and apply geometric concepts involving points, lines, planes and space.		
9.A.4a	Construct a model of a three-dimensional figure from a two-dimensional pattern.		
9.A.4b	Make perspective drawings, tessellations and scale drawings, with and without the use of technology.		
9.B	Identify, describe, classify and compare relationships using points, lines, planes and solids.		
9.B.4	Recognize and apply relationships within and among geometric figures.		
9.C	Construct convincing arguments and proofs to solve problems.		
9.C.4a	Construct and test logical arguments for geometric situations using technology where appropriate.		
9.C.4b	Construct and communicate convincing arguments for geometric situations.		

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9.C.4c	Develop and communicate mathematical proofs (e.g., two-column, paragraph, indirect) and counter examples for geometric statements.		
9.D	Use trigonometric ratios and circular functions to solve problems.		
9.D.4	Analyze and solve problems involving triangles (e.g., distances which cannot be measured directly) using trigonometric ratios.		
10	Collect, organize and analyze data using statistical methods; predict results; and interpret uncertainty using concepts of probability.		
10.A	Organize, describe and make predictions from existing data.	Rational Expressions	Probability
10.A.4a	Represent and organize data by creating lists, charts, tables, frequency distributions, graphs, scatterplots and box-plots.		
10.A.4b	Analyze data using mean, median, mode, range, variance and standard deviation of a data set, with and without the use of technology.		
10.A.4c	Predict from data using interpolation, extrapolation and trend lines, with and without the use of technology.		

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10.B	Formulate questions, design data collection methods, gather and analyze data and communicate findings.		
10.B.4	Design and execute surveys or experiments, gather data to answer relevant questions, and communicate results and conclusions to an audience using traditional methods and contemporary technology.		
10.C	Determine, describe and apply the probabilities of events.		
10.C.4a	Solve problems of chance using the principles of probability including conditional settings.	Rational Expressions	Probability
10.C.4b	Design and conduct simulations (e.g., waiting times at restaurant, probabilities of births, likelihood of game prizes), with and without the use of technology.		
10.C.4c	Propose and interpret discrete probability distributions, with and without the use of technology.		