Algebra I CR

State Standard Number	State Standard Area / Description	Unit Name	Course Topic Description
M.S.A1.2	Through communication, representation, reasoning and proof, problem solving, and making connections within and beyond the field of mathematics, students will demonstrate understanding of patterns, relations and functions, represent and analyze mathematical situations and structures using algebraic symbols, use mathematical models to represent and understand quantitative relationships, and analyze change in various contexts.		
M.O.A1.2.1	formulate algebraic expressions for use in equations and inequalities that require planning to accurately model real-world problems.	Equations	Problem Solving
M.O.A1.2.2	create and solve multi-step linear equations, absolute value equations, and linear inequalities in one variable, (with and without technology); apply skills toward solving practical problems such as distance, mixtures or motion and judge the reasonableness of solutions.	Equations Inequalites	Multi-Step Problems Formulas and Absolute Value Multi-Step Inequalities
M.O.A1.2.3	evaluate data provided, given a real-world situation, select an appropriate literal equation and solve for a needed variable.	Equations	Problem Solving
M.O.A1.2.4	develop and test hypotheses to derive the laws of exponents and use them to perform operations on expressions with integral exponents.	Numbers and Expressions	Exponents and Roots
M.O.A1.2.5	analyze a given set of data and prove the existence of a pattern numerically, algebraically and graphically, write equations from the patterns and make inferences and predictions based on observing the pattern.	Functions and Linear Equations	Patterns and Sequences

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M.O.A1.2.6	determine the slope of a line through a variety of strategies (e.g. given an equation or graph).	Functions and Linear Equations	Linear Equations
M.O.A1.2.7	analyze situations and solve problems by determining the equation of a line given a graph of a line, two points on the line, the slope and a point, or the slope and y intercept.	Functions and Linear Equations	Linear Equations
M.O.A1.2.8	identify a real life situation that involves a constant rate of change; pose a question; make a hypothesis as to the answer; develop, justify, and implement a method to collect, organize, and analyze related data; extend the nature of collected, discrete data to that of a continuous linear function that describes the known data set; generalize the results to make a conclusion; compare the hypothesis and the conclusion; present the project numerically, analytically, graphically and verbally using the predictive and analytic tools of algebra (with and without technology).		
M.O.A1.2.9	create and solve systems of linear equations graphically and numerically using the elimination method and the substitution method, given a real-world situation.	Solving Systems	Systems of Linear Equations Solving Systems
M.O.A1.2.10	simplify and evaluate algebraic expressions		
M.O.A1.2.10.a	add and subtract polynomials	Polynomials	Add and Subtract Polynomials

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M.O.A1.2.10.b	multiply and divide binomials by binomials or monomials	Polynomials	Multiply Polynomials Factors and GCF Factoring Trinomials
M.O.A1.2.11	create polynomials to represent and solve problems from real-world situations while focusing on symbolic and graphical patterns.		
M.O.A1.2.12	use area models and graphical representations to develop and explain appropriate methods of factoring.	Polynomials	Factors and GCF
M.O.A1.2.13	simplify radical expressions		
M.O.A1.2.13.a	through adding, subtracting, multiplying and dividing	Quadratics and Radicals	Radicals Operations on Radicals
M.O.A1.2.13.b	exact and approximate forms	Quadratics and Radicals	Radicals Operations on Radicals
M.O.A1.2.14	choose the most efficient method to solve quadratic equations by graphing (with and without technology), factoring, and quadratic formula and draw reasonable conclusions about a situation being modeled.	Quadratics and Radicals	Radical Equations

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M.O.A1.2.15	describe real life situations involving exponential growth and decay equations including y=2 to the x power and y=(½) to the x power; compare the equation with attributes of an associated table and graph to demonstrate an understanding of their interrelationship.	Exponentials	Growth and Decay
M.O.A1.2.16	simplify and evaluate rational expressions		
M.O.A1.2.16.a	add, subtract, multiply and divide	Rational Expressions	Multiplying and Dividing Rational Expressions Adding and Subtracting Rational Expressions
M.O.A1.2.16.b	determine when an expression is undefined.	Rational Expressions	Multiplying and Dividing Rational Expressions
M.O.A1.2.17	perform a linear regression (with and without technology),		
M.O.A1.2.17.a	compare and evaluate methods of fitting lines to data.	Functions and Linear Equations	Data
M.O.A1.2.17.b	identify the equation for the line of regression,	Functions and Linear Equations	Data
M.O.A1.2.17.c	examine the correlation coefficient to determine how well the line fits the data	Functions and Linear Equations	Data

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M.O.A1.2.17.d	use the equation to predict specific values of a variable.	Functions and Linear Equations	Data
M.O.A1.2.18	compute and interpret the expected value of random variables in simple cases using simulations and rules of probability (with and without technology).		
M.O.A1.2.19	gather data to create histograms, box plots, scatter plots and normal distribution curves and use them to draw and support conclusions about the data.	Solving Systems	Statistics
M.O.A1.2.20	design experiments to model and solve problems using the concepts of sample space and probability distribution.		
M.O.A1.2.21	use multiple representations, such as words, graphs, tables of values and equations, to solve practical problems; describe advantages and disadvantages of the use of each representation.	Solving Systems	Statistics