

Algebra 1 CR

State Standard Number	State Standard Area/Description	Unit Name	Course Topic Description
1	Students will develop the language of algebra including specialized vocabulary, symbols, and operations.		
LA.1.AI.1	Evaluate algebraic expressions, including radicals, by applying the order of operations	Unit 1: Variables and Expressions	Section 4
LA.1.AI.2	Translate word phrases and sentences into expressions, equations, and inequalities, and vice versa	Unit 1: Variables and Expressions Unit 5: Inequalities	Section 1 Section 1
LA.1.AI.3	Apply the laws of (integral) exponents and roots.	Unit 1: Variables and Expressions	Section 4
LA.1.AI.4	Solve problems involving scientific notation, including multiplication and division.	Unit 7: Polynomials	Section 1
LA.1.AI.5	Perform polynomial operations (addition, subtraction, multiplication) with and without manipulatives		
LA.1.AI.6	Simplify algebraic fractions by factoring		
LA.1.AI.7	Recognize when an expression is undefined		
LA.1.AI.8	Simplify radical expressions such as $3/\sqrt{7}$	Unit 8: Quadratics and Radicals	Section 3
LA.1.AI.9	Add, subtract, and multiply simple radical expressions like $3\sqrt{20} + 7\sqrt{5}$ and $4\sqrt{5} \cdot 2\sqrt{3}$	Unit 8: Quadratics and Radicals	Section 3, 4
2	Students will write, with and without appropriate technology, equivalent forms of equations, inequalities and systems of equations and solve with fluency.		

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SEI.2.AI.1	Solve multi-step equations and inequalities with rational coefficients		
SEI.2.AI.1.a	numerically (from a table or guess and check)	Unit 3: Equations	Sections 1, 2
SEI.2.AI.1.b	algebraically (including the use of manipulatives)	Unit 3: Equations	Section 2
SEI.2.AI.1.c	graphically	Unit 4: Functions and Linear Equations	Section 2
SEI.2.AI.1.d	technologically		
SEI.2.AI.2	Solve systems of two linear equations		
SEI.2.AI.2.a	numerically (from a table or guess and check)	Unit 6: Solving Systems	Section 1

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SEI.2.AI.2.b	algebraically (including the use of manipulatives)	Unit 6: Solving Systems	Section 2
SEI.2.AI.2.c	graphically	Unit 6: Solving Systems	Section 1
SEI.2.AI.2.d	technologically		
SEI.2.AI.3	Solve linear formulas and literal equations for a specified variable	Unit 3: Equations	Section 1
SEI.2.AI.4	Solve and graph simple absolute value equations and inequalities	Unit 5: Inequalities	Section 3
SEI.2.AI.5	Solve real world problems that involve a combination of rates, proportions and percents	Unit 3: Equations	Section 3
SEI.2.AI.6	Solve problems involving direct variation and indirect (inverse) variation to model rates of change	Unit 4: Functions and Linear Equations Unit 9: Rational Expressions	Section 2 Section 1
SEI.2.AI.7	Use coordinate geometry to represent and/or solve problems (midpoint, length of a line segment, and Pythagorean Theorem)		

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SEI.2.AI.8	Communicate real world problems graphically, algebraically, numerically and verbally	Unit 4: Functions and Linear Equations	All sections
3	Students will analyze functions by investigating rates of change, intercepts, and zeros.	Unit 4: Functions and Linear Equations	Section 2
LF.3.AI.1	Distinguish between functions and non-functions/relations by inspecting graphs, ordered pairs, mapping diagrams and/or tables of data	Unit 4: Functions and Linear Equations	Section 4
LF.3.AI.2	Determine domain and range of a relation from an algebraic expression, graphs, set of ordered pairs, or table of data	Unit 4: Functions and Linear Equations	Section 1
LF.3.AI.3	Know and/or use function notation, including evaluating functions for given values in their domain	Unit 4: Functions and Linear Equations	Section 4
LF.3.AI.4	Identify independent variables and dependent variables in various representational modes: words, symbols, and/or graphs	Unit 4: Functions and Linear Equations	Section 1

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LF.3.AI.5	Interpret the rate of change/slope and intercepts within the context of everyday life		
LF.3.AI.6	Calculate the slope given	Unit 4: Functions and Linear Equations	Section 4
LF.3.AI.6.a	two points	Unit 4: Functions and Linear Equations	Section 4
LF.3.AI.6.b	the graph of a line	Unit 4: Functions and Linear Equations	Section 4
LF.3.AI.6.c	the equation of a line	Unit 4: Functions and Linear Equations	Section 4
LF.3.AI.7	Determine by using slope whether a pair of lines are parallel, perpendicular, or neither	Unit 4: Functions and Linear Equations	Section 4

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LF.3.A1.8	Write an equation in slope-intercept, point-slope, and standard forms given		
LF.3.A1.8.a	two points	Unit 4: Functions and Linear Equations	Section 4
LF.3.A1.8.b	a point and y-intercept	Unit 4: Functions and Linear Equations	Section 4
LF.3.A1.8.c	x-intercept and y-intercept	Unit 4: Functions and Linear Equations	Section 4
LF.3.A1.8.d	a point and slope	Unit 4: Functions and Linear Equations	Section 4
LF.3.A1.8.e	a table of data	Unit 4: Functions and Linear Equations	Section 5

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LF.3.AI.8.f	the graph of a line	Unit 4: Functions and Linear Equations	Section 4
LF.3.AI.9	Describe the effects of parameter changes, slope and/or y-intercept, on graphs of linear functions and vice versa		
4	Students will compare the properties in the family of functions.		
NLF.4.AI.1	Factoring polynomials		
NLF.4.AI.1.a	greatest common factor	Unit 7: Polynomials	Section 4
NLF.4.AI.1.b	binomials (difference of squares)	Unit 7: Polynomials	Section 6

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NLF.4.AI.1.c	trinomials	Unit 7: Polynomials	Section 4
NLF.4.AI.2	Determine minimum, maximum, vertex, and zeros, given the graph	Unit 8: Quadratics and Radicals	Section 1
NLF.4.AI.3	Solve quadratic equations using the appropriate methods with and without technology		
NLF.4.AI.3.a	factoring		
NLF.4.AI.3.b	quadratic formula with real number solutions	Unit 8: Quadratics and Radicals	Section 2
NLF.4.AI.4	Recognize function families and their connections including vertical shift and reflection over the x-axis		

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NLF.4.AI.4.a	quadratics (with rational coefficients)		
NLF.4.AI.4.b	absolute value		
NLF.4.AI.4.c	exponential functions		
NLF.4.AI.5	Communicate real world problems graphically, algebraically, numerically and verbally	Throughout	Throughout
5	Students will compare various methods of reporting data to make inferences or predictions.		
DIP.5.AI.1	Construct and use scatter plots and line of best fit to make inferences in real life situations	Unit 4: Functions and Linear Equations	Section 5

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DIP.5.AI.2	Use simple matrices in addition, subtraction, and scalar multiplication	Unit 6: Solving Systems	Section 4
DIP.5.AI.3	Construct simple matrices for real life situations	Unit 6: Solving Systems	Section 4
DIP.5.AI.4	Determine the effects of changes in the data set on the measures of central tendency		
DIP.5.AI.5	Use two or more graphs (i.e., box-and-whisker, histograms, scatter plots) to compare data sets	Unit 6: Solving Systems	Section 5
DIP.5.AI.6	Construct and interpret a cumulative frequency histogram in real life situations	Unit 6: Solving Systems	Section 5
DIP.5.AI.7	Recognize linear functions and non-linear functions by using a table or a graph	Unit 4: Functions and Linear Equations	Section 4

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DIP.5.AI.8	Compute simple probability with and without replacement		
DIP.5.AI.9	Recognize patterns using explicitly defined and recursively defined linear functions	Unit 4: Functions and Linear Equations	Section 3
DIP.5.AI.10	Communicate real world problems graphically, algebraically, numerically and verbally	Throughout	Throughout
DIP.5.AI.11	Explain how sampling methods, bias, and phrasing of questions in data collection impact the conclusions		
DIP.5.AI.12	Recognize when arguments based on data confuse correlation with causation		