



Algebra 1 Correlation to Mathematics Course of Study

	Mathematics Curriculum Framework	Lesson Number	Lesson Title
NUMBER AND OPERATIONS			
A.1	Simplify numerical expressions using properties of real numbers and order of operations, including those involving square roots, radical form, or decimal approximations. For example, express $\sqrt{27} + \sqrt{75}$ in simplified form.	HA1-040	The Addition Rule for Real Numbers
		HA1-045	Subtracting Real Numbers
		HA1-050	Multiplying Real Numbers
		HA1-055	Dividing Real Numbers
		HA1-062	Adding, Subtracting, Multiplying, and Dividing Real Numbers
		HA1-060	Evaluating Numerical Expressions Using the Order of Operations
		HA1-480	Finding the Square Roots of Rational Numbers
		HA1-490	Simplifying Square Roots
		HA1-495	Simplifying Sums and Differences of Radicals
		HA1-500	Simplifying Products of Radicals
		HA1-505	Simplifying Quotients of Radicals
		HA1-871	Simplifying Radical Expressions
		HA1-872	Simplifying Sums and Differences of Radicals
		HA1-873	Simplifying Products of Radicals
	<ul style="list-style-type: none"> Applying laws of exponents to simplify expressions, including those containing zero and negative integral exponents. 	HA1-810	Simplifying Expressions Using the Multiplication Properties of Exponents
		HA1-815	Simplifying Expressions with Negative and Zero Exponents
		HA1-818	Simplifying Expressions Using the Division Properties of Exponents
ALGEBRA			
A.2	Analyze linear functions from their equations, slopes, and intercepts.	HA1-370	Graphing Ordered Pairs on a Coordinate Plane
		HA1-375	Identifying Solutions of Equations in Two Variables
		HA1-394	Interchanging Linear Equations Between Standard Form and Slope-Intercept Form
		HA1-401	How Variations of "m" and "b" Affect the Graph of $y = mx + b$
		HA1-960	Real-World Applications of Linear Functions
		HA1-965	Determining the Best-Fitting Line
	<ul style="list-style-type: none"> Finding the slope of a line from its equation or by applying the slope formula. 	HA1-385	Finding the Slope of a Line from its Graph or from the Coordinates of Two Points
	<ul style="list-style-type: none"> Determining the equations of linear functions given two points, a point and the slope, tables of values, graphs, or ordered pairs. 	HA1-405	Determining an Equation of a Line Given the Slope and Coordinates of One Point
		HA1-410	Determining an Equation of a Line Given the Coordinates of Two Points
		HA1-955	Analyzing Linear Functions
	<ul style="list-style-type: none"> Graphing two-variable linear equations and inequalities on the Cartesian plane. 	HA1-380	Graphing Linear Equations
		HA1-395	Drawing a Line Using Slope-Intercept and Determining if Two Lines are Parallel

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		HA1-398	Graphing Linear Equations Using Slope and y-Intercept or Slope and a Point
		HA1-415	Graphing Linear Inequalities with Two Variables
		HA1-416	Graphing Linear Inequalities with Two Variables Using the Graphing Calculator
		HA1-866	Drawing a Line Using Slope-Intercept Form and Determining if Two Lines are Parallel or Perpendicular
A.3	Determine characteristics of a relation, including its domain, range, and whether it is a function, when given graphs, tables of values, mappings, or sets of ordered pairs.	HA1-436	Identifying Relations
		HA1-437	Identifying Relations as Functions
		HA1-438	Finding the Domain and Range of Functions
		HA1-439	Using Function Notation
		HA1-867	Identifying Domain and Range of Relations Given Graphs, Tables, or Sets of Ordered Pairs
	<ul style="list-style-type: none"> Finding the range of a function when given its domain. For example, finding the range of $f(x) = -x^2 + 2x - 3$ when given the domain $\{-4, -2, 0, 2, 4\}$. 	HA1-438	Finding the Domain and Range of Functions
A.4	Represent graphically common relations, including $x = \text{constant}$, $y = \text{constant}$, $y = x$, $y = \sqrt{x}$, $y = x^2$, and $y = x $.	HA1-380	Graphing Linear Equations
		HA1-398	Graphing Linear Equations Using Slope and y-Intercept or Slope and a Point
		HA1-927	Graphing $f(x) = ax^2$ Using Dilations
		HA1-950	Graphing Absolute Value Functions
	<ul style="list-style-type: none"> Identifying situations that are modeled by common relations, including, $x = \text{constant}$, $y = \text{constant}$, $y = x$, $y = \sqrt{x}$, $y = x^2$, and $y = x$. 	HA1-380	Graphing Linear Equations
		HA1-398	Graphing Linear Equations Using Slope and y-Intercept or Slope and a Point
		HA1-955	Analyzing Linear Functions
		HA1-935	Analyzing Graphs of Quadratic Functions
		HA1-927	Graphing $f(x) = ax^2$ Using Dilations
		HA1-950	Graphing Absolute Value Functions
A.5	Perform operations of addition, subtraction, and multiplication on polynomial expressions.	HA1-220	Identifying and Multiplying Monomials
		HA1-230	Raising a Monomial or Quotient of Monomials to a Power
		HA1-240	Identifying the Degree of Polynomials and Simplifying by Combining Like Terms
		HA1-245	Adding and Subtracting Polynomials
		HA1-255	Multiplying Two Binomials Using the FOIL Method
		HA1-260	Squaring a Binomial and Finding the Product of a Sum and Difference
		HA1-920	Simplifying Algebraic Expressions Using the Distributive Property
	<ul style="list-style-type: none"> Dividing by a monomial. 	HA1-225	Dividing Monomials and Simplifying Expressions Having an Exponent of Zero
		HA1-355	Dividing Polynomials
A.6	Factor binomials, trinomials, and other polynomials using GCF, difference of squares, perfect square trinomials, and grouping.	HA1-270	Factoring the Greatest Common Monomial Factor from a Polynomial
		HA1-275	Factoring the Difference Between Two Squares and Perfect Trinomial Squares
		HA1-276	Factoring Sums and Differences of Cubes
		HA1-280	Factoring $x^2 + bx + c$ When c is Greater Than Zero
		HA1-285	Factoring $x^2 + bx + c$ When c is Less Than Zero
		HA1-290	Factoring $ax^2 + bx + c$
		HA1-291	Factoring Quadratic Equations Using the Graphing Calculator
		HA1-295	Factoring by Removing a Common Factor and Grouping
		HA1-300	Factoring a Polynomial Completely
		HA1-802	Factoring
A.7	Solve multi-step equations and inequalities including linear, radical, absolute value, and literal equations. For example, solving for x in problems such as $\sqrt{x} - 4 = 0$, $\sqrt{x - 4} < 2$, $ x = 6$, $ x + 3 \geq 10$, and $y = mx + b$.	HA1-115	Using the Addition and Subtraction Properties for Equations

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		HA1-120	Using the Multiplication and Division Properties for Equations
		HA1-125	Solving Equations Using More Than One Property
		HA1-140	Solving Equations by Combining Like Terms
		HA1-145	Solving Equations with Variables on Both Sides
		HA1-175	Solving Literal Equations
		HA1-185	Solving Inequalities Using the Addition and Subtraction Properties
		HA1-190	Solving Inequalities Using the Multiplication and Division Properties
		HA1-195	Solving Inequalities Using More Than One Property
		HA1-210	Solving Equations Involving Absolute Value
		HA1-215	Solving Absolute Value Inequalities
		HA1-382	Solving Linear Equations Using the Graphing Calculator
		HA1-510	Solving Radical Equations
		HA1-520	Finding the Distance Between Two Points on a Coordinate Plane
		HA1-876	Applying Length, Midpoint and Slope of a Segment on a Cartesian Plane
		HA1-100	Finding Solution Sets of Open Sentences from Given Replacement Sets
	<ul style="list-style-type: none"> Writing the solution of an equation or inequality in set notation. 		
	<ul style="list-style-type: none"> Graphing the solution of an equation or inequality. 	HA1-180	Graphing Equations and Inequalities on the Number Line
	<ul style="list-style-type: none"> Modeling real-world problems by developing and solving equations and inequalities, including those involving direct and inverse variation. 	HA1-135	Evaluating Formulas
		HA1-150	Writing an Equation to Solve Word Problems
		HA1-155	Writing an Equation to Solve Consecutive Integer Problems
		HA1-160	Writing an Equation to Solve Distance, Rate, and Time Problems
		HA1-165	Using Equations to Solve Percent Problems
		HA1-170	Solving Percent of Change Problems
		HA1-441	Applications of Functions and Relations Involving Distance, Rate, and Time
		HA1-450	Solving Problems Involving Direct Variation
		HA1-453	Solving Problems Involving Inverse Variation
		HA1-858	Finding Inverse Relations and Determining if They are Functions
A.8	Solve systems of linear equations and inequalities in two variables graphically or algebraically.	HA1-455	Solving Systems of Linear Equations by Graphing
		HA1-460	Solving Systems of Linear Equations by the Substitution Method
		HA1-465	Solving Systems of Linear Equations by the Addition/Subtraction Method
		HA1-470	Solving Systems of Linear Equations by the Multiply/Add/Subtract Method
		HA1-475	Graphing the Solution Set of a System of Linear Inequalities
		HA1-803	Solving Systems of Equations
		HA1-804	Solving Systems of Equations by Graphing
		HA1-806	Solving Systems of Linear Equations Using the Graphing Calculator
	<ul style="list-style-type: none"> Modeling real-world problems by developing and solving systems of linear equations and inequalities. 	HA1-805	Applying Algebra Concepts
		HA1-870	Solving Problems with Systems of Linear Equations and Inequalities
A.9	Solve quadratic equations using the zero product property.	HA1-305	Solving Polynomial Equations by Factoring
		HA1-525	Solving Quadratic Equations Involving Perfect Square Expressions
	<ul style="list-style-type: none"> Approximating solutions graphically and numerically. 	HA1-535	Developing the Quadratic Formula and Using it to Solve Equations
		HA1-536	Solving Quadratic Equations Using the Graphing Calculator
		HA1-925	Using the Discriminant to Analyze the Solution of a Quadratic Equation
GEOMETRY			
A.10	Calculate length, midpoint, and slope of a line segment when given coordinates of its endpoints on the Cartesian plane.	HA1-876	Applying Length, Midpoint and Slope of a Segment on a Cartesian Plane
	<ul style="list-style-type: none"> Deriving the distance, midpoint, and slope formulas. 	HA1-520	Finding the Distance Between Two Points on a Coordinate Plane
		HA1-876	Applying Length, Midpoint and Slope of a Segment on a Cartesian Plane
MEASUREMENT			

	Mathematics Curriculum Framework	Lesson Number	Lesson Title
A.11	Solve problems algebraically that involve area and perimeter of a polygon, area and circumference of a circle, and volume and surface area of right circular cylinders or right rectangular prisms.	HA1-890	Using Models to Derive Formulas for Two-Dimensional Geometric Figures
		HA1-891	Using Models to Derive Formulas for Three-Dimensional Solids
	<ul style="list-style-type: none"> Applying formulas to solve word problems. For example, finding the radius of a circle with area 75 square inches. 	HA1-135	Evaluating Formulas
		HA1-890	Using Models to Derive Formulas for Two-Dimensional Geometric Figures
		HA1-891	Using Models to Derive Formulas for Three-Dimensional Solids
DATA ANALYSIS AND PROBABILITY			
A.12	Compare various methods of data reporting, including scatter plots, stem-and-leaf plots, histograms, box-and-whisker plots, and line graphs, to make inferences or predictions	HA1-877	Drawing Inferences and Making Predictions from Tables and Graphs
		HA1-885	Histograms and the Normal Distribution
		MPA-094	Interpreting and Constructing Line Plots
		MPA-096	Constructing Stem-and-Leaf Plots
		MPA-097	Constructing Box-and-Whisker Plots
		MPA-098	Making Predictions from Graphs and Choosing the Correct Graph
		MPA-131	Interpreting and Creating Histograms
		MPA-132	Interpreting and Creating Scatter Plots
	<ul style="list-style-type: none"> Determining effects of linear transformations of data. For example: The mean score of an algebra test is 78. If the teachers adds five points to each student's grade, the mean score will be 83 	HA1-541	Analyzing Data Using the Measures of Central Tendency and the Range
	<ul style="list-style-type: none"> Determining effects of outliers 	MPA-097	Constructing Box-and-Whisker Plots
	<ul style="list-style-type: none"> Evaluating the appropriateness of the design of a survey 	Journal	
A.13	Identify characteristics of a data set, including measurement or categorical and univariate or bivariate. For example, conducting a survey of 100 students to determine whether boys and girls prefer to watch the same genres of movies to get a bivariate, categorical data set.	HA1-545	Making a Frequency Distribution Table
		HA1-885	Histograms and the Normal Distribution
A.14	Use a scatter plot and its line of best fit or a specific line graph to determine the relationship existing between two sets of data, including positive, negative, or no relationship.	HA1-965	Determining the Best-Fitting Line
		MPA-132	Interpreting and Creating Scatterplots
A.15	Estimate probabilities given data in lists or graphs.		
	<ul style="list-style-type: none"> Comparing theoretical and experimental probabilities 	MPA-114	Finding the Odds of Events and Experimental Probability from a Math Model

MM1-Fundamentals of Mathematics

MPA- Pre-Algebra

HA1-Algebra 1

Note: Standards were taken from the Alabama Course of Study for Algebra 1 document adopted by the Alabama State Board of Education in 2003.