



# Alignment Document

## State of Florida And Aventa Learning Algebra 1

### Algebra 1 2005-2007 Benchmark Blueprint

State Standard Number	State Standard Area / Description	Unit Name	Course Topic Description
MA.A	Number Sense, Concepts, and Operations		
MA.A.1.4	The student understands the different ways numbers are represented and used in the real world.		
MA.A.1.4.1	associates verbal names, written word names, and standard numerals with integers, rational numbers, irrational numbers, real numbers, and complex numbers.	Real Numbers	Fractions
		Real Numbers	Number Sets
		Real Numbers	Adding Fractions with Real Numbers
		Real Numbers	Subtracting Fractions with Real Numbers
		Real Numbers	Order of Numbers
		Variables and Expressions	Algebraic Expressions
		Quadratics and Radicals	Radicals
MA.A.1.4.2	understands the relative size of integers, rational numbers, irrational numbers, and real numbers.	Variables and Expressions	Multiplying and Dividing Integers
		Variables and Expressions	Integers
		Variables and Expressions	Addition of Integers
		Variables and Expressions	Subtraction of Integers



		Real Numbers	Fractions
		Real Numbers	Multiplication of Rational Numbers
		Real Numbers	Rational Numbers
		Real Numbers	Adding Fractions with Real Numbers
		Real Numbers	Evaluating Division Expressions
		Real Numbers	Number Sets
		Real Numbers	Subtracting Fractions with Real Numbers
		Real Numbers	Order of Numbers
		Real Numbers	Decimals
		Rational Expressions	Probability Expressed as a Percent
		Polynomials	Scientific Notation
MA.A.1.4.3	understands concrete and symbolic representations of real and complex numbers in real-world situations.	Real Numbers	Fractions
		Real Numbers	Evaluating Division Expressions
		Real Numbers	Adding Fractions with Real Numbers
		Real Numbers	Number Sets
		Real Numbers	Subtracting Fractions with Real Numbers
		Real Numbers	Order of Numbers
		Real Numbers	Multiplication of Rational Numbers
MA.A.1.4.4	understands that numbers can be represented in a variety of equivalent forms, including integers, fractions, decimals, percents, scientific notation, exponents, radicals, absolute value, and logarithms.	Variables and Expressions	Subtraction of Integers
		Variables and Expressions	Problem Solving using Exponents and Roots
		Variables and Expressions	Expressions with Powers
		Variables and Expressions	Multiplying and Dividing Integers
		Variables and Expressions	Integers
		Variables and Expressions	Exponents



		Variables and Expressions	Addition of Integers
		Variables and Expressions	Fractional Exponents
		Equations	Percent of a Number
		Equations	Percent of Change
		Equations	Absolute Value Equations
		Polynomials	Scientific Notation
		Polynomials	From Scientific Notation to Standard Notation
		Polynomials	Computing with Scientific Notation
		Quadratics and Radicals	Simplifying Radicals with Variables
		Quadratics and Radicals	Simplifying Radicals Containing Fractions
		Quadratics and Radicals	Adding and Subtracting Radical
		Quadratics and Radicals	Simplifying Radicals
		Quadratics and Radicals	Multiplying Radical Expressions
		Exponentials	Exponential Equations
		Real Numbers	Adding Fractions with Real Numbers
		Real Numbers	Subtracting Fractions with Real Numbers
		Real Numbers	Absolute Value
		Inequalities	Absolute Value Inequalities
MA.A.2.4	The student understands number systems.		
MA.A.2.4.1	understands and uses the basic concepts of limits and infinity.		
MA.A.2.4.2	understands and uses the real number system.	Real Numbers	Fractions
		Real Numbers	Evaluating Division Expressions
		Real Numbers	Adding Fractions with Real Numbers
		Real Numbers	Number Sets
		Real Numbers	Subtracting Fractions with Real Numbers
		Real Numbers	Order of Numbers
		Real Numbers	Multiplication of Rational Numbers

MA.A.2.4.3	understands the structure of the complex number system.		
MA.A.3.4	The student understands the effects of operations on numbers and the relationships among these operations, selects appropriate operations, and computes for problem solving.		
MA.A.3.4.1	understands and explains the effects of addition, subtraction, multiplication, and division on real numbers, including square roots, exponents, and appropriate inverse relationships.	Variables and Expressions	Roots
		Variables and Expressions	Expressions with Powers
		Variables and Expressions	Fractional Exponents
		Variables and Expressions	Subtraction of Integers
		Variables and Expressions	Problem Solving using Exponents and Roots
		Variables and Expressions	Exponents
		Real Numbers	Order of Numbers
		Real Numbers	Multiplication of Rational Numbers
		Real Numbers	Fractions
		Real Numbers	Division of Rational Numbers
		Real Numbers	Adding Fractions with Real Numbers
		Real Numbers	Evaluating Division Expressions
		Real Numbers	Subtracting Fractions with Real Numbers
		Real Numbers	Number Sets
		Equations	Multiplication and Division in Equations
		Equations	Addition and Subtraction in Equations
		Quadratics and Radicals	Radicals
		Quadratics and Radicals	Operations on Radicals
		Exponentials	Exponential Equations



MA.A.3.4.2	selects and justifies alternative strategies, such as using properties of numbers, including inverse, identity, distributive, associative, transitive, that allow operational shortcuts for computational procedures in real-world or mathematical problems.	Variables and Expressions	The Commutative Property
		Variables and Expressions	The Associative Property
		Variables and Expressions	The Distributive Property
		Variables and Expressions	Addition of Integers
		Real Numbers	Division of Rational Numbers
		Real Numbers	Writing and Justifying Steps Using Properties
		Real Numbers	Evaluating Division Expressions
		Real Numbers	Properties of Closure and Equality
		Real Numbers	Using the Properties
		Equations	Multiplication and Division in Equations
MA.A.3.4.3	adds, subtracts, multiplies, and divides real numbers, including square roots and exponents, using appropriate methods of computing, such as mental mathematics, paper and pencil, and calculator.	Variables and Expressions	Exponents
		Variables and Expressions	Roots
		Variables and Expressions	Expressions with Powers
		Variables and Expressions	Fractional Exponents
		Variables and Expressions	Subtraction of Integers
		Variables and Expressions	Problem Solving using Exponents and Roots
		Real Numbers	Subtracting Fractions with Real Numbers
		Real Numbers	Multiplication of Rational Numbers
		Real Numbers	Fractions

		Real Numbers	Evaluating Division Expressions
		Real Numbers	Adding Fractions with Real Numbers
		Quadratics and Radicals	Radicals
		Quadratics and Radicals	Operations on Radicals
		Exponentials	Exponential Equations
MA.A.4.4	The student uses estimation in problem solving and computation.		
MA.A.4.4.1	uses estimation strategies in complex situations to predict results and to check the reasonableness of results.	Real Numbers	Estimation and Problem Solving
MA.A.5.4	The student understands and applies theories related to numbers.		
MA.A.5.4.1	applies special number relationships such as sequences and series to real-world problems.	Functions and Linear Equations	Linear Patterns
		Functions and Linear Equations	Arithmetic Sequences
		Exponentials	Geometric Sequences
		Exponentials	Geometric Sequence Formulas
MA.B	Measurement		
MA.B.1.4	The student measures quantities in the real world and uses the measures to solve problems.		
MA.B.1.4.1	uses concrete and graphic models to derive formulas for finding perimeter, area, surface area, circumference, and volume of two- and three-dimensional shapes, including rectangular solids, cylinders, cones, and pyramids.	Real Numbers	Estimation with Real Numbers
MA.B.1.4.2	uses concrete and graphic models to derive formulas for finding rate, distance, time, angle measures, and arc lengths.	Equations	Distance Formula
		Equations	Rate Problems
		Equations	Work Problems
		Real Numbers	Estimation
MA.B.1.4.3	relates the concepts of measurement to similarity and proportionality in real-world situations.	Equations	Ratios and Proportions

MA.B.2.4	The student compares, contrasts, and converts within systems of measurement (both standard/nonstandard and metric/customary).		
MA.B.2.4.1	selects and uses direct (measured) or indirect (not measured) methods of measurement as appropriate.	Rational Expressions	Indirect Variation
MA.B.2.4.2	solves real-world problems involving rated measures (miles per hour, feet per second).	Equations	Rate Problems
		Equations	Mixture Problems
		Equations	Work Problems
MA.B.3.4	The student estimates measurements in real-world problem situations.		
MA.B.3.4.1	solves real-world and mathematical problems involving estimates of measurements, including length, time, weight/mass, temperature, money, perimeter, area, and volume, and estimates the effects of measurement errors on calculations.	Real Numbers	Estimation
		Real Numbers	Estimation with Real Numbers
MA.B.4.4	The student selects and uses appropriate units and instruments for measurement to achieve the degree of precision and accuracy required in real-world situations.		
MA.B.4.4.1	determines the level of accuracy and precision, including absolute and relative errors or tolerance, required in real-world measurement situations.		
MA.B.4.4.2	selects and uses appropriate instruments, technology, and techniques to measure quantities in order to achieve specified degrees of accuracy in a problem situation.		
MA.C	Geometry and Spatial Sense		
MA.C.1.4	The student describes, draws, identifies, and analyzes two- and three-dimensional shapes.		
MA.C.1.4.1	uses properties and relationships of geometric shapes to construct formal and informal proofs.		

MA.C.2.4	The student visualizes and illustrates ways in which shapes can be combined, subdivided, and changed.		
MA.C.2.4.1	understands geometric concepts such as perpendicularity, parallelism, tangency, congruency, similarity, reflections, symmetry, and transformations including flips, slides, turns, enlargements, rotations, and fractals.		
MA.C.2.4.2	analyzes and applies geometric relationships involving planar cross-sections (the intersection of a plane and a three-dimensional figure).		
MA.C.3.4	The student uses coordinate geometry to locate objects in both two and three dimensions and to describe objects algebraically.		
MA.C.3.4.1	represents and applies geometric properties and relationships to solve real-world and mathematical problems including ratio, proportion, and properties of right triangle trigonometry.	Equations	Ratios and Proportions
		Equations	Problems with Proportions
		Quadratics and Radicals	Pythagorean Theorem
MA.C.3.4.2	using a rectangular coordinate system (graph), applies and algebraically verifies properties of two and three-dimensional figures, including distance, midpoint, slope, parallelism, and perpendicularity.	Functions and Linear Equations	More About Slope
		Functions and Linear Equations	Parallel and Perpendicular Lines
MA.D	Algebraic Thinking		
MA.D.1.4	The student describes, analyzes, and generalizes a wide variety of patterns, relations, and functions.		
MA.D.1.4.1	describes, analyzes, and generalizes relationships, patterns, and functions using words, symbols, variables, tables, and graphs.	Variables and Expressions	Expressions with Powers
		Functions and Linear Equations	Graphing an Equation Using Points
		Functions and Linear Equations	Linear Patterns



		Functions and Linear Equations	The Coordinate System
		Functions and Linear Equations	Graphing an Equation Using Intercepts
		Functions and Linear Equations	Functions
		Functions and Linear Equations	Relations
		Functions and Linear Equations	Graphing an Equation Using Slope and Y-Intercept
		Functions and Linear Equations	Scatter Plots and Correlation
		Functions and Linear Equations	Slope-Intercept Form
		Functions and Linear Equations	Point-Slope Form
		Functions and Linear Equations	Direct Variation
		Functions and Linear Equations	Graphs of Inverses
		Functions and Linear Equations	Number Patterns
		Functions and Linear Equations	Line of Fit
		Solving Systems	Review of Graphing Linear Equations
		Quadratics and Radicals	Quadratic Equations and Graphs
		Exponentials	Exponential Equations and Graphs
		Rational Expressions	Indirect Variation
MA.D.1.4.2	determines the impact when changing parameters of given functions.		
MA.D.2.4	The student uses expressions, equations, inequalities, graphs, and formulas to represent and interpret situations.		
MA.D.2.4.1	represents real-world problem situations using finite graphs, matrices, sequences, series, and recursive relations.	Functions and Linear Equations	Arithmetic Sequences
		Functions and Linear Equations	Linear Patterns



		Exponentials	Geometric Sequences
		Exponentials	Geometric Sequence Formulas
		Solving Systems	The Matrix
MA.D.2.4.2	uses systems of equations and inequalities to solve real-world problems graphically, algebraically, and with matrices.	Solving Systems	Solving with Elimination
		Solving Systems	Systems of equations
		Solving Systems	Problem Solving
		Solving Systems	Solving with Substitution
		Solving Systems	Graphing Systems of Inequalities
		Inequalities	Compound Inequalities
MA.E	Data Analysis and Probability		
MA.E.1.4	The student understands and uses the tools of data analysis for managing information.		
MA.E.1.4.1	interprets data that has been collected, organized, and displayed in charts, tables, and plots.	Variables and Expressions	Tables and Graphs
		Variables and Expressions	Stem and Leaf Plots
		Solving Systems	Histograms
		Solving Systems	Analyzing Statistical Data
		Solving Systems	Box Plots
MA.E.1.4.2	calculates measures of central tendency (mean, median, and mode) and dispersion (range, standard deviation, and variance) for complex sets of data and determines the most meaningful measure to describe the data.	Variables and Expressions	Stem and Leaf Plots
		Solving Systems	Statistics
		Solving Systems	Histograms
		Solving Systems	Box Plots
MA.E.1.4.3	analyzes real-world data and makes predictions of larger populations by applying formulas to calculate measures of central tendency and dispersion using the sample population data, and using appropriate technology, including calculators and computers.		



MA.E.2.4	The student identifies patterns and makes predictions from an orderly display of data using concepts of probability and statistics.		
MA.E.2.4.1	determines probabilities using counting procedures, tables, tree diagrams, and formulas for permutations and combinations.	Rational Expressions	More about the Multiplication Principle
		Rational Expressions	Permutations
MA.E.2.4.2	determines the probability for simple and compound events as well as independent and dependent events.	Rational Expressions	The Basics of Probability
		Rational Expressions	More about the Multiplication Principle
MA.E.3.4	The student uses statistical methods to make inferences and valid arguments about real-world situations.		
MA.E.3.4.1	designs and performs real-world statistical experiments that involve more than one variable, then analyzes results and reports findings.		
MA.E.3.4.2	explains the limitations of using statistical techniques and data in making inferences and valid arguments.		