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SuccessMaker®

Alabama Mathematics Course of Study 2019
Grade 8

Alignments to SuccessMaker
Providing rigorous intervention
for K-8 learners with unparalleled precision

Prepared by Savvas Learning Company, formerly Pearson K12 Learning.

Alabama Mathematics Standards Code	Alabama Mathematics Course of Study 2019 Grade 8	SuccessMaker Item Description	Item ID
NO	Number Systems and Operations		
	Understand that the real number system is composed of rational and irrational numbers.		
NO.2	Locate rational approximations of irrational numbers on a number line, compare their sizes, and estimate the values of the irrational numbers.	Drag rational and irrational values to their correct positions on a number line.	SMMA_LO_02141
AF	Algebra and Functions		
	Apply concepts of integer exponents and radicals.		
AF.3	Develop and apply properties of integer exponents to generate equivalent numerical and algebraic expressions.	Evaluate an algebraic expression with exponents (integers -10 to 10).	SMMA_LO_01818
AF.5	Estimate and compare very large or very small numbers in scientific notation.	Compare numbers written in scientific notation.	SMMA_LO_02072
		Write very small numbers in scientific notation.	SMMA_LO_02070
		Student do operations on scientific notation to compare the speed of planes.	SMMA_LO_02515
		Write very large numbers in scientific notation.	SMMA_LO_02071
AF.6	Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used.	Student do operations on scientific notation to compare the speed of planes.	SMMA_LO_02515
AF.6.a	Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities.	Write very small numbers in scientific notation.	SMMA_LO_02070
		Write very large numbers in scientific notation.	SMMA_LO_02071
	Analyze the relationship between proportional and non-proportional situations.		
AF.8	Graph proportional relationships.	Graph proportional relationships and interpret the unit rate as the slope of the graph.	SMMA_LO_02073
		Ratios and Equations Targeted Lesson 14: Graphing Proportional Relationships	

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		Students write, graph, and compare two linear functions in order to find the best price for football jerseys.	SMMA_LO_02516
		Ratios and Equations Targeted Lesson 13: Identifying Proportional Relationships	
AF.8.a	Interpret the unit rate of a proportional relationship, describing the constant of proportionality as the slope of the graph which goes through the origin and has the equation $y = mx$ where m is the slope.	Derive the equation y = mx for a line through the origin, and y = mx + b for a line intercepting the vertical axis at b.	SMMA_LO_02076
AF.9	Interpret $y = mx + b$ as defining a linear equation whose graph is a line with m as the slope and b as the y-intercept.	Derive the equation y = mx for a line through the origin, and y = mx + b for a line intercepting the vertical axis at b.	SMMA_LO_02076
AF.9.a	Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in a coordinate plane.	Use similar triangles to explain why the slope m is the same between any two distinct points on a nonvertical line in the coordinate plane.	SMMA_LO_02075
AF.9.b	Given two distinct points in a coordinate plane, find the slope of the line containing the two points and explain why it will be the same for any two distinct points on the line.	Use similar triangles to explain why the slope m is the same between any two distinct points on a nonvertical line in the coordinate plane.	SMMA_LO_02075
AF.9.c	Graph linear relationships, interpreting the slope as the rate of change of the graph and the y-intercept as the initial value.	Determine the slope and intercept of a linear equation in context.	SMMA_LO_02180
		Students use linear functions to solve a problem surrounding manufacturing stock decay.	SMMA_LO_02517
AF.9.d	Given that the slopes for two different sets of points are equal, demonstrate that the linear equations that include those two sets of points may have different y-intercepts.	Determine the slope and intercept of a linear equation in context.	SMMA_LO_02180
	Analyze and solve linear equations and systems of two linear equations.		

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AF.11	Solve multi-step linear equations in one variable, including rational number coefficients, and equations that require using the distributive property and combining like terms.	Identify a x (b - c) as equivalent to (a x b) - (a x c) with variables.	SMMA_LO_01533
		Identify -(a - b) as equivalent to -a + b with variables.	SMMA_LO_01529
		Multiplication and Division Targeted Lesson 33: Relating Division to Multiplication	
		Identify an equivalent expression for a x (b + c) with variables.	SMMA_LO_00129
		Ratios and Equations Targeted Lesson 23: Combining Like Terms	
		Evaluate -a(a + b), where 9 < a < 19, 1 < b < 9.	SMMA_LO_00127
		Identify -(-a - b) as equivalent to a + b with variables.	SMMA_LO_01530
		Multiplication and Division Targeted Lesson 31: Multiplying Multi-digit Numbers	
		Ratios and Equations Targeted Lesson 24: Equivalent Expressions	
		Multiplication and Division Targeted Lesson 30: Using the Distributive Property	
		Identify a x (b - c) as equivalent to (a x b) - (a x c).	SMMA_LO_00130
		Identify a x (b - c) as equivalent to (a x b) - (a x c).	SMMA_LO_01534
		Rewrite an expression from context by factoring and combining like terms.	SMMA_LO_02150
		Identify an equivalent variable expression (-(a + b) = -a + (-b)).	SMMA_LO_00124
AF.11.b	Represent and solve real-world and mathematical problems with equations and interpret each solution in the context of the problem.	Complete the steps to solve for x in ax + b = c.	SMMA_LO_00383
		Solve for a or b in a ÷ b = c (combinations 2 ÷ 10 to 5 ÷ 12).	SMMA_LO_00359
		Solve for x in ax = b (products from -(4 x 4) to -(9 x 9)).	SMMA_LO_00390

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		Solve a two-step equation (decimals).	SMMA_LO_01851
		Solve a one-step equation in context (subtraction, two-digit whole numbers).	SMMA_LO_01744
		Solve for a or b in a x b = x (products 2 x 20 to 12 x 90, multiples of 10).	SMMA_LO_00366
		Solve for a two-step equation in context.	SMMA_LO_01638
		Solve for a or b in a - b = c (minuends 20 to 99, no regrouping).	SMMA_LO_00343
		Solve for a or b in a - b = c (decimals to hundredths, regrouping).	SMMA_LO_00374
		Solve for a or b in a - b = c (decimals to tenths, regrouping).	SMMA_LO_00368
		Solve a one-step equation (multiplication and division, integers).	SMMA_LO_01800
		Solve a two-step multiplication and addition problem in context.	SMMA_LO_01633
		Complete the steps to solve for x in ax - b = c (x is from -9 to 2).	SMMA_LO_00393
		Solve for a, b, c, or d in a/b ÷ c/d = e/f.	SMMA_LO_00377
		Solve a two-step equation (fractions, multiplication).	SMMA_LO_01850
		Solve for a or b in a ÷ b = c (up to 4-digit decimals).	SMMA_LO_00378
		Solve for a or b in a ÷ b = c.	SMMA_LO_00352
		Solve for a, b, or c in a ÷ b/c = d/e (combinations to 12 ÷ 12).	SMMA_LO_00371
		Solve a one-step equation (integers, multiplication and division).	SMMA_LO_01845
		Solve for a in a + b = c or a - b = c in steps (whole number sums and differences 2 to 20).	SMMA_LO_00379
		Solve a two-step addition problem to find a person-s age in 5 to 20 years from now.	SMMA_LO_01631
		Solve for a or c in (a/b - c/b = d/b (minuends 2/3 to 11/12).	SMMA_LO_00360
		Solve for c in a - b = c (minuends 20 to 99, regrouping).	SMMA_LO_00342

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		Solve for a in a/b = c.	SMMA_LO_01798
		Solve for a or b in a x b = c (products from 0.2 x 0.6 to 0.9 x 0.9).	SMMA_LO_00369
		Solve for a or b in a + b = c (sums 10 to 18).	SMMA_LO_00332
		Solve for a or b in a + b = c (sums 0 to 9).	SMMA_LO_00330
		Solve for a or b in a + b = c (sums 101 to 199, no regrouping).	SMMA_LO_00345
		Solve for a or b in a x b = c (products 1 x 2 to 5 x 9).	SMMA_LO_00351
		Multiplication and Division Targeted Lesson 13: Multiplication and Division	
		Solve for a or b in a + b = c (sums 10 to 108).	SMMA_LO_00336
		Solve a one-step equation (multiplication, decimals).	SMMA_LO_01797
		Solve for a or c in a/b + c/b = d/b (sums 2/3 to 11/12).	SMMA_LO_00356
		Solve for a in ba/c = d by multiplying by the reciprocal.	SMMA_LO_01795
		Solve for a or b in a + b = c (sums 12 to 98).	SMMA_LO_00341
		Solve for a or b in a ÷ b = c (combinations 0.6 ÷ 0.6 to 0.9 ÷ 0.9).	SMMA_LO_00370
		Solve for a or b in a x b = c (products 6 x 2 to 9 x 12).	SMMA_LO_00357
		Solve a one-step equation (addition, sums to 100).	SMMA_LO_01686
		Solve a one-step equation (multiplication).	SMMA_LO_01690
		Solve for c in a - b = c (minuends 20 to 99, subtrahends 1 to 9, no regrouping).	SMMA_LO_00338
		Complete the steps to solve for x in ax + b = c (x is from -9 to -1).	SMMA_LO_00392
		Solve one-step equations (addition and subtraction, fractions).	SMMA_LO_01796
		Solve a one-step equation (two-digit integers, addition and subtraction).	SMMA_LO_01844
		Solve for a in a - b = c (differences from -19 to 11).	SMMA_LO_00389

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		Solve for x in ax + b = c.	SMMA_LO_00384
		Solve for a or b in a - b = c differences 0 to 9).	SMMA_LO_00331
		Complete the steps to solve for a in a ÷ b = c (combinations 4 x 4 to 9 x 10).	SMMA_LO_00381
		Solve for a or b in a x b = x (products 2 x 10 to 12 x 12).	SMMA_LO_00363
		Solve a one-step equation in context (division, two-digit whole numbers).	SMMA_LO_01745
		Solve for a or b in a - b = c (differences 0 to 18).	SMMA_LO_00333
		Solve for a or b in a x b = c (products from 0.02 x 0.13 to 0.09 x 0.19).	SMMA_LO_00376
		Solve for a or c in a/b - c/b = d/b (improper fractions, minuends 4/3 to 35/12).	SMMA_LO_00362
		Complete the steps to solve for x in a - x = b.	SMMA_LO_00396
		Solve for a, b, or c in a/b ÷ c = d/e (combinations to 12 ÷ 12).	SMMA_LO_00375
		Solve for x in ax = c in steps (products 4 x 4 to 9 x 10).	SMMA_LO_00380
		Solve for c in a - b = c (differences 1 to 9).	SMMA_LO_00324
		Solve a one-step equation in context (addition, two-digit whole numbers).	SMMA_LO_01743
		Solve for a or b in a - b = c (minuends 21 to 99, subtrahends 1 to 9, no regrouping).	SMMA_LO_00347
		Solve for a or b in a ÷ b = c (combinations 6 ÷ 10 to 9 ÷ 12).	SMMA_LO_00361
		Solve a one-step equation (fractions, addition and subtraction).	SMMA_LO_01848
		Solve for a in a/b = c (products from -(4 x 4) to -(9 x 9)).	SMMA_LO_00391
		Complete the steps to solve for x in ax - b = c (x is from -9 to 9).	SMMA_LO_00394
		Use a model to represents a word problem involving multiplicative comparison. Then, use an equation to represent the solution to the word problem.	SMMA_LO_02009

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		Solve for a in a + b = c (a is from -20 to -1).	SMMA_LO_00388
		Identify a number sentence that can be used to solve a word problem with extra information (addition or subtraction, basic facts).	SMMA_LO_01242
		Solve for x in -x = a (numbers from -99 to 99).	SMMA_LO_00395
		Solve for c in a - b = c (differences 1 to 9).	SMMA_LO_00329
		Solve a one-step equation (addition and subtraction, one-digit integers).	SMMA_LO_01801
		Solve for a in ba/c = d by multiplying by the reciprocal.	SMMA_LO_00382
		Solve a one-step equation with decimals in context (addition and subtraction).	SMMA_LO_01799
		Solve for a or b in a ÷ b = c .	SMMA_LO_00354
		Solve a one-step equation (fractions, multiplication and division).	SMMA_LO_01847
		Solve for a or b in a + b = c (decimals to tenths, no regrouping).	SMMA_LO_00367
		Solve for a, b, c, or d in a/b x c/d = e/f (combinations to 12 x 12).	SMMA_LO_00372
		Solve for a or c in a/b + c/b = d/b (improper fractions, sums 4/3 to 35/12).	SMMA_LO_00364
		Solve for a, b, or c in a + b + c = d (sums 10 to 19).	SMMA_LO_00335
		Generate and solve an equation with variables on both sides of the equal sign in a real-world context.	SMMA_LO_02145
		Solve a one-step equation (fractions, addition and subtraction).	SMMA_LO_01868
		Solve a one-step equation (decimal integers, multiplication and division).	SMMA_LO_01849
		Solve for a or b in a ÷ b = c (combinations 6 ÷ 20 to 9 ÷ 90, multiples of 10).	SMMA_LO_00365
		Solve a one-step equation (division).	SMMA_LO_01692

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		Solve for c in a - b = c (minuends 20 to 99, two-digit subtrahends, no regrouping).	SMMA_LO_00340
		Solve for a or b in a + b = c (decimals to hundredths).	SMMA_LO_00373
AF.12	Solve systems of two linear equations in two variables by graphing and substitution.	Model a real-world problem with a system of linear equations. Then solve it by locating the intersection point of the graphs of the two equations.	SMMA_LO_02134
		If a system of linear equations has 0 or infinitely many solutions, solve it by inspection. If it has 1 solution, solve it either algebraically or by graphing.	SMMA_LO_02133
		Identify the solution to a system of linear equations by locating the point of intersection on its graph.	SMMA_LO_02080
AF.12.a	Explain that the solution(s) of systems of two linear equations in two variables corresponds to points of intersection on their graphs because points of intersection satisfy both equations simultaneously.	Model a real-world problem with a system of linear equations. Then solve it by locating the intersection point of the graphs of the two equations.	SMMA_LO_02134
		Identify the solution to a system of linear equations by locating the point of intersection on its graph.	SMMA_LO_02080
AF.12.b	Interpret and justify the results of systems of two linear equations in two variables (one solution, no solution, or infinitely many solutions) when applied to real-world and mathematical problems.	Model a real-world problem with a system of linear equations. Then solve it by locating the intersection point of the graphs of the two equations.	SMMA_LO_02134
		If a system of linear equations has 0 or infinitely many solutions, solve it by inspection. If it has 1 solution, solve it either algebraically or by graphing.	SMMA_LO_02133
		Identify the solution to a system of linear equations by locating the point of intersection on its graph.	SMMA_LO_02080
	Explain, evaluate, and compare functions.		

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AF.13	Determine whether a relation is a function, defining a function as a rule that assigns to each input (independent value) exactly one output (dependent value), and given a graph, table, mapping, or set of ordered pairs.	Determine the output of one-function machine, given an input and sample inputs and outputs (combinations 2 x 2 to 9 x 9).	SMMA_LO_00358
		Given a set of graphs of relations, identify which graphs represent functions.	SMMA_LO_01835
		Generate a table of values given a two-step rule.	SMMA_LO_01756
		Complete a table given a two-step rule (whole numbers).	SMMA_LO_01751
		Identify the one-step rule in the relation or function (multiplication and division).	SMMA_LO_01723
		Complete an input/output table given a two-step rule; then plot the ordered pairs on coordinate grid.	SMMA_LO_01758
		Complete an input/output table given a one-step rule; then plot the ordered pairs on a coordinate grid.	SMMA_LO_01757
		Identify the one-step rule in the relation or function (addition and subtraction).	SMMA_LO_01722
		Identify the multiplication or division rule of the function.	SMMA_LO_01684
		Generate a table of values given a one-step rule.	SMMA_LO_01755
		Complete a table given a two-step rule (single-digit whole numbers).	SMMA_LO_01750
		Given a graph of a relation, identify two ordered pairs on the graph that show the relation is not a function.	SMMA_LO_01812
		Given a list of ordered pairs of a relation, identify two ordered pairs that show the relation is not a function.	SMMA_LO_01811
		Identify the addition or subtraction rule of the function.	SMMA_LO_01682
AF.14	Evaluate functions defined by a rule or an equation, given values for the independent variable.	Given a set of graphs of relations, identify which graphs represent functions.	SMMA_LO_01835

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AF.15	Compare properties of functions represented algebraically, graphically, numerically in tables, or by verbal descriptions.	Students write, graph, and compare two linear functions in order to find the best price for football jerseys.	SMMA_LO_02516
AF.15.a	Distinguish between linear and non-linear functions.	Determine if a table values represents a linear or nonlinear function.	SMMA_LO_01834
		Identify the function that is represented by a table of values (linear and nonlinear).	SMMA_LO_01883
		Identify if an equation is a linear or nonlinear function.	SMMA_LO_01833
		Identify whether graphs are linear or nonlinear.	SMMA_LO_01832
	Use functions to model relationships between quantities.		
AF.16	Construct a function to model a linear relationship between two variables.	Students use linear functions to solve a problem surrounding manufacturing stock decay.	SMMA_LO_02517
AF.16.a	Interpret the rate of change (slope) and initial value of the linear function from a description of a relationship or from two points in a table or graph.	Determine the slope and intercept of a linear equation in context.	SMMA_LO_02180
		Students use linear functions to solve a problem surrounding manufacturing stock decay.	SMMA_LO_02517
DSP	Data Analysis, Statistics, and Probability		
	Investigate patterns of association in bivariate data.		
DSP.20	Use a linear model of a real-world situation to solve problems and make predictions.	Choose an approximation based on a trend line for bivariate data.	SMMA_LO_02143
		Make predictions based on a sample.	SMMA_LO_01223
		Predict the effect of changing temperatures on the weather.	SMMA_LO_01312
DSP.20.a	Describe the rate of change and y-intercept in the context of a problem using a linear model of a real-world situation.	Determine the slope and intercept of a linear equation in context.	SMMA_LO_02180
		Students use linear functions to solve a problem surrounding manufacturing stock decay.	SMMA_LO_02517

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		Identify the rate of change and the y-intercept of two linear functions, one represented in a table, and one represented either algebraically or in a verbal description.	SMMA_LO_02103
		Identify the rate of change and the y-intercept of two linear functions, one represented in a verbal description, and one represented either graphically or algebraically.	SMMA_LO_02102
		Identify the rate of change and the y-intercept of two linear functions, one represented graphically, and one represented either algebraically or in a table.	SMMA_LO_02101
DSP.21	Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects, using relative frequencies calculated for rows or columns to describe possible associations between the two variables.	Determine the relative frequency of events using a two-way frequency table.	SMMA_LO_02206
GM	Geometry and Measurement		
	Understand congruence and similarity using physical models or technology.		
GM.22	Verify experimentally the properties of rigid motions (rotations, reflections, and translations): lines are taken to lines, and line segments are taken to line segments of the same length; angles are taken to angles of the same measure; and parallel lines are taken to parallel lines.	Reflect a figure on a coordinate plane over the x-axis, the y-axis, or the line y = x; verify properties of the rotation.	SMMA_LO_02122
		Translate a figure on a coordinate plane; verify properties of the rotation.	SMMA_LO_02123
		Rotate a figure on a coordinate plane; verify properties of the rotation.	SMMA_LO_02121

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GM.23	Use coordinates to describe the effect of transformations (dilations, translations, rotations, and reflections) on two-dimensional figures.	Determine the missing coordinate of a vertex of a triangle in a transformation.	SMMA_LO_01736
	Analyze parallel lines cut by a transversal.	In a figure in which parallel lines are cut by a transversal, identify the transformations that would line one angle up with another angle. Then, describe the relationship between the two angles.	SMMA_LO_02129
GM.25	Analyze and apply properties of parallel lines cut by a transversal to determine missing angle measures.	In a figure in which parallel lines are cut by a transversal, identify the transformations that would line one angle up with another angle. Then, describe the relationship between the two angles.	SMMA_LO_02129
GM.25.a	Use informal arguments to establish that the sum of the interior angles of a triangle is 180 degrees.	Arrange statements to write a proof of a fact about either the angle sum or the exterior angle of a triangle.	SMMA_LO_02126
		Use a protractor to measure an angle in a triangle or quadrilateral; then find the sum of all the angles in the figure.	SMMA_LO_00650
	Understand and apply the Pythagorean Theorem.	Given two points on a coordinate grid, draw a right triangle whose hypotenuse connects the two points. Then use the Pythagorean Theorem to find the distance between the two points.	SMMA_LO_02100
		Explain a proof of the Pythagorean Theorem.	SMMA_LO_02131
		Find the measurement of the hypotenuse using the Pythagorean theorem. (2D)	SMMA_LO_01854
GM.26	Informally justify the Pythagorean Theorem and its converse.	Explain a proof of the converse of the Pythagorean Theorem.	SMMA_LO_02132
		Explain a proof of the Pythagorean Theorem.	SMMA_LO_02131
GM.27	Apply the Pythagorean Theorem to find the distance between two points in a coordinate plane.	Given two points on a coordinate grid, draw a right triangle whose hypotenuse connects the two points. Then use the Pythagorean Theorem to find the distance between the two points.	SMMA_LO_02100

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	Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.	Use a formula to find the volume of a cone or a sphere.	SMMA_LO_00844
		Use a formula to find the volume of a cylinder.	SMMA_LO_00839
GM.29	Informally derive the formulas for the volume of cones and spheres by experimentally comparing the volumes of cones and spheres with the same radius and height to a cylinder with the same dimensions.	Use a formula to find the volume of a cone or a sphere.	SMMA_LO_00844
GM.30	Use formulas to calculate the volumes of three-dimensional figures (cylinders, cones, and spheres) to solve real-world problems.	Use a formula to find the volume of a cone or a sphere.	SMMA_LO_00844
		Use a formula to find the volume of a cylinder.	SMMA_LO_00839