

Alabama Mathematics Standards

Rising 1st



Counting and Cardinality

- MA19.K3: Represent 0 to 20 using concrete objects when given a written numeral from 0 to 20 (with 0 representing a count of no objects).
- MA19.K5a: Count using no more than 20 concrete objects arranged in a line, a rectangular array, or a circle.
- MA19.K5b: Count using no more than 10 concrete objects in a scattered configuration.

Operations and Algebraic Thinking

- MA.19.K.8: Represent addition and subtraction up to 10 with concrete objects, fingers, pennies, mental images, drawings, claps or other sounds, acting out situations, verbal explanations, expressions, or equations.
- MA.19.K.9: Solve addition and subtraction word problems, and add and subtract within 10, by using concrete objects or drawings to represent the problem.

Operations with Numbers: Base Ten

- MA19.K.14: Compose and decompose numbers from 11 to 19 by using concrete objects or drawings to demonstrate understanding that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.

Alabama Mathematics Standards

Rising 2nd



Operations and Algebraic Thinking

- MA19.1.1: Use addition and subtraction to solve word problems within 20 by using concrete objects, drawings, and equations with a symbol for the unknown number to represent the problem.
- MA19.1.6: Add and subtract within 20.
 - a. Demonstrate fluency with addition and subtraction facts with sums or differences to 10 by counting on.
 - b. Demonstrate fluency with addition and subtraction facts with sums or differences to 10 by making ten.
 - c. Demonstrate fluency with addition and subtraction facts with sums or differences to 10 by decomposing a number leading to a ten.

Example: $13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$
 - d. Demonstrate fluency with addition and subtraction facts with sums or differences to 10 by using the relationship between addition and subtraction.

Example: Knowing that $8 + 4 = 12$, one knows $12 - 8 = 4$.
 - e. Demonstrate fluency with addition and subtraction facts with sums or differences to 10 by creating equivalent but easier or known sums.

Example: adding $6 + 7$ by creating the known equivalent $6 + 6 + 1 = 12 + 1 = 13$

Operations with Numbers: Base Ten

- MA19.1.13: Add within 100, using concrete models or drawings and strategies based on place value.
- MA19.1.15: Subtract multiples of 10 from multiples of 10 in the range 10-90 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. Relate the strategy to a written method and explain the reasoning used.



Alabama Mathematics Standards

Rising 3rd



Operations and Algebraic Thinking

- MA19.2.1: Use addition and subtraction within 100 to solve one- and two-step word problems by using drawings and equations with a symbol for the unknown number to represent the problem.

Operations with Numbers: Base Ten

- MA19.2.10: Fluently add and subtract within 100, using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.
- MA19.2.12: Add and subtract within 1000 using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method.
 - a. Explain that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.
- MA19.2.14: Explain why addition and subtraction strategies work, using place value and the properties of operations.

Alabama Mathematics Standards

Rising 4th



Operations and Algebraic Thinking

- MA19.3.3: Solve word situations using multiplication and division within 100 involving equal groups, arrays, and measurement quantities; represent the situation using models, drawings, and equations with a symbol for the unknown number.
- MA19.3.7: Use strategies based on properties and patterns of multiplication to demonstrate fluency with multiplication and division within 100.
- MA19.3.8: Determine and justify solutions for two-step word problems using the four operations and write an equation with a letter standing for the unknown quantity. Determine reasonableness of answers using number sense, context, mental computation, and estimation strategies including rounding.

Operations with Numbers: Base Ten

- MA19.3.11: Use various strategies to add and subtract fluently within 1000.

Alabama Mathematics Standards

Rising 5th



Operations and Algebraic Thinking

- MA19.4.3: Determine and justify solutions for multi-step word problems, including problems where remainders must be interpreted.
 - a. Write equations to show solutions for multi-step word problems with a letter standing for the unknown quantity.
 - b. Determine reasonableness of answers for multi-step word problems, using mental computation and estimation strategies including rounding.

Operations with Numbers: Base Ten

- MA19.4.10: Use place value strategies to fluently add and subtract multi-digit whole numbers and connect strategies to the standard algorithm.
- MA19.4.11: Find the product of two factors (up to four digits by a one-digit number and two two-digit numbers), using strategies based on place value and the properties of operations.
- MA19.4.12: Use strategies based on place value, properties of operations, and/or the relationship between multiplication and division to find whole-number quotients and remainders with one-digit divisors and up to four-digit dividends.

Alabama Mathematics Standards

Rising 6th



Operations with Numbers: Base Ten

- MA19.5.8: Add, subtract, multiply, and divide decimals to hundredths using strategies based on place value, properties of operations, and/or the relationships between addition/subtraction and multiplication/division; relate the strategy to a written method, and explain the reasoning used.

Operations with Numbers: Fractions

- MA19.5.11 Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers.
 - a. Model and interpret a fraction as division of the numerator by the denominator ($a/b = a \div b$).
 - b. Use visual fraction models, drawings, or equations to represent word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers.
- MA19.5.14: Model and solve real-world problems involving multiplication of fractions and mixed numbers using visual fraction models, drawings, or equations to represent the problem.
- MA19.5.15: Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.

Alabama Mathematics Standards

Rising 7th



Proportional Reasoning

- MA19.6.1: Use appropriate notations $[a/b, a \text{ to } b, a:b]$ to represent a proportional relationship between quantities and use ratio language to describe the relationship between quantities.
- MA19.6.3: Use ratio and rate reasoning to solve mathematical and real-world problems (including but not limited to percent, measurement conversion, and equivalent ratios) using a variety of models, including tables of equivalent ratios, tape diagrams, double number lines, and equations.

Number Systems and Operations

- MA19.6.4: Interpret and compute quotients of fractions using visual models and equations to represent problems.
 - a. Use quotients of fractions to analyze and solve problems.

Alabama Mathematics Standards

Rising 8th



Proportional Reasoning

- MA19.7.2: Represent a relationship between two quantities and determine whether the two quantities are related proportionally.
- MA19.7.3: Solve multi-step percent problems in context using proportional reasoning, including simple interest, tax, gratuities, commissions, fees, markups and markdowns, percent increase, and percent decrease.

Number Systems and Operations

- MA19.7.4: Apply and extend knowledge of operations of whole numbers, fractions, and decimals to add, subtract, multiply, and divide rational numbers including integers, signed fractions, and decimals.

Algebra and Functions

- MA.7.8: Solve multi-step real-world and mathematical problems involving rational numbers (integers, signed fractions and decimals), converting between forms as needed. Assess the reasonableness of answers using mental computation and estimation strategies.

Alabama Mathematics Standards

Rising 9th



Algebra and Functions

- MA19.8.6: Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used.
- MA19.8.8: Graph proportional relationships.
 - 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.
- MA19.8.12: Solve systems of two linear equations in two variables by graphing and substitution.
- MA19.8.16: Construct a function to model a linear relationship between two variables. 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.