

Arkansas Mathematics Standards

# Grade 6

Adopted 2023

## Grade 6

### Number Concepts & Computations

#### Rational Numbers

- A. Use fractions, decimals, integers, and absolute values to represent real-world situations. **6.NCC.A**
1. Explain positive and negative integers as being opposite values or directions and the meaning of 0 in a real-world context. **6.NCC.1**
  2. Find and plot rational numbers on horizontal and vertical number lines in real-world and mathematical problems. **6.NCC.2**
  3. Compare rational numbers, using inequalities ( $<$ ,  $>$ ,  $\leq$ ,  $\geq$ ,  $\neq$ ) and order on a number line. **6.NCC.3**
  4. Interpret the absolute value of numbers for positive or negative quantities in a real-world context. **6.NCC.4**
  5. Convert between fractions, decimals, and percents in real-world and mathematical problems. **6.NCC.5**

#### Rational Number Operations

- B. Extend previous knowledge of operations to decimals and fractions, involving positive rational numbers. **6.NCC.B**
6. Interpret and represent quotients of fractions.
    - Fractions include all forms of fractions.**6.NCC.6**
  7. Solve problems involving the division of fractions in real-world and mathematical problems.
    - Fractions include all forms of fractions.**6.NCC.7**
  8. Divide multi-digit numbers fluently in real-world and mathematical problems. **6.NCC.8**
  9. Use any standard algorithm to fluently add and subtract multi-digit decimals and fractions in real-world and mathematical problems. **6.NCC.9**
  10. Use any standard algorithm to fluently multiply and divide multi-digit decimals and fractions in real-world and mathematical problems. **6.NCC.10**

#### Common Factors and Multiples

- C. Use factors and multiples to solve problems. **6.NCC.C**
11. Solve real-world and mathematical problems with the greatest common factor of two whole numbers less than or equal to 100. **6.NCC.11**
  12. Solve real-world and mathematical problems with the least common multiple of two whole numbers less than or equal to 12. **6.NCC.12**
  13. Use the distributive property and the greatest common factor to rewrite the sum of two whole numbers, 1 through 100. **6.NCC.13**

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## Proportional Relationships

### Ratio & Rates

- A. Understand ratio concepts and use proportional reasoning to solve problems. **6.PR.A**
1. Use precise ratio language and notation to describe a ratio as a relationship between two quantities. **6.PR.1**
  2. Calculate unit rates to include unit pricing and constant speed. **6.PR.2**
  3. Give examples of unit rates as a ratio that compares two quantities with different units of measure, limited to non-complex fractions. **6.PR.3**
  4. Create various representations to compare ratios and find missing values to solve real-world and mathematical problems. **6.PR.4**
  5. Find a percent of a quantity as a rate per 100 and solve problems involving finding the whole when given a part and the percent. **6.PR.5**
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## Algebra

### Expressions

- B. Extend their understanding of arithmetic to algebraic expressions. **6.ALG.B**
1. Read and write expressions in real-world or mathematical problems in which letters stand for numbers. **6.ALG.1**
  2. Use mathematical terms to identify parts of an expression, including the names of operations, terms, factors, coefficients, variables, and constants. **6.ALG.2**
  3. Write and evaluate expressions for given values of variables, using order of operations, including expressions with whole number exponents. **6.ALG.3**
  4. Generate equivalent expressions by applying the associative, commutative, distributive, and identity properties. **6.ALG.4**
  5. Identify when two expressions are equivalent by using properties of operations including like terms. **6.ALG.5**

### Equations & Inequalities

- C. Focus on reasoning about and solving equations and inequalities. **6.ALG.C**
6. Use substitution to determine if a given value in a specified set makes an equation or inequality true. Include the following inequality symbols:  $<, >, \leq, \geq, \neq$  **6.ALG.6**
  7. Write and solve one-step equations in real-world and mathematical problems, involving positive rational numbers and zero. **6.ALG.7**
  8. Write, solve, and graph one-step inequalities in real-world and mathematical problems. **6.ALG.8**

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## Geometry & Measurement

### Area, Volume, & Surface Area

- A. Solve problems involving area, volume, and surface area. **6.GM.A**
1. Find the area of triangles, quadrilaterals, and polygons by composing or decomposing to solve real-world and mathematical problems. **6.GM.1**
  2. Apply the formulas  $V = lwh$  and  $V = Bh$  to find the volume of right rectangular prisms with fractional edge lengths to solve real-world and mathematical problems, including solving for an unknown dimension. **6.GM.2**
  3. Construct nets of a rectangular prism, rectangular pyramid, triangular prism, and triangular pyramid, using the nets to find the surface area of these prisms. **6.GM.3**

### Coordinate Plane System

- B. Graph points in all four quadrants. **6.GM.B**
4. Find and graph pairs of rational numbers in all four quadrants of the coordinate plane in real-world and mathematical problems. **6.GM.4**
  5. Draw polygons in the coordinate plane when given coordinates for the vertices. **6.GM.5**
  6. Use coordinates to calculate vertical and horizontal distances between points with the same x-coordinate or the same y-coordinate to solve real-world and mathematical problems. **6.GM.6**

### Conversions

- C. Apply measurement knowledge to solve real-world problems. **6.GM.C**
7. Convert measurements within and between the metric and customary measurement systems to solve real-world and mathematical problems. **6.GM.7**

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## Statistics & Probability

### Statistical & Nonstatistical

- A. Recognize that data collected to answer a statistical question can be analyzed by their distributions. **6.SP.A**
  1. Identify the difference between statistical and non-statistical questions and write simple statistical questions that allow variable responses. **6.SP.1**

### Measures of Center

- B. Explore mean, median, and mode. **6.SP.B**
  2. Calculate and interpret any measure of center (mean, median, and mode) of a numerical data set. **6.SP.2**
  3. Determine which measure of center (mean or median) is more appropriate to describe the center of data and justify the choice. **6.SP.3**
  4. Describe how the mean or median is affected by outliers of a numerical data set. **6.SP.4**

### Measures of Variation

- C. Explore range and interquartile range. **6.SP.C**
  5. Calculate and interpret the measure of variation [range and interquartile range (IQR)] of a numerical data set. **6.SP.5**
  6. Determine which measure of variation (range or interquartile range) is more appropriate to describe the shape; justify the choice. **6.SP.6**

### Numerical Data

- D. Summarize and describe distributions. **6.SP.D**
  7. Represent numerical data on a number line, histogram, and box plot. **6.SP.7**
  8. Calculate the relative frequency of an interval of data values when given a histogram. **6.SP.8**
  9. Interpret a box plot to answer statistical questions about a data set. **6.SP.9**