

Mathematics | Grade 4

In Grade 4, students use their understanding of place value to: (1) multiply multi-digit whole numbers and divide multi-digit whole numbers to find whole number quotients and remainders; (2) use the relationship between multiplication and division to solve word problems involving unknowns in all positions; and (3) use the relationship between multiplication and division to solve word problems involving unknowns in all positions.

(1) Students use their understanding of place value to multiply multi-digit whole numbers and divide multi-digit whole numbers to find whole number quotients and remainders. For example, students may use the standard algorithm to multiply 15×16 or divide $156 \div 12$. Students also use their understanding of place value to solve word problems involving unknowns in all positions. For example, students may solve a word problem involving multiplication: "A box of 12 pencils costs \$1.50. How much do 15 boxes cost?" or a word problem involving division: "A box of 15 pencils costs \$1.50. How much does one pencil cost?"

(2) Students use the relationship between multiplication and division to solve word problems involving unknowns in all positions. For example, students may solve a word problem involving multiplication: "A box of 12 pencils costs \$1.50. How much do 15 boxes cost?" or a word problem involving division: "A box of 15 pencils costs \$1.50. How much does one pencil cost?"

(3) Students use the relationship between multiplication and division to solve word problems involving unknowns in all positions. For example, students may solve a word problem involving multiplication: "A box of 12 pencils costs \$1.50. How much do 15 boxes cost?" or a word problem involving division: "A box of 15 pencils costs \$1.50. How much does one pencil cost?"

Grade 4 Overview

Operations and Algebraic Thinking

- Use the four operations with whole numbers to solve problems.
- Gain familiarity with factors and multiples.
- Generate and analyze patterns.

Number and Operations in Base Ten

- Generalize place value understanding for multi-digit whole numbers.
- Use place value understanding and properties of operations to perform multi-digit arithmetic.

Number and Operations—Fractions

- Extend understanding of fraction equivalence and ordering.
- Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.
- Understand decimal notation for fractions, and compare decimal fractions.

Measurement and Data

- Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.
- Represent and interpret data.
- Geometric measurement: understand concepts of angle and measure angles.

Geometry

- Draw and identify lines and angles, and classify shapes by properties of their lines and angles.

Mathematical Practices

1. Make a problem involving addition and subtraction.
2. Read a problem carefully and understand what is being asked.
3. Choose a strategy to solve a problem.
4. Monitor and explain your thinking.
5. Use a variety of representations to solve a problem.
6. Analyze a problem to determine what is being asked.
7. Look for patterns in a problem.
8. Look for a way to check your answer.

6. Find the product of $\frac{2}{3}$ and $\frac{4}{5}$.
 Multiply the numerators: $2 \times 4 = 8$.
 Multiply the denominators: $3 \times 5 = 15$.
 The product is $\frac{8}{15}$.

Number and Operations—Fractions³ 4.NF

Extend understanding of fraction equivalence and ordering.

- Equivalent fractions: $\frac{a}{b} = \frac{na}{nb}$.
 For example, $\frac{1}{2} = \frac{2}{4}$, $\frac{1}{3} = \frac{2}{6}$, $\frac{2}{3} = \frac{4}{6}$.
 Use this to compare fractions: $\frac{1}{2} < \frac{1}{3}$.
- Compare fractions: $\frac{a}{b}$ and $\frac{c}{d}$.
 For example, $\frac{1}{2} > \frac{1}{3}$, $\frac{2}{3} > \frac{1}{2}$.
 Record the results: $\frac{1}{2} > \frac{1}{3}$, $\frac{2}{3} > \frac{1}{2}$.

Build fractions from unit fractions by applying and extending

Understanding that $\frac{a}{b}$ means a $\frac{1}{b}$'s, represent $\frac{a}{b}$ on a number line from 0 to 1. For example, use a number line to show $\frac{1}{3} + \frac{2}{3} = 1$.

Understand decimal notation for fractions, and compare decimal fractions.

5. E 



6. Measure angles in degrees using a protractor. Sketch angles of a given degree measure. Classify angles by degree measure. Recognize right angles as one-half of a straight angle. Recognize acute angles and obtuse angles. Classify two-dimensional figures by the number of sides and by the number of equal sides and angles. Classify two-dimensional figures by the number of parallel sides.

