# Word Problems: Dividing with Unit Fractions

Grade 5 Math • Section 6.3

| Name: _____ | Date: _____ | Score: _____ / 10 |
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## Quick Review and Helpful Hints

**Two types:** (1) **Unit fraction ÷ whole number:** $\frac{1}{b} \div c = \frac{1}{bc}$ (sharing a piece equally).
(2) **Whole number ÷ unit fraction:** $c \div \frac{1}{b} = cb$ (how many pieces fit).
Read carefully to determine which type applies. "Split $\frac{1}{4}$ among $3$" → type 1. "How many $\frac{1}{4}$'s in $3$?" → type 2.

**Example:** A carpenter has $\frac{1}{2}$ yard of wood. He cuts it into $4$ equal pieces. How long is each piece?
This is type 1: unit fraction ÷ whole number. $\frac{1}{2} \div 4 = \frac{1}{8}$ yard per piece.

**Answer:** $\frac{1}{8}$ yard

## Practice Problems

*Solve each word problem. Show your work.*

1. A recipe uses $\frac{1}{3}$ cup of oil. You want to split this equally into $5$ batches. How much oil per batch?

2. A roll of ribbon is $8$ meters long. Each bow uses $\frac{1}{4}$ meter. How many bows can be made?

3. A $\frac{1}{6}$-acre garden plot is divided equally among $3$ families. How much land does each family get?

4. A marathon runner drinks $4$ liters of water during a race. Each sip is $\frac{1}{8}$ liter. How many sips does the runner take?

5. Jake has $\frac{1}{2}$ of a pizza. He shares it with $5$ friends equally. What fraction of the whole pizza does each friend get?

6. A farmer has $10$ acres of land. Each row of corn takes $\frac{1}{5}$ acre. How many rows can the farmer plant?

7. A $\frac{1}{4}$-pound bag of seeds is split into $8$ packets. How much does each packet weigh?

8. A wire is $6$ meters long. It is cut into pieces that are each $\frac{1}{3}$ meter long. How many pieces are there?

## Word Problems

9. A tank holds $\frac{1}{5}$ of a gallon. It is poured equally into $4$ cups. How much is in each cup? If you had $3$ full tanks, how many cups could you fill?

10. A school cafeteria has $9$ gallons of milk. Each serving glass holds $\frac{1}{6}$ gallon. How many glasses can be filled? If $48$ students each take one glass, how many gallons of milk are left?

# Answer Keys

1. $\frac{1}{15}$ cup
2. $32$
3. $\frac{1}{18}$ acre
4. $32$
5. $\frac{1}{10}$
6. $50$
7. $\frac{1}{32}$ lb
8. $18$
9. $\frac{1}{20}$ gal; $12$ cups
10. $54$ glasses; $1$ gal left

## Step-by-Step Explanations

**1.** Start with the main idea. For dividing with unit fractions, $\frac{1}{3} \div 5 = \frac{1}{15}$. Fractions are easier to combine when the pieces are the same size.

**2.** Keep the work tidy. For dividing with unit fractions, $8 \div \frac{1}{4} = 8 \times 4 = 32$ bows. Always simplify at the end so the answer is clean and useful.

**3.** Look at what the numbers mean. For dividing with unit fractions, $\frac{1}{6} \div 3 = \frac{1}{18}$. For mixed numbers, converting to improper fractions can make the arithmetic calmer.

**4.** Use the setup first. For dividing with unit fractions, $4 \div \frac{1}{8} = 4 \times 8 = 32$ sips. Fractions are easier to combine when the pieces are the same size.

**5.** Check the size of the answer. For dividing with unit fractions, $\frac{1}{2} \div 5 = \frac{1}{10}$ of the pizza. Always simplify at the end so the answer is clean and useful.

**6.** Match the operation to the words. For dividing with unit fractions, $10 \div \frac{1}{5} = 10 \times 5 = 50$ rows. For mixed numbers, converting to improper fractions can make the arithmetic calmer.

**7.** Write the important values first. For dividing with unit fractions, $\frac{1}{4} \div 8 = \frac{1}{32}$. Fractions are easier to combine when the pieces are the same size.

**8.** Follow the pattern carefully. For dividing with unit fractions, $6 \div \frac{1}{3} = 18$ pieces. Always simplify at the end so the answer is clean and useful.

**9.** Start with the main idea. For dividing with unit fractions, $\frac{1}{5} \div 4 = \frac{1}{20}$. Three tanks hold $\frac{3}{5}$ gallon; $\frac{3}{5} \div \frac{1}{20} = 12$ cups. For mixed numbers, converting to improper fractions can make the arithmetic calmer.

**10.** Keep the work tidy. For dividing with unit fractions, $9 \div \frac{1}{6} = 54$ glasses. After $48$ glasses, $6$ glasses remain, which is $6 \times \frac{1}{6} = 1$ gallon. Fractions are easier to combine when the pieces are the same size.

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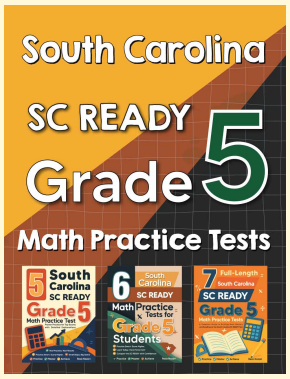


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