Word Problems: Multiplying Fractions

Grade 5 Math • Section 5.6

Name: _____	Date: _____	Score: _____ / 10

Quick Review and Helpful Hints

Clue words for multiplication: "of," "each," "per," "part of a group." "$\frac{1}{3}$ of 12" means $\frac{1}{3} \times 12$.

Draw a picture or model if the problem involves finding a fraction **of** a fraction.

Always simplify your final answer and make sure it is reasonable.

Example: A painter can finish $\frac{3}{5}$ of a wall per hour. How much of the wall can he paint in $\frac{1}{2}$ hour?

"$\frac{1}{2}$ of $\frac{3}{5}$" $= \frac{1}{2} \times \frac{3}{5} = \frac{3}{10}$ of the wall.

Answer: $\frac{3}{10}$ of the wall

Practice Problems

Solve each word problem. Show your work.

1. A park covers $\frac{3}{4}$ of a square mile. A pond covers $\frac{2}{5}$ of the park. What fraction of a square mile is the pond?

2. A roll of fabric is 12 yards long. A tailor uses $\frac{5}{8}$ of the roll. How many yards did the tailor use?

3. Maria reads $\frac{2}{3}$ of a book on Monday. On Tuesday she reads $\frac{1}{4}$ of what is left. What fraction of the whole book did she read on Tuesday?

4. A brownie recipe uses $1\frac{1}{2}$ cups of sugar. Jen wants to make $\frac{2}{3}$ of the recipe. How much sugar does she need?

5. A field is $4\frac{1}{3}$ acres. A farmer plants corn on $\frac{3}{4}$ of the field. How many acres of corn are planted?

6. There are 30 students in a class. $\frac{2}{5}$ are on the soccer team. Of those, $\frac{1}{4}$ are goalkeepers. How many goalkeepers are there?

7. A rectangular garden is $\frac{3}{4}$ yard wide and $\frac{5}{6}$ yard long. What is the area in square yards?

8. A car travels 55 miles per hour. How far does it go in $\frac{3}{4}$ of an hour?

Word Problems

9. A pool is $\frac{4}{5}$ full. After a hot day, $\frac{1}{3}$ of the water evaporates. What fraction of the pool's capacity remains?

10. A school has 240 students. $\frac{3}{8}$ of them play a sport. Of those, $\frac{2}{3}$ play soccer. How many students play soccer?

Answer Keys

1. $\frac{3}{10}$
2. $7\frac{1}{2}$ yd
3. $\frac{1}{12}$
4. 1 cup
5. $3\frac{1}{4}$ acres
6. 3
7. $\frac{5}{8}$ yd^2
8. $41\frac{1}{4}$ mi
9. $\frac{8}{15}$
10. 60

Step-by-Step Explanations

1. Start with the main idea. For multiplying fractions, the pond is $\frac{2}{5}$ of $\frac{3}{4}$: $\frac{3}{4} \times \frac{2}{5} = \frac{3}{10}$. Fractions are easier to combine when the pieces are the same size.

2. Keep the work tidy. For multiplying fractions, $\frac{5}{8} \times 12 = \frac{60}{8} = 7\frac{1}{2}$. Always simplify at the end so the answer is clean and useful.

3. Look at what the numbers mean. For multiplying fractions, after Monday, $\frac{1}{3}$ remains; Tuesday is $\frac{1}{4}$ of that, or $\frac{1}{12}$. For mixed numbers, converting to improper fractions can make the arithmetic calmer.

4. Use the setup first. For multiplying fractions, $\frac{2}{3}$ of $1\frac{1}{2}$ is $\frac{2}{3} \times \frac{3}{2} = 1$. Fractions are easier to combine when the pieces are the same size.

5. Check the size of the answer. For multiplying fractions, $4\frac{1}{3} \times \frac{3}{4} = \frac{13}{3} \times \frac{3}{4} = \frac{13}{4} = 3\frac{1}{4}$. Always simplify at the end so the answer is clean and useful.

6. Match the operation to the words. For multiplying fractions, $\frac{2}{5}$ of 30 is 12 soccer players; $\frac{1}{4}$ of 12 is 3. For mixed numbers, converting to improper fractions can make the arithmetic calmer.

7. Write the important values first. For multiplying fractions, area is $\frac{3}{4} \times \frac{5}{6} = \frac{15}{24} = \frac{5}{8}$. Fractions are easier to combine when the pieces are the same size.

8. Follow the pattern carefully. For multiplying fractions, $55 \times \frac{3}{4} = \frac{165}{4} = 41\frac{1}{4}$. Always simplify at the end so the answer is clean and useful.

9. Start with the main idea. For multiplying fractions, if $\frac{1}{3}$ of the water evaporates, $\frac{2}{3}$ remains; $\frac{4}{5} \times \frac{2}{3} = \frac{8}{15}$. For mixed numbers, converting to improper fractions can make the arithmetic calmer.

10. Keep the work tidy. For multiplying fractions, $\frac{3}{8}$ of 240 is 90 athletes; $\frac{2}{3}$ of 90 is 60 soccer players. Fractions are easier to combine when the pieces are the same size.

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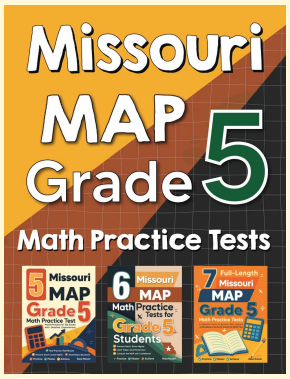

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