Multiplying Fractions by Whole Numbers

Multiplying Fractions by Whole Numbers: Models and Computation

Name _____ **Date** _____ **Score** _____ / 8

QUICK REVIEW

A whole-number factor counts equal groups. Three groups of $\frac{3}{4}$ give $3 \times \frac{3}{4} = \frac{9}{4} = 2\frac{1}{4}$. Multiply the numerator by the whole number; the part size stays fourths.

Worked example

Calculate $\frac{3}{7} \times 5$. Show the place-value or fraction calculation.

1. Multiply numerators: $3 \times 5 = 15$.
2. Multiply denominators: $7 \times 1 = 7$.
3. $\frac{3}{7} \times 5 = \frac{15}{7} = \frac{15}{7}$ after simplifying.
Answer: $\frac{15}{7}$.

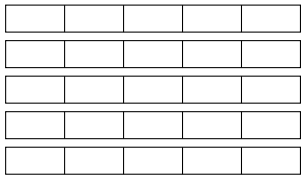
Practice Problems

Show your thinking.

1. Calculate $\frac{2}{3} \times 4$. Show the place-value or fraction calculation.

2. Model 5 groups of $\frac{3}{5}$. Shade one group on each strip, then find their total.

Each row is one whole



3. A full recipe uses $\frac{5}{8}$ kg of flour. A batch is 6 times that recipe. How much flour is needed?

4. Use an inverse operation to verify a proposed result of $\frac{21}{10}$ for $\frac{7}{10} \times 3$. Show both computations.

5. A student writes $\frac{3}{4} \times 8 = \frac{13}{2}$. Correct the result and check it.

6. Find the missing number: $\frac{4}{7} \times \square = 4$. Check by substitution.

7. Is $\frac{5}{6} \times 9$ greater than, less than, or equal to $\frac{31}{4}$? Find the exact gap.

8. Calculate $\frac{2}{5} \times 12$. Show the place-value or fraction calculation.

Answer Key

1. $\frac{8}{3}$.
2. $15/5 = 3$.
3. $\frac{15}{4}$ kg.
4. The result $\frac{21}{10}$ is correct.
5. 6, not $\frac{13}{2}$.
6. 7.
7. Less than by $\frac{1}{4}$.
8. $\frac{24}{5}$.

Step-by-Step Solutions

Follow each calculation, then check your own work.

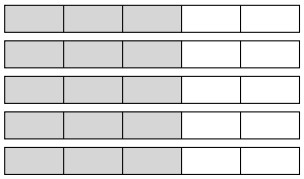
Problem 1

1. Multiply numerators: $2 \times 4 = 8$.
2. Multiply denominators: $3 \times 1 = 3$.
3. $\frac{2}{3} \times 4 = \frac{8}{3} = \frac{8}{3}$ after simplifying.

Problem 2

1. Each row is divided into 5 equal parts. Shade 3 parts in each row.

Each row is one whole



2. There are $5 \times 3 = 15$ shaded parts.
3. Regroup these 5 at a time: $15 \div 5 = 3$ wholes.

Problem 3

1. The quantities call for $\frac{5}{8} \times 6$; the result is measured in kg.
2. Multiply numerators: $5 \times 6 = 30$.
3. Multiply denominators: $8 \times 1 = 8$.
4. $\frac{5}{8} \times 6 = \frac{30}{8} = \frac{15}{4}$ after simplifying.

Problem 4

1. Multiply numerators: $7 \times 3 = 21$.
2. Multiply denominators: $10 \times 1 = 10$.
3. $\frac{7}{10} \times 3 = \frac{21}{10} = \frac{21}{10}$ after simplifying.
4. Inverse check: $\frac{21}{10} \div 3 = \frac{7}{10}$.

Problem 5

1. Multiply numerators: $3 \times 8 = 24$.
2. Multiply denominators: $4 \times 1 = 4$.
3. $\frac{3}{4} \times 8 = \frac{24}{4} = 6$ after simplifying.
4. The claimed value differs by $\frac{1}{2}$, so it fails the exact calculation.

Problem 6

1. Write 4 wholes in sevenths: $4 \times 7 = 28$ sevenths.
2. Each group contains 4 sevenths, so $28 \div 4 = 7$ groups.
3. Check: $7 \times \frac{4}{7} = \frac{28}{7} = 4$.

Problem 7

1. Multiply numerators: $5 \times 9 = 45$.
2. Multiply denominators: $6 \times 1 = 6$.
3. $\frac{5}{6} \times 9 = \frac{45}{6} = \frac{15}{2}$ after simplifying.
4. $\frac{31}{4} - \frac{15}{2} = \frac{1}{4}$, so the expression is smaller.

Problem 8

1. Multiply numerators: $2 \times 12 = 24$.
2. Multiply denominators: $5 \times 1 = 5$.
3. $\frac{2}{5} \times 12 = \frac{24}{5} = \frac{24}{5}$ after simplifying.

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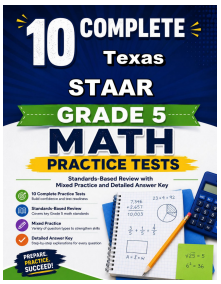

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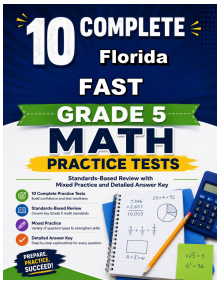

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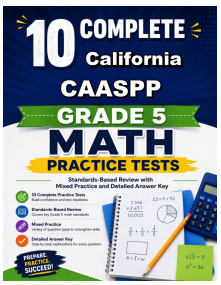

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