Multiplying Fractions by Whole Numbers

Multiplying Fractions by Whole Numbers: Find, Fix, and Work Backward

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. A student writes $\frac{3}{5} \times 4 = \frac{29}{10}$. Correct the result and check it.

2. Find the missing number: $\square \times 5 = \frac{20}{7}$. Check by substitution.

3. Find the missing number: $\frac{3}{5} \times \square = \frac{18}{5}$. Check by substitution.

4. A recorded result for $\frac{2}{3} \times 3$ is $\frac{13}{6}$. By exactly how much, and in which direction, must that record change? Give the repaired equation.

5. Complete the two-output table for the rule: input $\times 8$. Inputs are $\frac{2}{3}$ and $\frac{4}{3}$. Compare the outputs.

Input	Output
$\frac{2}{3}$	
$\frac{4}{3}$	

6. Is $\frac{5}{9} \times 7$ greater than, less than, or equal to $\frac{149}{36}$? Find the exact gap.

7. Find the missing number: $\frac{3}{4} \times \square = \frac{27}{4}$. Check by substitution.

8. Find the missing number: $\square \times 12 = \frac{36}{7}$. Check by substitution.

Answer Key

1. $\frac{12}{5}$, not $\frac{29}{10}$.
2. $\frac{4}{7}$.
3. 6.
4. Decrease by $\frac{1}{6}$; $\frac{2}{3} \times 3 = 2$.
5. Outputs $\frac{16}{3}$ and $\frac{32}{3}$; second minus first is $\frac{16}{3}$.
6. Less than by $\frac{1}{4}$.
7. 9.
8. $\frac{3}{7}$.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. Multiply numerators: $3 \times 4 = 12$.
2. Multiply denominators: $5 \times 1 = 5$.
3. $\frac{3}{5} \times 4 = \frac{12}{5} = \frac{12}{5}$ after simplifying.
4. The claimed value differs by $\frac{1}{2}$, so it fails the exact calculation.

Problem 2

1. The product is $\frac{20}{7} = \frac{20}{7}$, or 20 pieces of size $1/7$.
2. Share these equally among 5 groups: $20 \div 5 = 4$ pieces per group.
3. The missing factor is $\frac{4}{7}$. Check $\frac{4}{7} \times 5 = \frac{20}{7}$.

Problem 3

1. The total $\frac{18}{5} = \frac{18}{5}$ contains 18 pieces of size $1/5$.
2. Each group uses 3 pieces, so $18 \div 3 = 6$ groups.
3. Check the completed product: $\frac{3}{5} \times 6 = \frac{18}{5}$.

Problem 4

1. Multiply numerators: $2 \times 3 = 6$.
2. Multiply denominators: $3 \times 1 = 3$.
3. $\frac{2}{3} \times 3 = \frac{6}{3} = 2$ after simplifying.
4. The correction is $\frac{13}{6} - 2 = \frac{1}{6}$, so subtract that amount from the record.

Problem 5

1. Multiply numerators: $2 \times 8 = 16$.
2. Multiply denominators: $3 \times 1 = 3$.
3. $\frac{2}{3} \times 8 = \frac{16}{3} = \frac{16}{3}$ after simplifying.
4. Second output: $\frac{4}{3} \times 8 = \frac{32}{3}$; difference $\frac{32}{3} - \frac{16}{3} = \frac{16}{3}$.

Problem 6

1. Multiply numerators: $5 \times 7 = 35$.
2. Multiply denominators: $9 \times 1 = 9$.
3. $\frac{5}{9} \times 7 = \frac{35}{9} = \frac{35}{9}$ after simplifying.
4. $\frac{149}{36} - \frac{35}{9} = \frac{1}{4}$, so the expression is smaller.

Problem 7

1. The total $\frac{27}{4} = \frac{27}{4}$ contains 27 pieces of size $1/4$.
2. Each group uses 3 pieces, so $27 \div 3 = 9$ groups.
3. Check the completed product: $\frac{3}{4} \times 9 = \frac{27}{4}$.

Problem 8

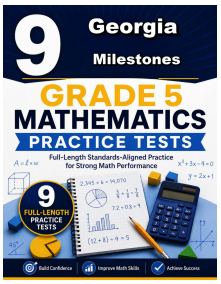
1. The product is $\frac{36}{7} = \frac{36}{7}$, or 36 pieces of size $1/7$.
2. Share these equally among 12 groups: $36 \div 12 = 3$ pieces per group.
3. The missing factor is $\frac{3}{7}$. Check $\frac{3}{7} \times 12 = \frac{36}{7}$.

TESTINAR

Keep Building Grade 5 Math Skills

Choose the practice book matched to your state assessment and turn worksheet practice into a complete test-prep plan.

All Grade 5 books



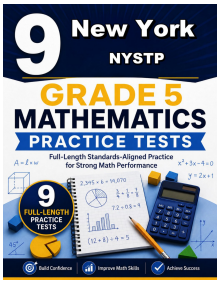
GEORGIA MILESTONES

9 Full-Length Math Practice Tests

Build Grade 5 accuracy, confidence, and test stamina with 9 printable practice tests.

Printable eBook • Instant PDF access

View eBook



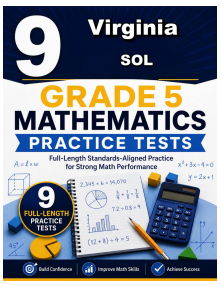
NEW YORK NYSTP

9 Full-Length Math Practice Tests

Build Grade 5 accuracy, confidence, and test stamina with 9 printable practice tests.

Printable eBook • Instant PDF access

View eBook



VIRGINIA SOL

9 Full-Length Math Practice Tests

Build Grade 5 accuracy, confidence, and test stamina with 9 printable practice tests.

Printable eBook • Instant PDF access

View eBook

Need a different state?
Testinar has Grade 5 math practice books for state assessments across the country.

TESTINAR.COM/GRADES/5