Multiplying Decimals

Multiplying Decimals: Find, Fix, and Work Backward

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

QUICK REVIEW

Multiply as whole numbers, then account for decimal units. Since $1.2 = 12/10$ and $0.4 = 4/10$, their product is $48/100 = 0.48$. Multiplication by a positive number less than 1 makes a quantity smaller.

Worked example

Calculate 5.6×0.8. Show the place-value or fraction calculation.

1. Write $5.6 = \frac{56}{10}$ and $0.8 = \frac{8}{10}$.
2. Multiply whole-number parts: $56 \times 8 = 448$; the scale is $10 \times 10 = 100$.
3. The product is $\frac{448}{100} = 4.48$; check $4.48 \div 0.8 = 5.6$.
Answer: 4.48.

Practice Problems

Show your thinking.

1. A student writes $2.7 \times 0.6 = 1.72$. Correct the result and check it.

2. Find the missing number: $\square \times 0.8 = 0.8$. Check by substitution.

3. Find the missing number: $3.55 \times \square = 4.26$. Check by substitution.

4. A recorded result for 1.9×2.5 is 4.85. 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 $\times 0.4$. Inputs are 0.75 and 1.5. Compare the outputs.

Input	Output
0.75	
1.5	

6. Is 4.5×0.3 greater than, less than, or equal to 1.6? Find the exact gap.

7. Find the missing number: $\square \times 1.4 = 4.27$. Check by substitution.

8. Find the missing number: $1.2 \times \square = 0.6$. Check by substitution.

Answer Key

1. 1.62, not 1.72.
2. 1.
3. 1.2.
4. Decrease by 0.1; $1.9 \times 2.5 = 4.75$.
5. Outputs 0.3 and 0.6; second minus first is 0.3.
6. Less than by 0.25.
7. 3.05.
8. 0.5.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. Write $2.7 = \frac{27}{10}$ and $0.6 = \frac{6}{10}$.
2. Multiply whole-number parts: $27 \times 6 = 162$; the scale is $10 \times 10 = 100$.
3. The product is $\frac{162}{100} = 1.62$; check $1.62 \div 0.6 = 2.7$.
4. The claimed value differs by 0.1, so it fails the exact calculation.

Problem 2

1. Undo the known operation to find the missing value: $0.8 \div 0.8 = 1$.
2. Write $1 = \frac{1}{1}$ and $0.8 = \frac{8}{10}$.
3. Multiply whole-number parts: $1 \times 8 = 8$; the scale is $1 \times 10 = 10$.
4. The product is $\frac{8}{10} = 0.8$; check $0.8 \div 0.8 = 1$.

Problem 3

1. Undo the known operation to find the missing value: $4.26 \div 3.55 = 1.2$.
2. Write $3.55 = \frac{355}{100}$ and $1.2 = \frac{12}{10}$.
3. Multiply whole-number parts: $355 \times 12 = 4260$; the scale is $100 \times 10 = 1000$.
4. The product is $\frac{4260}{1000} = 4.26$; check $4.26 \div 1.2 = 3.55$.

Problem 4

1. Write $1.9 = \frac{19}{10}$ and $2.5 = \frac{25}{10}$.
2. Multiply whole-number parts: $19 \times 25 = 475$; the scale is $10 \times 10 = 100$.
3. The product is $\frac{475}{100} = 4.75$; check $4.75 \div 2.5 = 1.9$.
4. The correction is $4.85 - 4.75 = 0.1$, so subtract that amount from the record.

Problem 5

1. Write $0.75 = \frac{75}{100}$ and $0.4 = \frac{4}{10}$.
2. Multiply whole-number parts: $75 \times 4 = 300$; the scale is $100 \times 10 = 1000$.
3. The product is $\frac{300}{1000} = 0.3$; check $0.3 \div 0.4 = 0.75$.
4. Second output: $1.5 \times 0.4 = 0.6$; difference $0.6 - 0.3 = 0.3$.

Problem 6

1. Write $4.5 = \frac{45}{10}$ and $0.3 = \frac{3}{10}$.
2. Multiply whole-number parts: $45 \times 3 = 135$; the scale is $10 \times 10 = 100$.
3. The product is $\frac{135}{100} = 1.35$; check $1.35 \div 0.3 = 4.5$.
4. $1.6 - 1.35 = 0.25$, so the expression is smaller.

Problem 7

1. Undo the known operation to find the missing value: $4.27 \div 1.4 = 3.05$.
2. Write $3.05 = \frac{305}{100}$ and $1.4 = \frac{14}{10}$.
3. Multiply whole-number parts: $305 \times 14 = 4270$; the scale is $100 \times 10 = 1000$.
4. The product is $\frac{4270}{1000} = 4.27$; check $4.27 \div 1.4 = 3.05$.

Problem 8

1. Undo the known operation to find the missing value: $0.6 \div 1.2 = 0.5$.
2. Write $1.2 = \frac{12}{10}$ and $0.5 = \frac{5}{10}$.
3. Multiply whole-number parts: $12 \times 5 = 60$; the scale is $10 \times 10 = 100$.
4. The product is $\frac{60}{100} = 0.6$; check $0.6 \div 0.5 = 1.2$.

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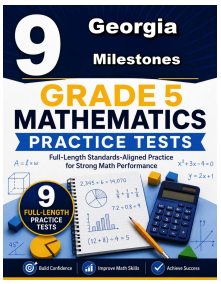

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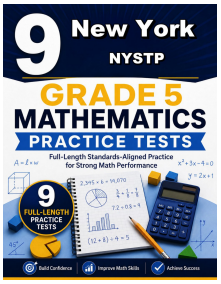

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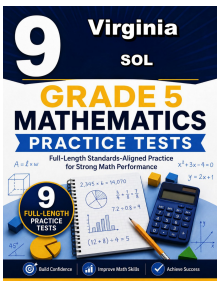

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