Multiplying Decimals

Multiplying Decimals: Models and Computation

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. Calculate 2.4×0.6. Show the place-value or fraction calculation.

2. Explain 0.7×0.8 as a part of a quantity. Find that part.

3. Cloth costs 3.25 dollars per meter. Find the cost of 1.2 m.

4. Use an inverse operation to verify a proposed result of 4 for 1.6×2.5. Show both computations.

5. Is 0.45×0.4 greater than, less than, or equal to 0.43? Find the exact gap.

6. A student writes $4.2 \times 0.3 = 1.36$. Correct the result and check it.

7. Find the missing number: $2.75 \times \square = 3.85$. Check by substitution.

8. Calculate 0.9×0.5. Show the place-value or fraction calculation.

Answer Key

1. 1.44.
2. 0.56.
3. 3.9 dollars.
4. The result 4 is correct.
5. Less than by 0.25.
6. 1.26, not 1.36.
7. 1.4.
8. 0.45.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. Write $2.4 = \frac{24}{10}$ and $0.6 = \frac{6}{10}$.
2. Multiply whole-number parts: $24 \times 6 = 144$; the scale is $10 \times 10 = 100$.
3. The product is $\frac{144}{100} = 1.44$; check $1.44 \div 0.6 = 2.4$.

Problem 2

1. Write $0.7 = \frac{7}{10}$ and $0.8 = \frac{8}{10}$.
2. Multiply whole-number parts: $7 \times 8 = 56$; the scale is $10 \times 10 = 100$.
3. The product is $\frac{56}{100} = 0.56$; check $0.56 \div 0.8 = 0.7$.

Problem 3

1. The quantities call for 3.25×1.2; the result is measured in dollars.
2. Write $3.25 = \frac{325}{100}$ and $1.2 = \frac{12}{10}$.
3. Multiply whole-number parts: $325 \times 12 = 3900$; the scale is $100 \times 10 = 1000$.
4. The product is $\frac{3900}{1000} = 3.9$; check $3.9 \div 1.2 = 3.25$.

Problem 4

1. Write $1.6 = \frac{16}{10}$ and $2.5 = \frac{25}{10}$.
2. Multiply whole-number parts: $16 \times 25 = 400$; the scale is $10 \times 10 = 100$.
3. The product is $\frac{400}{100} = 4$; check $4 \div 2.5 = 1.6$.
4. Inverse check: $4 \div 2.5 = 1.6$.

Problem 5

1. Write $0.45 = \frac{45}{100}$ and $0.4 = \frac{4}{10}$.
2. Multiply whole-number parts: $45 \times 4 = 180$; the scale is $100 \times 10 = 1000$.
3. The product is $\frac{180}{1000} = 0.18$; check $0.18 \div 0.4 = 0.45$.
4. $0.43 - 0.18 = 0.25$, so the expression is smaller.

Problem 6

1. Write $4.2 = \frac{42}{10}$ and $0.3 = \frac{3}{10}$.
2. Multiply whole-number parts: $42 \times 3 = 126$; the scale is $10 \times 10 = 100$.
3. The product is $\frac{126}{100} = 1.26$; check $1.26 \div 0.3 = 4.2$.
4. The claimed value differs by 0.1, so it fails the exact calculation.

Problem 7

1. Undo the known operation to find the missing value: $3.85 \div 2.75 = 1.4$.
2. Write $2.75 = \frac{275}{100}$ and $1.4 = \frac{14}{10}$.
3. Multiply whole-number parts: $275 \times 14 = 3850$; the scale is $100 \times 10 = 1000$.
4. The product is $\frac{3850}{1000} = 3.85$; check $3.85 \div 1.4 = 2.75$.

Problem 8

1. Write $0.9 = \frac{9}{10}$ and $0.5 = \frac{5}{10}$.
2. Multiply whole-number parts: $9 \times 5 = 45$; the scale is $10 \times 10 = 100$.
3. The product is $\frac{45}{100} = 0.45$; check $0.45 \div 0.5 = 0.9$.

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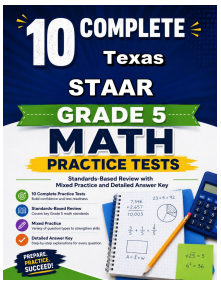

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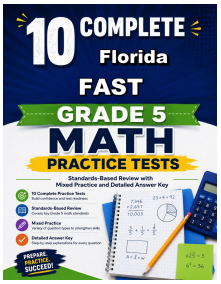

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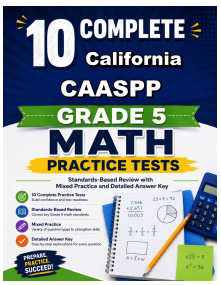

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