Dividing Decimals by Whole Numbers

Dividing Decimals by Whole Numbers: Apply, Compare, and Design

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

QUICK REVIEW

Equal shares must recombine to the total. For $7.2 \div 3$, share 72 tenths among 3: $72 \div 3 = 24$ tenths, so each share is 2.4. Check $3 \times 2.4 = 7.2$.

Worked example

Calculate $5.6 \div 4$. Show the place-value or fraction calculation.

1. Rename 5.6 as 56 tenths: $5.6 = \frac{56}{10}$.
2. Share equally: $56 \div 4 = 14$ tenths per group; $\frac{14}{10} = 1.4$.
3. Check by multiplication: $4 \times 1.4 = 5.6$.
Answer: 1.4.

Practice Problems

Show your thinking.

1. A 9 m ribbon is cut into 4 equal pieces. Find the length of one piece.

2. A 9.75 m ribbon must be cut into equal 3.25 m pieces with no ribbon left. How many pieces should the plan make? Write the completed division equation.

3. Plan A uses $25.5 \div 6$ units. Plan B uses $25.5 \div 12$ units. Which produces the larger amount, and by how much?

4. Each of two containers holds $42 \div 8$ L. Another 0.1 L is added to their combined contents. Find the final volume.

5. A 31.25 m ribbon must be cut into equal 6.25 m pieces with no ribbon left. How many pieces should the plan make? Write the completed division equation.

6. Complete the two-output table for the rule: input $\div 4$. Inputs are 29 and 58. Compare the outputs.

Input	Output
29	
58	

7. A student writes $74.25 \div 9 = 8.35$. Correct the result and check it.

8. Use an inverse operation to verify a proposed result of 9.25 for $64.75 \div 7$. Show both computations.

Answer Key

1. 2.25 m.
2. 3 pieces; 9.75 m $\div 3 = 3.25$ m per piece.
3. Plan A by 2.125 units.
4. 10.6 L.
5. 5 pieces; 31.25 m $\div 5 = 6.25$ m per piece.
6. Outputs 7.25 and 14.5; second minus first is 7.25.
7. 8.25, not 8.35.
8. The result 9.25 is correct.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. Rename 9 as 900 hundredths: $9 = \frac{900}{100}$.
2. Share equally: $900 \div 4 = 225$ hundredths per group; $\frac{225}{100} = 2.25$.
3. Each piece is 2.25 m long. Check by multiplication: $4 \times 2.25 = 9$.

Problem 2

1. Use hundredths of a meter for both amounts: $9.75 = \frac{975}{100}$ and $3.25 = \frac{325}{100}$.
2. Each piece takes 325 hundredths of a meter, so $975 \div 325 = 3$ pieces.
3. Check: $3 \times 3.25 = 9.75$ m, so all the ribbon is used.
4. Completed division: 9.75 m $\div 3 = 3.25$ m per piece.

Problem 3

1. Rename 25.5 as 2550 hundredths: $25.5 = \frac{2550}{100}$.
2. Share equally: $2550 \div 6 = 425$ hundredths per group; $\frac{425}{100} = 4.25$.
3. Plan B: Rename 25.5 as 25500 thousandths: $25.5 = \frac{25500}{1000}$.
4. Share equally: $25500 \div 12 = 2125$ thousandths per group; $\frac{2125}{1000} = 2.125$.
5. Check by multiplication: $12 \times 2.125 = 25.5$.
6. Plan A gives $4.25 - 2.125 = 2.125$ more units.

Problem 4

1. Rename 42 as 4200 hundredths: $42 = \frac{4200}{100}$.
2. Share equally: $4200 \div 8 = 525$ hundredths per group; $\frac{525}{100} = 5.25$.
3. Check by multiplication: $8 \times 5.25 = 42$.
4. Two containers hold $2 \times 5.25 = 10.5$ L.
5. After the addition: $10.5 + 0.1 = 10.6$ L.

Problem 5

1. Use hundredths of a meter for both amounts: $31.25 = \frac{3125}{100}$ and $6.25 = \frac{625}{100}$.
2. Each piece takes 625 hundredths of a meter, so $3125 \div 625 = 5$ pieces.
3. Check: $5 \times 6.25 = 31.25$ m, so all the ribbon is used.
4. Completed division: 31.25 m $\div 5 = 6.25$ m per piece.

Problem 6

1. Rename 29 as 2900 hundredths: $29 = \frac{2900}{100}$.
2. Share equally: $2900 \div 4 = 725$ hundredths per group; $\frac{725}{100} = 7.25$.
3. Rename 58 as 580 tenths: $58 = \frac{580}{10}$.
4. Share equally: $580 \div 4 = 145$ tenths per group; $\frac{145}{10} = 14.5$.
5. The output increases by $14.5 - 7.25 = 7.25$. Completed table:

Input	Output
29	7.25
58	14.5

Problem 7

1. Rename 74.25 as 7425 hundredths: $74.25 = \frac{7425}{100}$.
2. Share equally: $7425 \div 9 = 825$ hundredths per group; $\frac{825}{100} = 8.25$.
3. Check by multiplication: $9 \times 8.25 = 74.25$.
4. The claimed value differs by 0.1, so it fails the exact calculation.

Problem 8

1. Rename 64.75 as 6475 hundredths: $64.75 = \frac{6475}{100}$.
2. Share equally: $6475 \div 7 = 925$ hundredths per group; $\frac{925}{100} = 9.25$.
3. Check by multiplication: $7 \times 9.25 = 64.75$.

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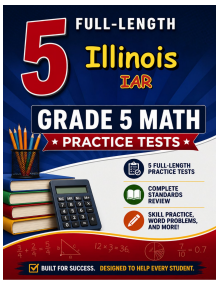

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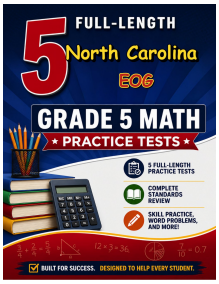

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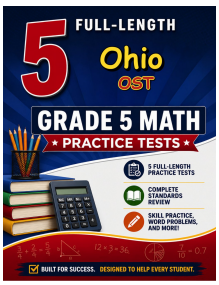

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