

Multiplying Decimals by Two-Digit Whole Numbers

1 Here's How

Multiply decimals by two-digit whole numbers one place at a time. Multiply by the ones first. Then multiply by the tens. Add the partial products.

A **partial product** is the product of one place of a factor and the other factor.

Omit decimal points in the partial products.

Look at this example.

$$\begin{array}{r} 8.3 \\ \times 14 \\ \hline 332 \end{array}$$

Step 1

Multiply by the ones: $4 \times 83 = 332$. Write the partial product.

$$\begin{array}{r} 8.3 \\ \times 14 \\ \hline 332 \\ 830 \end{array}$$

Step 2

Multiply by the tens: $10 \times 83 = 830$. Write the partial product under the first partial product.

$$\begin{array}{r} 8.3 \\ \times 14 \\ \hline 332 \\ 830 \\ \hline 116.2 \end{array}$$

Step 3

Add the partial products. The sum is the total product.

Count the number of decimal places in the factors. There is one. Write the decimal point in the product one place from the right.

The product of 14×8.3 is 116.2.

2 Try It

Complete each step.

$32 \times 0.34 =$

Write the problem vertically in the space at the left. Do the work there.

Multiply by the ones. The partial product is 68.

Multiply by the tens. The partial product is 1020.

Add the partial products. The sum is 1088.

How many decimal places are in the factors? two

Place the decimal point.

The product is 10.88.

$$\begin{array}{r} 0.34 \\ \times 32 \\ \hline 68 \\ 1020 \\ \hline 10.88 \end{array}$$

3 On Your Own

Multiply.

$$\begin{array}{r} 1. \quad 0.8 \\ \times 42 \\ \hline 16 \\ 320 \\ \hline 33.6 \end{array}$$

$$\begin{array}{r} 2. \quad 1.2 \\ \times 53 \\ \hline 36 \\ 600 \\ \hline 63.6 \end{array}$$

$$\begin{array}{r} 3. \quad 0.5 \\ \times 24 \\ \hline 20 \\ 100 \\ \hline 12.0 \end{array}$$

$$\begin{array}{r} 4. \quad 3.2 \\ \times 86 \\ \hline 192 \\ 2560 \\ \hline 275.2 \end{array}$$

$$\begin{array}{r} 5. \quad 0.71 \\ \times 15 \\ \hline 355 \\ 710 \\ \hline 10.65 \end{array}$$

$$\begin{array}{r} 6. \quad 2.42 \\ \times 27 \\ \hline 1694 \\ 4840 \\ \hline 65.34 \end{array}$$

$$\begin{array}{r} 7. \quad 0.56 \\ \times 91 \\ \hline 56 \\ 5040 \\ \hline 50.96 \end{array}$$

$$\begin{array}{r} 8. \quad 1.45 \\ \times 39 \\ \hline 1305 \\ 4350 \\ \hline 56.55 \end{array}$$

$$\begin{array}{r} 9. \quad 0.214 \\ \times 71 \\ \hline 214 \\ 14980 \\ \hline 15.194 \end{array}$$

$$\begin{array}{r} 10. \quad 1.004 \\ \times 44 \\ \hline 4016 \\ 40160 \\ \hline 44.176 \end{array}$$

$$\begin{array}{r} 11. \quad 0.725 \\ \times 16 \\ \hline 4350 \\ 7250 \\ \hline 11.600 \end{array}$$

$$\begin{array}{r} 12. \quad 5.203 \\ \times 68 \\ \hline 41624 \\ 312180 \\ \hline 353.804 \end{array}$$

Write each problem vertically. Then multiply.

13. $12 \times 3.4 =$

$$\begin{array}{r} 3.4 \\ \times 12 \\ \hline 68 \\ 340 \\ \hline 40.8 \end{array}$$

14. $53 \times 7.5 =$

$$\begin{array}{r} 7.5 \\ \times 53 \\ \hline 225 \\ 3750 \\ \hline 397.5 \end{array}$$

15. $38 \times 3.19 =$

$$\begin{array}{r} 3.19 \\ \times 38 \\ \hline 2552 \\ 9570 \\ \hline 121.22 \end{array}$$

16. $81 \times 0.525 =$

$$\begin{array}{r} 0.525 \\ \times 81 \\ \hline 525 \\ 42000 \\ \hline 42.525 \end{array}$$

4 Think About It

Answer the question. Write your answer below.

17. When one factor is a decimal less than 1 and the other is a whole number, how does the product compare to the whole number? Is it larger or smaller? Explain.

Explanations will vary; example: The product is smaller than the whole number. A number multiplied by 1 is that number, so when a number is multiplied by less than 1, the product must be less than the other factor.