

PreAlgebra
Skill-BUILDER #D-8
Multiplying Decimals by Other Decimals

Recall that when multiplying two numbers of the same sign, the product will be positive. If the two numbers have different signs, then their product will be negative, **regardless of which number has a larger absolute value.**

When multiplying two decimals, disregard their decimal point and multiply them as though they are whole numbers, so we **do not align** the decimals by their place values. The decimal point in the product is placed so that the number of decimal places in the product is equal to the sum of the number of decimal places in the factors. **Remember to count from the rightmost digit in the product** and drop unnecessary zeros after the last nonzero digit in the decimal part.

Example 1:

Multiply: $2.35 \times (-3.2)$

Multiply as whole numbers:

$$\begin{array}{r}
 \begin{array}{c} 11 \\ 1 \\ 2.35 \end{array} \leftarrow 2 \text{ decimal places} \\
 \times \begin{array}{c} 3.2 \end{array} \leftarrow 1 \text{ decimal place} \\
 \hline
 470 \\
 + 7050 \\
 \hline
 7.520 \quad (3 \text{ decimal places!})
 \end{array}$$

$\downarrow 2 + 1 = 3$

Since the two factors have different signs, their product will be negative.

Remember to drop unnecessary zeros after the last nonzero digit in the decimal part.

Answer: -7.52

Example 2:

Simplify: $(-4.6)^2$

$$\begin{array}{r}
 \begin{array}{c} 12 \\ 23 \\ 4.6 \end{array} \leftarrow 1 \text{ decimal place} \\
 \times \begin{array}{c} 4.6 \end{array} \leftarrow 1 \text{ decimal place} \\
 \hline
 \begin{array}{c} 11 \\ 276 \end{array} \\
 + 1840 \\
 \hline
 21.16 \quad (2 \text{ decimal places in the product})
 \end{array}$$

$\downarrow 1 + 1 = 2$

Since the two factors are of the same sign, the product will be positive.

Answer: 21.16

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1. Multiply: 0.325×0.03

2. Multiply: 0.05^2

3. Multiply: -76.805×0.02

4. Simplify: $(-2.25)(-0.8)$

5. Simplify: $(0.375)(-800)$

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Answers

1. 0.00975

2. 0.0025

3. -1.5361

4. 1.8

5. -300

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