

$$\begin{array}{r}
 7.122 - 3.410 \\
 \hline
 3.712
 \end{array}$$

- * Line up decimals first
- * Write numbers to the left and right of the decimal.

$$\begin{array}{r}
 3.\overset{3}{\text{6}}\overset{2}{\text{5}} \times 2.\overset{1}{\text{4}} \\
 \begin{array}{r}
 +1 +1 \\
 +2 +2 \\
 \hline
 365 \\
 \times 24 \\
 \hline
 1460 \\
 7300 \\
 \hline
 8760 \\
 \hline
 \textcircled{8.760}
 \end{array}
 \end{array}$$

- 1* Stack numbers right to left
- 2* Rewrite problem without decimals
- 3* Count the number of numbers to the right of the decimal
- 4* Move the decimal the same amount from step 3.

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Divide = move decimal to left based on # of zeros

Lesson 5: Practice Problems

1. a. Find the product of each number and $\frac{1}{100}$ ← 2 zeros = 2 places to left

~~122.1~~

~~11.8~~

~~1350.1~~

~~0.1704~~

1.221

.118

13.501

↑ 0.01704

If blank space, add zero

- b. What happens to the decimal point of the original number when you multiply it by $\frac{1}{100}$? Why do you think that is? Explain your reasoning.

2 spaces to the left

2. Which expression has the same value as $(0.06) \cdot (0.154)$? Select all that apply.

A. $6 \cdot \frac{1}{100} \cdot 154 \cdot \frac{1}{1,000}$

B. $6 \cdot 154 \cdot \frac{1}{100,000}$

C. $6 \cdot (0.1) \cdot 154 \cdot (0.01)$

D. $6 \cdot 154 \cdot (0.00001)$

E. 0.00924

$\begin{array}{r} \overset{3}{0}.\overset{4}{1}\overset{5}{5}4 \\ \div 100 \\ \hline 0.0154 \\ \times 6 \\ \hline 0.0924 \end{array}$

3. Calculate the value of each expression by writing the decimal factors as fractions, then writing their product as a decimal. Show your reasoning.

a. $(0.01) \cdot (0.02)$

$\frac{1}{2} \times \frac{2}{100} = \frac{2}{200} = 0.01$

b. $(0.3) \cdot (0.2)$

$\frac{3}{10} \times \frac{2}{10} = \frac{6}{100} = 0.06$

c. $(1.2) \cdot 5$

$\begin{array}{r} 1.2 \\ \times 5 \\ \hline 6.0 \end{array}$

d. $(0.9) \cdot (1.1)$

$\begin{array}{r} 0.9 \\ \times 1.1 \\ \hline 0.99 \end{array}$

e. $(1.5) \cdot 2$

$\begin{array}{r} 1.5 \\ \times 2 \\ \hline 3.0 \end{array}$

Lesson 6: Methods for Multiplying Decimals

Let's look at some ways we can represent multiplication of decimals.

6.1: Which One Doesn't Belong: Products

Which expression doesn't belong? Explain your reasoning.

- A. $2 \cdot (0.3)$ B. $2 \cdot 3 \cdot (0.1)$ C. $6 \cdot (0.1)$ D. $(0.1) \cdot 6$

6.2: Using Properties of Numbers to Reason about Multiplication

1. Elena and Noah used different methods to compute $(0.23) \cdot (1.5)$. Both computations were correct.

$$(0.23) \cdot 100 = 23$$

$$(1.5) \cdot 10 = 15$$

$$23 \cdot 15 = 345$$

$$345 \div 1,000 = 0.345$$

Elena's Method

$$0.23 = \frac{23}{100}$$

$$1.5 = \frac{15}{10}$$

$$\frac{23}{100} \cdot \frac{15}{10} = \frac{345}{1,000}$$

$$\frac{345}{1,000} = 0.345$$

Noah's Method

Analyze the two methods, then discuss these questions with your partner.

- Which method makes more sense to you? Why?
 - What might Elena do to compute $(0.16) \cdot (0.03)$? What might Noah do to compute $(0.16) \cdot (0.03)$? Will the two methods result in the same value?
2. Compute each product using the equation $21 \cdot 47 = 987$ and what you know about fractions, decimals, and place value. Explain or show your reasoning.

a. $(2.1) \cdot (4.7)$

$$\begin{array}{r} 21 \\ \times 47 \\ \hline 147 \\ 840 \\ \hline 987 \end{array}$$

(Handwritten: 987 circled)

b. $21 \cdot (0.047)$

(Handwritten: 987 circled)

c. $(0.021) \cdot (4.7)$

(Handwritten: 0.987 circled)