

2.3 Multiply with Decimals

Multiplying with decimals is similar to multiplying with whole numbers.

Follow these steps to multiply a decimal by a whole number or another decimal:

1. Multiply as you would with whole numbers.
2. Count the total number of decimal places in both factors.
3. Count the same number of places from the right to left and insert a decimal point in the product.

Example: Write the decimal point in each product. Use zeros as placeholders.

a.) $5.\underline{9} \times 3 = 177$
 $17.\underline{7}$

b.) $0.\underline{6} \times 0.\underline{4} = 24$
 $0.\underline{24}$

c.) $6.\underline{87} \times 2 = 1374$
 $13.\underline{74}$

d.) $1.\underline{01} \times 9 = 909$
 $9.\underline{09}$

Example: Multiply.

e.) $0.9 \times 22 = 19.8$

$$\begin{array}{r} 22 \\ \times 9 \\ \hline 198 \end{array}$$

f.) 0.911×9.11

$$\begin{array}{r} 911 \\ \times 9.11 \\ \hline 911 \\ 9110 \\ +819900 \\ \hline 829921 \end{array}$$

g.) 0.43×0.19

$$\begin{array}{r} 43 \\ \times 19 \\ \hline 387 \\ +430 \\ \hline 0.0817 \end{array}$$

Example: Multiply.

h.) 0.163×0.03

$$\begin{array}{r} 163 \\ \times 3 \\ \hline 489 \end{array}$$

$$0.00489$$

i.) 599×2.4

$$\begin{array}{r} 599 \\ \times 2.4 \\ \hline 2396 \\ +11980 \\ \hline 14376 \end{array}$$

j.) 4.12×1.8

$$\begin{array}{r} 412 \\ \times 18 \\ \hline 3296 \\ +4120 \\ \hline 7416 \end{array}$$

Example: Multiply.

k.) $2.3 \times 0.2 \times 5.7$

$$\begin{array}{r} 23 \\ \times 2 \\ \hline 46 \end{array}$$

$$\begin{array}{r} 0.46 \times 5.7 \\ \hline 322 \\ + 2300 \\ \hline 2.622 \end{array}$$

l.) $3.5 \times 19.5 \times 0.5$

$$\begin{array}{r} 195 \\ \times 35 \\ \hline 975 \\ + 5850 \\ \hline 6825 \end{array}$$

$$\begin{array}{r} 68.25 \times 0.5 \\ \hline 34.125 \end{array}$$

Example: **PROBLEM SOLVING**

m.) A botanist finds that a certain plant grows about 0.5 inches each month. How many inches do you predict the plant will grow in 15 months?

$$0.5 \times 15$$

$$7.5 \text{ inches}$$

$$\begin{array}{r} 15 \\ \times 5 \\ \hline 75 \end{array}$$

n.) Sadie bikes 37.6 km. Surya bikes 0.4 times as far. How much farther than Surya does Sadie bike?

$$37.6 \times 0.4$$

$$15.04 \text{ km}$$

$$\begin{array}{r} 376 \\ \times 4 \\ \hline 1504 \end{array}$$