

### Multiplying Decimal Numbers

When multiplying decimal numbers:

1. It is not necessary to line up the decimal points
2. Ignore the decimal points and multiply as you would multiply whole numbers.
3. To place the decimal point in the answer, count the total number of digits to the right of the decimal point for both numbers being multiplied; these are called decimal places.

Example:

$$\begin{array}{r}
 0.31 \longrightarrow 2 \text{ decimal places} \\
 \times 0.18 \longrightarrow 2 \text{ decimal places} \\
 \hline
 248 \\
 310 \\
 \hline
 558 \longrightarrow \text{answer should have} \\
 \qquad \qquad \qquad 4 \text{ decimal places}
 \end{array}$$

$$\begin{array}{r}
 0.31 \\
 \times 0.18 \\
 \hline
 248 \\
 310 \\
 \hline
 .0558
 \end{array}$$

Count 4 digits from the left then place the decimal point.

So, the answer is **0.0558**

Why do we count the total number of decimal places and place the decimal point in the final answer accordingly?

Let's write the same decimal numbers in the above example as fractions then do the multiplication:

0.31 is written as  $\frac{31}{100}$  and 0.18 is written as  $\frac{18}{100}$

Multiply  $\frac{31}{100} \cdot \frac{18}{100} = \frac{558}{10,000} = 0.0558$  → The same answer we got when we multiplied 0.31 by 0.18 in the above example

Solve.

1.  $\begin{array}{r} 0.12 \\ \times 0.5 \\ \hline 060 \\ + 0000 \\ \hline 0.060 \end{array}$

2.  $\begin{array}{r} 5.07 \\ \times 0.73 \\ \hline 1521 \\ + 35490 \\ \hline 3.7011 \end{array}$

3.  $\begin{array}{r} 15.21 \\ \times 0.45 \\ \hline 7605 \\ 60840 \\ \hline 6.8445 \end{array}$

4.  $\begin{array}{r} 2.08 \\ \times 3. \\ \hline 624 \end{array}$

5.  $\begin{array}{r} 19.06 \\ \times 231 \\ \hline 1906 \\ 57180 \\ 381200 \\ \hline 4402.86 \end{array}$

6.  $\begin{array}{r} 677 \\ \times 1.28 \\ \hline 5416 \\ 13540 \\ 67700 \\ \hline 866.56 \end{array}$

7.  $\begin{array}{r} 9.22 \\ \times .108 \\ \hline 7376 \\ 0000 \\ 92200 \\ \hline 0.99576 \end{array}$

8.  $\begin{array}{r} 40.65 \\ \times 7.53 \\ \hline 12195 \\ 203250 \\ 2845500 \\ \hline 306.0945 \end{array}$



**Mixed Decimal Review**

1)  $(65.9)(2.21) =$

$$\begin{array}{r}
 65.9 \quad (1) \\
 \times 2.21 \quad (2) \\
 \hline
 13180 \\
 131800 \\
 + 1318000 \\
 \hline
 145639
 \end{array}$$

**145.639**

2)  $(0.057)(0.12) =$

$$\begin{array}{r}
 0.057 \quad (3) \\
 \times 0.12 \quad (2) \\
 \hline
 0114 \\
 + 00570 \\
 \hline
 00684
 \end{array}$$

**0.00684**

3)  $56 - 1.24 =$

$$\begin{array}{r}
 56.00 \\
 - 1.24 \\
 \hline
 54.76
 \end{array}$$

**54.76**

4)  $0.002 + 98 =$

$$\begin{array}{r}
 98.000 \\
 + .002 \\
 \hline
 98.002
 \end{array}$$

**98.002**

Line  
'um  
up!  
Drop it  
Down!

5)  $(62.09)(8.4) =$

$$\begin{array}{r}
 62.09 \quad (2) \\
 \times 8.4 \quad (1) \\
 \hline
 24836 \\
 + 496720 \\
 \hline
 521556
 \end{array}$$

**521.556**

6)  $400.3 - 56.2 =$

$$\begin{array}{r}
 400.3 \\
 - 56.2 \\
 \hline
 344.1
 \end{array}$$

**344.1**

7)  $163 - 75.14 =$

$$\begin{array}{r}
 163.00 \\
 - 75.14 \\
 \hline
 87.86
 \end{array}$$

**87.86**

8)  $74.9 \overline{)352.03} =$

$$\begin{array}{r}
 0004.7 \\
 74.9 \overline{)352.03} \\
 \underline{-2996} \phantom{0} \\
 5243 \\
 \underline{-5243} \\
 0
 \end{array}$$

**4.7**



Name: \_\_\_\_\_

Solve the following problems.

1. At the marketplace, 5 pounds of oranges are selling for \$3.15.  
a. What is the unit price for oranges?

b. To the nearest dollar, what is the cost of buying 10.5 pounds of oranges?

2. A recipe requires 0.5 stick of butter. Find the amount of butter needed for one quarter of the recipe by:  
a. Using division

$$0.5 \div \frac{1}{4}$$

b. Using multiplication

$$0.5 \cdot (0.25)$$

$$\frac{1}{2} \cdot \frac{1}{4} =$$

$$\boxed{\frac{1}{8} \text{ stick}}$$

3. You have one chocolate bar that you want to divide equally among 5 crying babies.

a. Write and solve a problem to find the amount, as a decimal number, that each baby will get.

$$1 \div 5 = 0.2$$

$0.2$  pieces of chocolate

b. What does your answer mean?

Each baby will get  $\frac{1}{5}$  of the one chocolate bar.

4. I borrowed \$12.75 from Keysha. Later on I borrowed an additional \$6.15.

a. What is the amount of my debt?

$$-12.75 + (-6.15) =$$

$\boxed{\$18.90 \text{ debt}}$

b. If my sister gives me \$20 and I pay all my debt, how much money will I be left with?

$$20 + (-18.90)$$

$\boxed{\$1.10 \text{ left}}$

5. How many groups of 15 cents are in \$14.25?

$$\frac{14.25}{0.15}$$

$$\begin{array}{r} 95. \\ 15 \overline{) 1425} \\ \underline{-135} \phantom{0} \\ 75 \\ \underline{-75} \\ 0 \end{array}$$

$\boxed{195 \text{ groups}}$

6. How many feet are in 66.75 inches? Hint: the quotient will terminate after 4 decimal places.

$$66.75 \div 12$$

$$\begin{array}{r} 5.5625 \\ 12 \overline{) 66.75} \\ \underline{-60} \phantom{00} \\ 67 \phantom{00} \\ \underline{-60} \phantom{00} \\ 75 \phantom{00} \\ \underline{-72} \phantom{00} \\ 30 \phantom{00} \\ \underline{-30} \phantom{00} \\ 0 \end{array}$$

$\boxed{5.5625 \text{ ft}}$

7. I paid \$39.90 to fill up my car with 10 gallons of gas. What is the unit price of gas? Hint: just move the decimal point.

8. Ethan is trying to draw one row of congruent squares on a 8.5 inch wide paper. If each square is 0.85 inch wide. How many squares will Ethan be able to fit in the row?

$$8.5 \div 0.85$$

$\boxed{10 \text{ squares}}$



Name: \_\_\_\_\_

Date: \_\_\_\_\_

Solve the following problems.

1. The Hubba Bubba Bubble Gum Tape is 6 feet long. How many  $2\frac{1}{4}$  inch pieces can the tape be cut into?

$$72 \div \frac{9}{4}$$

$$\frac{72}{1} \cdot \frac{4}{9} = \frac{288}{9}$$

32 pcs

2. Maria needs  $\frac{3}{4}$  of a cup of sugar for one serving of her recipe. How many cups of sugar will she need for 5 servings?

$$\frac{3}{4} \cdot \frac{5}{1} = \frac{15}{4}$$

3 $\frac{3}{4}$  c.

3. Chris has a  $3\frac{1}{2}$  feet long board of wood. He cuts out 4 pieces that are each  $\frac{2}{3}$  foot long.

- a. Find the combined length of the 4 pieces.

$$4 \cdot \frac{2}{3} = \frac{8}{3} \text{ ft}$$

- b. Find the length of the remaining board after Chris gets his 4 pieces.

$$3\frac{1}{2} \rightarrow \frac{7}{2} \quad 3\frac{1}{2}$$

$$\left(\frac{3}{3}\right) \frac{7}{2} - \frac{8}{3} \left(\frac{2}{2}\right)$$

$$\frac{21}{6} - \frac{16}{6} = \frac{5}{6} \text{ ft}$$

4. My garden is planted with flowers.  $\frac{5}{6}$  of the flowers are roses.  $\frac{2}{3}$  of the roses are yellow and the rest are red.

- a. What fraction of the roses is red?

 $\frac{1}{3}$ 

- b. What fraction of the flowers represents red roses? Write and solve a problem.

$$\frac{1}{3} \cdot \frac{5}{6} = \frac{5}{18}$$

- c. What fraction of the flowers represents yellow roses? Write and solve a problem.

$$\frac{2}{3} \cdot \frac{5}{6} = \frac{10}{18} \rightarrow \frac{5}{9}$$

5. Find  $\frac{1}{5}$  of 65 using division

$$65 \div 5 = 13$$

6. Find  $\frac{1}{5}$  of 65 using multiplication

$$\frac{1}{5} \cdot \frac{65}{1} = \frac{65}{5} = 13$$

7.  $\frac{2}{15}$  of a class of 30 students are wearing red t-shirts today. How many students is that?

$$\frac{2}{15} \cdot \frac{30}{1} = \frac{60}{15}$$

4 students

8. Jamar is trying to fit his encyclopedia on a shelf. Each book in his encyclopedia is  $2\frac{1}{4}$  inch thick. The self is  $2\frac{1}{4}$  feet wide. How many books will Jamar be able to fit?

$$27 \div \left(2\frac{1}{4}\right) \rightarrow \frac{9}{1}$$

$$\frac{27}{1} \cdot \frac{4}{9} = \frac{108}{9}$$

12 books

9. What does "10  $\frac{1}{2}$  inches divided by  $5\frac{1}{4}$  inches" mean?

how many times  $5\frac{1}{4}$  goes into  $10\frac{1}{2}$

Use an operation to find the answer.

$$10\frac{1}{2} \div \left(5\frac{1}{4}\right) \rightarrow \frac{21}{4}$$

$$\frac{21}{2} \cdot \frac{4}{21} =$$

2 groups

10. What fraction of the flowers in my garden in #4 above are not roses?

 $\frac{1}{6}$