2.5 MULTIPLYING DECIMALS

Essential Question: How do you multiply decimals?

HOW TO MULTIPLY DECIMALS

1) Multiply as you would with whole numbers.

2) Count how many numbers are after the decimal point in the number(s) you are multiplying.

3) Your answer should have that many numbers after its decimal point.

EXAMPLE 1

1) Multiply 6 × 3.91

$$\begin{array}{r} {\scriptstyle 5}\,3.91 \\ \times\ 6 \\ \hline 23.46 \end{array}$$

2) Multiply 3 × 0.016

$$\begin{array}{r} {\scriptstyle 1}\,0.016 \\ \times\ 3 \\ \hline 0.048 \end{array}$$

ON YOUR OWN

Multiply.

1) 12.3 × 8

$$\begin{array}{r} {\scriptstyle 1\ 2}\,12.3 \\ \times\ 8 \\ \hline 98.4 \end{array}$$

2) 5 × 14.51

$$\begin{array}{r} {\scriptstyle 2\ 3}\,14.51 \\ \times\ 5 \\ \hline 72.55 \end{array}$$

3) 0.88 × 9

$$\begin{array}{r} {\scriptstyle 1\ 1}\,0.88 \\ \times\ 9 \\ \hline 7.92 \end{array}$$

4) 0.003 × 10

$$\begin{array}{r} 0.003 \\ \times 10 \\ \hline 0000 \\ +00030 \\ \hline 00.030 \end{array}$$

EXAMPLE 2

How high is a stack of 100 dimes?

$$\begin{array}{r} 1.35 \\ \times 100 \\ \hline 000 \\ 00\ 00 \\ 135\ 00 \\ \hline 135.00 \end{array}$$

A stack of 100 dimes is 135 millimeters high.

EXAMPLE 3

Multiply.

1) 4.8 × 7.2

$$\begin{array}{r} {\scriptstyle 5\ 1}\,4.8 \\ \times\ 7.2 \\ \hline 196 \\ +3360 \\ \hline 34.56 \end{array}$$

2) 3.1 × 0.05

$$\begin{array}{r} {\scriptstyle 1}\,0.05 \\ \times 3.1 \\ \hline 005 \\ +0150 \\ \hline 0.155 \end{array}$$

ON YOUR OWN

Multiply.

1) 8.1 × 5.6

8.1
× 5.6
486
4050
45.36

2) 2.7 × 9.04

9.04
× 2.7
6328
18080
24.408

3) 6.32 × 0.09

6.32
× 0.09
5688
0000
+00000
0.5688

4) 1.785 × 0.2

1.785
× 0.2
3570
+000000
0.3570

EXAMPLE 4

Evaluate the expression.

1) 2.44(4.5 – 3.175)

2.44(1.325)

3.23300

4.5
– 3.175
1.325

1.325
× 2.44
5300
53000
+265000
3.23300

2) 12.67 + 8.2 · 1.9

12.67 + 15.58

28.25

8.2
× 1.9
738
+820
15.58

15.58
+ 12.67
28.25

3) 6.4(1.8 · 7.5)

6.4(13.50)

86.400

1.8
× 7.5
.90
1260
13.50

13.50
× 6.4
5400
81000
86.400

EXAMPLE 5

You buy 2.75 pounds of tomatoes. You hand the cashier a $10 bill. How much change will you receive?

(1) Find the cost of the tomatoes

2.75
× 1.89
2475
22000
27500
5.1975 ← Round to nearest hundredth

Cost of tomatoes is $5.20

10.00
– 5.20
4.80

You receive $4.80 in change.

(2) Subtract cost of tomatoes from the amount of money you give cashier.