

Objective: TSWBAT multiply decimals

1**EXAMPLE****Multiplying a Whole Number by a Decimal**

Find the product 0.47×8 .

$$\begin{array}{r} 0.47 \leftarrow 2 \text{ decimal places} \\ \times 8 \leftarrow + 0 \text{ decimal places} \\ \hline 3.76 \leftarrow 2 \text{ decimal places} \end{array}$$

2**EXAMPLE****Multiplying Decimals**

Find the product $0.3 \cdot 0.7$.

$$\begin{array}{r} 0.3 \leftarrow 1 \text{ decimal place} \\ \times 0.7 \leftarrow +1 \text{ decimal place} \\ \hline 0.21 \leftarrow 2 \text{ decimal places} \end{array}$$

Key Concepts**Properties of Multiplication****Commutative Property of Multiplication**

Changing the order of the factors does not change the product.

$$4.7 \times 5 = 5 \times 4.7$$

Associative Property of Multiplication

Changing the grouping of the factors does not change the product.

$$(4.7 \times 5) \times 2 = 4.7 \times (5 \times 2)$$

Identity Property of Multiplication

The product of 1 and any number is that number.

$$4.7 \times 1 = 1 \times 4.7 = 4.7$$

EXAMPLE**Using the Properties of Multiplication**

Mental Math A customer buys 4 bags of corn. Each bag contains 8 ears of corn that cost \$.25 per ear. Use mental math to find $4 \times (8 \times \$.25)$.

What you think

\$.25 and 4 are easy to multiply. Multiplying \$.25 and 4 gives \$1. Multiplying \$1 and 8 gives \$8. So, $4 \times (8 \times \$.25) = \8 .

Why it works

$$\begin{aligned} 4 \times (8 \times \$.25) &= 4 \times (\$.25 \times 8) && \leftarrow \text{Commutative Property of Multiplication} \\ &= (4 \times \$.25) \times 8 && \leftarrow \text{Associative Property of Multiplication} \\ &= \$1 \times 8 && \leftarrow \text{Multiply inside the parentheses.} \\ &= \$8 && \leftarrow \text{Identity Property of Multiplication} \end{aligned}$$

For each product place the decimal point in the correct place.

$$\begin{array}{r} 3. \quad 0.9 \\ \times 2.8 \\ \hline 252 \end{array}$$

2.52

$$\begin{array}{r} 4. \quad 3.1 \\ \times 77 \\ \hline 2387 \end{array}$$

238.7

$$\begin{array}{r} 5. \quad 6.22 \\ \times 8 \\ \hline 4976 \end{array}$$

49.76

$$\begin{array}{r} 6. \quad 19.6 \\ \times 2.03 \\ \hline 39788 \end{array}$$

39.788