

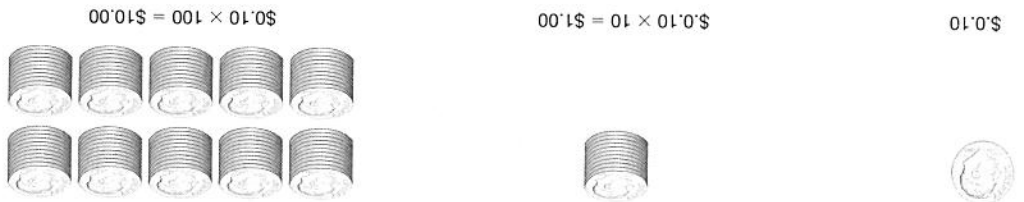
# Multiplying Decimals by 10, 100, or 1,000

Name \_\_\_\_\_

Reteaching  
6-1

You can use patterns to multiply decimals mentally by 10, 100, and 1,000.

Andrew starts selling his baseball cards for \$0.10 each. After selling 10 cards, he has made \$1.00. After selling 100 cards, he has made \$10.00.



When you multiply by

10 ( $10^1$ )

100 ( $10^2$ )

1,000 ( $10^3$ )

Add 1 zero

Add 2 zeros

Add 3 zeros

If Andrew sold 1,000 cards, how much money would he make? \_\_\_\_\_

**Mental Math** For questions 1 through 4, find the product using mental math.

1.  $6.1 \times 10$  \_\_\_\_\_

2.  $100 \times 37.98$  \_\_\_\_\_

3.  $92.3 \times 1,000$  \_\_\_\_\_

4.  $0.418 \times 100$  \_\_\_\_\_

5. Myla has an antique flower vase that she bought for \$15.75 many years ago. The vase's value is now 1,000 times as great. What is the value of the vase? \_\_\_\_\_

6. Raul can hit a golf ball 26.4 yards. A.J. can hit a golf ball 10 times as far. How far can A.J. hit the ball? \_\_\_\_\_

7. Is 0.018 a reasonable answer for  $1.8 \times 100$ ? \_\_\_\_\_

# Multiplying Decimals by 10, 100, or 1,000

Use mental math to find each product.

1.  $53.7 \times 10$  \_\_\_\_\_

3.  $66.37 \times 1,000$  \_\_\_\_\_

5.  $92.5 \times 10$  \_\_\_\_\_

7.  $0.567 \times 100$  \_\_\_\_\_

9.  $5.8 \times 100$  \_\_\_\_\_

11.  $6.2 \times 1,000$  \_\_\_\_\_

13.  $0.003 \times 1,000$  \_\_\_\_\_

15.  $7.03 \times 10$  \_\_\_\_\_

17. Kendra bought 10 gallons of gasoline at \$3.26 per gallon. How much did she pay for the gasoline?

- A \$326.00    B \$32.60    C \$1.26    D \$0.26

18. Freddy is helping buy ingredients for salads for the school spaghetti dinner. He bought 10 pounds of onions at \$0.69 per pound, 100 pounds of tomatoes at \$0.99 per pound, 1,000 pounds of bread crumbs at \$0.09 per pound, and 100 pounds of lettuce at \$0.69 per pound. Which of the items he bought cost the most?

- A tomatoes    B lettuce    C bread crumbs    D onions

19. Marco and Suzi each multiplied  $0.721 \times 100$ . Marco got 7.21 for his product. Suzi got 72.1 for her product. Which student multiplied correctly? How do you know?

Name \_\_\_\_\_

# Estimating the Product of a Decimal and a Whole Number

6-2  
Reteaching

You can estimate when you are multiplying a decimal by a whole number to check the reasonableness of your product.

Zane needs to buy 27 lb of roast beef for the company party. The roast beef costs \$2.98 per pound. About how much will the roast beef cost?

There are two ways to estimate.

Round both numbers

$$\begin{array}{c}
 \uparrow \quad \uparrow \\
 \$2.98 \times 27 \\
 \hline
 \$3 \times 30 = \$90
 \end{array}$$

The roast beef will cost about \$90.

Adjust your factors to compatible numbers you can multiply mentally.

$$\begin{array}{c}
 \uparrow \quad \uparrow \\
 \$2.98 \times 27 \\
 \hline
 \$3 \times 25 = \$75
 \end{array}$$

The roast beef will cost about \$75.

Estimate each product.

1.  $0.8 \times 22$  \_\_\_\_\_

2.  $19.3 \times 6$  \_\_\_\_\_

3.  $345 \times 5.79$  \_\_\_\_\_

4.  $966 \times 0.46$  \_\_\_\_\_

Use the chart to answer questions 5 through 7.

5. About how much would it cost for Angelina and her 4 sisters to get a shampoo and a haircut?

Treatment	Cost
Shampoo	\$7.95
Haircut	\$12.95
Coloring	\$18.25
Perm	\$22.45

6. Could 3 of the sisters get their hair colored for less than \$100?

7. Angelina gets 9 haircuts per year. About how much does she spend on haircuts for the year?

Name \_\_\_\_\_

## Estimating the Product of a Decimal and a Whole Number

Estimate each product using rounding or compatible numbers.

1.  $0.97 \times 312$       2.  $8.02 \times 70$       3.  $31.04 \times 300$       4.  $0.56 \times 48$

5.  $0.33 \times 104$       6.  $0.83 \times 12$       7.  $0.89 \times 51$       8.  $4.05 \times 11$

9.  $0.13 \times 7$       10.  $45.1 \times 5$       11.  $99.3 \times 92$       12.  $47.2 \times 93$

13. Mr. Webster works 4 days a week at his office and 1 day a week at home. The distance to Mr. Webster's office is 23.7 miles. He takes a different route home, which is 21.8 miles. When Mr. Webster works at home, he drives to the post office once a day, which is 2.3 miles from his house. Which piece of information is not important in figuring out how many miles Mr. Webster drives per week to his office?

- A the number of days at the office
- B the distance to his office
- C the distance to the post office
- D the distance from his office

14. Mrs. Smith bought her three children new snowsuits for winter. Each snowsuit cost \$25.99. How much did Mrs. Smith pay in all?

- A \$259.90
- B \$77.97
- C \$51.98
- D \$25.99

15. How can estimating be helpful before finding an actual product?

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Name \_\_\_\_\_

# Number Sense: Decimal Multiplication

6-3  
Reteaching

Amelia can walk 3.6 miles in one hour. How far will she walk in 2.1 hours?

Step 1. Estimate

$$3.5 \times 2 = 7$$

Step 2. Compare each factor to 1

to determine the relative size of the product.

$$3.6 > 1$$

$$2.1 > 1$$

Because both factors are greater than 1, your answer will be greater than both factors.

Amelia will walk 7.56 miles in 2.1 hours.

Solve. Check your answer for reasonableness.

$$\begin{array}{r} 1.6 \\ \times 0.3 \\ \hline \end{array}$$

$$\begin{array}{r} 0.8 \\ \times 0.2 \\ \hline \end{array}$$

$$\begin{array}{r} 12.8 \\ \times 3.2 \\ \hline \end{array}$$

$$\begin{array}{r} 0.03 \\ \times 6 \\ \hline \end{array}$$

5. Explain why  $0.3 \times 0.9 \neq 2.7$ . What is the correct answer?

6. **Mental Math** Estimate the product of 3.9 and 4.6 using mental math. Explain the method you used.

Name \_\_\_\_\_

# Number Sense: Decimal Multiplication

For 1-8 only two numbers of the product are shown. Also, the decimal point is missing. Complete the product and place the decimal point where it should be. Round your answer to the nearest hundredth.

1.  $0.4 \times 0.6 =$  2 4

2.  $3.6 \times 4.1 =$  1 4

3.  $9.01 \times 8.3 =$  7 4

4.  $4.06 \times 20.1 =$  8 1.

5.  $0.2 \times 0.8 =$  1 6

6.  $4.04 \times 3 =$  1 2

7.  $11.6 \times 3.4 =$  3 9

8.  $7.8 \times 0.1 =$  7 8

For 9-12 complete the operation and explain why you placed the decimal point where you did.

9.  $1.8 \times 0.3 =$  \_\_\_\_\_

10.  $0.2 \times 0.7 =$  \_\_\_\_\_

11.  $12.4 \times 3.1 =$  \_\_\_\_\_

12.  $9.5 \times 3 =$  \_\_\_\_\_

Name \_\_\_\_\_

# Models for Multiplying Decimals

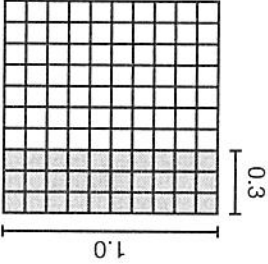
Reaching  
6-4

Use the same strategy to multiply a decimal by a whole number or to multiply a decimal by a decimal.

Multiply  $1.0 \times 0.3$

Use an area model and hundredths grid to find the product.

Each factor becomes a side length of a rectangle.



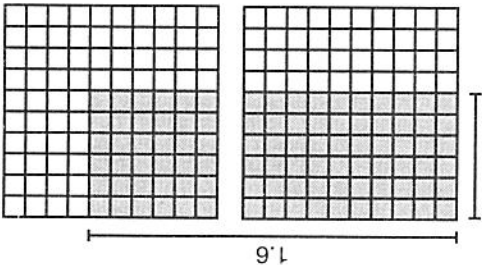
Count the hundredths cells in the shaded area to find the product.

$$1.0 \times 0.3 = 0.3$$

Multiply  $1.6 \times 0.6$

Use an area model and a hundredths grid to find the product.

Because one factor is greater than 1, you will need to use 2 hundredths grids (for a total of 2 units).



Count the hundredths cells in the shaded area to find the product.

$$1.6 \times 0.6 = 0.96$$

Place the decimal point in each product.

1.  $1.2 \times 3.6 = 432$       2.  $5.5 \times 3.7 = 2035$       3.  $4.4 \times 2.3 = 1012$

Find the product.

4.  $7 \times 0.5$       5.  $12 \times 0.08$       6.  $24 \times 0.17$
7.  $0.4 \times 0.7$       8.  $1.9 \times 0.4$       9.  $3.42 \times 5$

10. If you multiply two decimals less than 1, can you predict whether the product will be less than or greater than either of the factors? Explain.

# Problem Solving: Multiple-Step Problems

Name \_\_\_\_\_

Practice  
6-7

Write and answer the hidden question. Then solve.

1. Gloria talked on her cell phone for 320 minutes the first month, 243 minutes the second month, and 489 minutes the third month. Her payment package does not allow her to pay per minute; she can only buy packages. If she has to pay \$25 for every 200 minutes, how much did she pay for the first three months?

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2. Each can of paint will cover 450 tiles. Augustin is painting 300 tiles in his bathroom, 675 in his kitchen, and 100 in his hallway. How many cans of paint does he need to buy?

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3. The sum of three different numbers is 18. If every number is a prime number, what are the three numbers?

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4. You earn \$3 an hour as a waitress. After working 3 hours, you earn \$12, \$5, and \$7 in tips. How much money did you earn in total? Explain how you found your answer.

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