Name _____

6 Multiply Decimals

Show What You Know

Multiplication Patterns Complete.

1. $3 \times 6 =$ _____

$3 \times 60 =$ _____

$3 \times 600 =$ _____

$3 \times 6{,}000 =$ _____

2. $4 \times 7 =$ _____

$40 \times 7 =$ _____

$400 \times 7 =$ _____

$4{,}000 \times 7 =$ _____

Properties of Multiplication Use properties of multiplication to complete each equation.

3. $45 \times 56 = 56 \times$ _____

4. $9 \times 87 = (9 \times$ _____$) + ($_____$ \times 7)$

Multiply by 3-Digit Numbers Multiply.

5. 685×9

6. 218×7

7. 359×22

8. 986×57

MATH in the Real World

The maximum speed a sloth can move is 0.17 miles per hour. If a sloth was moving at maximum speed for 3 hours, how many miles would it travel?

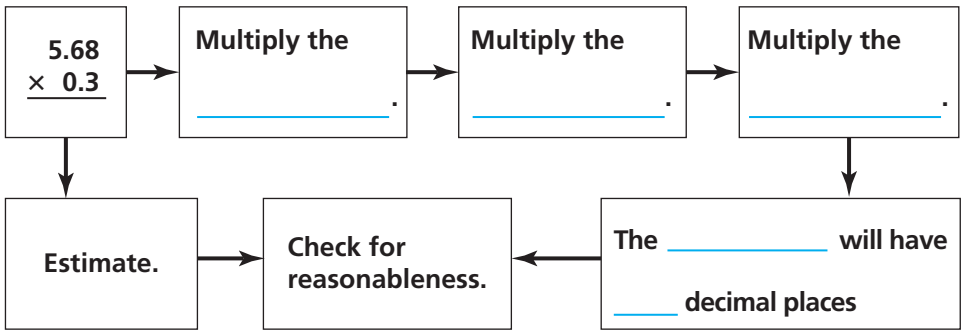
_____

Vocabulary Builder

Go Online | For more help

Visualize It

Complete the flow map using the words with a ✓.



Connect to Vocabulary

Review Words

- decimal
- expanded form
- ✓ hundredths
- multiplication
- ✓ ones
- place value
- ✓ product
- ✓ tenths
- thousandths

Understand Vocabulary

Use the vocabulary terms to solve each riddle.

1. Use me to find the total number of items in groups of equal amounts. Who am I? _____
2. If you use me to write a number, you can see the value of each digit. Who am I? _____
3. I am the place value of the digit that is three places right of the decimal point. Who am I? _____
4. If you multiply two numbers, you get me. Who am I? _____
5. I am the location of a digit in a number that determines its value. Who am I? _____

Name _____

Represent Decimal Multiplication

I Can use models to represent multiplication of decimals.

Florida's B.E.S.T.

- **Number Sense & Operations** 5.NSO.2.4, 5.NSO.2.5
- **Mathematical Thinking & Reasoning** MTR.1.1, MTR.2.1, MTR.3.1, MTR.4.1, MTR.5.1, MTR.6.1, MTR.7.1

Investigate

Materials ■ color pencils

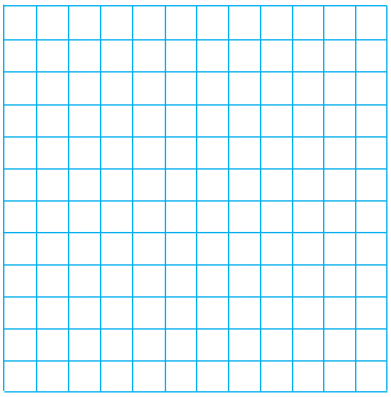
The distance from Oliana's house to her school is 0.8 mile. Oliana rides her bike 0.7 of the distance and walks the rest of the way. How far does Oliana ride her bike to school?

You can use a decimal square to multiply decimals.

Multiply. 0.7×0.8

A. Draw a square with 10 equal columns.

- What decimal value does each column represent? _____



B. Using a color pencil, shade columns on the grid to represent the distance to Oliana's school.

- The distance to the school is 0.8 mile.

  How many columns did you shade? _____

C. Divide the square into 10 equal rows.

- What decimal value does each row represent? _____

D. Using a different color, shade rows that overlap the shaded columns to represent the distance to school that Oliana rides her bike.

- What part of the distance to school does Oliana ride her bike? _____
- How many rows of the shaded columns did you shade?

  _____

E. Count the number of squares that you shaded twice.

There are _____ squares. Each square represents _____.

Record the value of the squares as the product. $0.7 \times 0.8 =$ _____

So, Oliana rides her bike for _____ mile.

Draw Conclusions

1. Explain how dividing the decimal square into 10 equal columns and rows shows that tenths multiplied by tenths is equal to hundredths.

2. MTR Why is the part of the model representing the product less than either factor?

Make Connections

You can use decimal squares to multiply decimals greater than 1.

Multiply. 0.3×1.4

STEP 1

Shade columns to represent 1.4.

How many tenths are in 1.4?

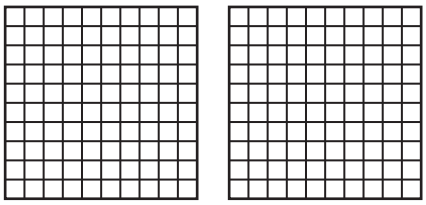
STEP 2

Shade rows that overlap the shaded columns to represent 0.3.

How many rows of the shaded columns did you shade?

STEP 3

Count the number of squares that you shaded twice. Record the product at the right.



$0.3 \times 1.4 =$

Math Talk

MTR 2.1 **Demonstrate understanding in multiple ways.**

Why is the product less than only one of the decimal factors?

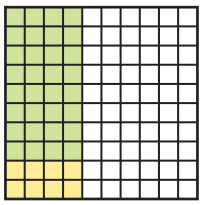
Name _____

Share and Show

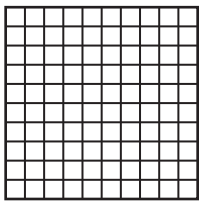
Math Board

Multiply. Use the decimal model.

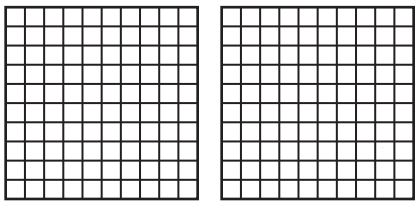
1. $0.8 \times 0.4 =$ _____



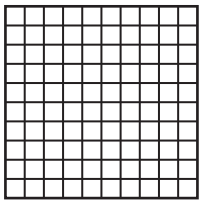
2. $0.1 \times 0.7 =$ _____



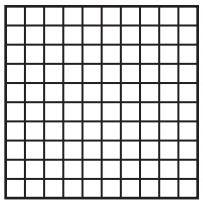
3. $0.4 \times 1.6 =$ _____



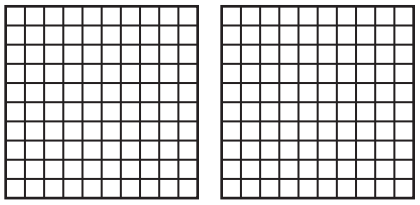
4. $0.3 \times 0.4 =$ _____



5. $0.9 \times 0.6 =$ _____



6. $0.5 \times 1.2 =$ _____



On Your Own

7. Rachel buys 1.5 pounds of grapes. She eats 0.3 of that amount on Tuesday and 0.2 of that amount on Wednesday. How many pounds of grapes are left?

_____

8. A large bottle contains 1.2 liters of olive oil. A medium-sized bottle has 0.6 times the amount of olive oil as the large bottle. How much more olive oil does the large bottle contain than the medium-sized bottle?

MATH on the Spot

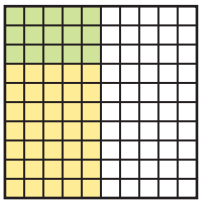
_____

Show the Math

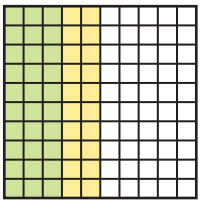
Demonstrate Your Thinking

9. MTR Randy and Stacy used models to find 0.3 of 0.5. Both Randy's and Stacy's models are shown below. Whose model makes sense? Whose model is nonsense? Explain your reasoning below each model. Then record the correct answer.

Randy's Model



Stacy's Model



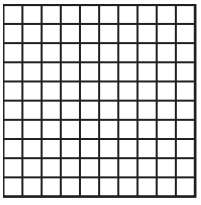
$0.3 \times 0.5 =$ _____

- For the answer that is nonsense, describe the error the student made.

_____

_____

10. Shade the model to show 0.2×0.6. Then find the product.



$0.2 \times 0.6 =$ _____

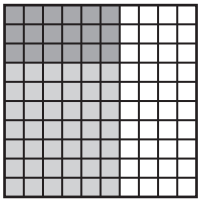
Name _____

Represent Decimal Multiplication

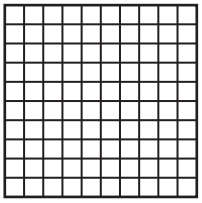
Go Online
Interactive Examples

Multiply. Use the decimal model.

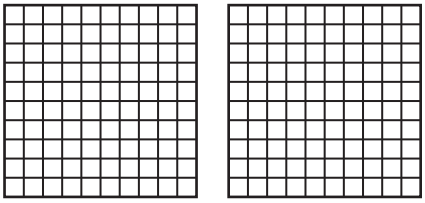
1. $0.3 \times 0.6 =$ 0.18



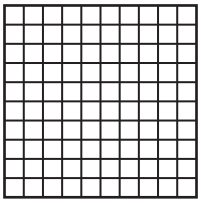
2. $0.2 \times 0.8 =$ _____



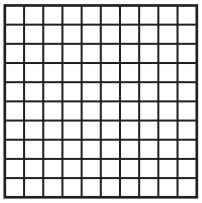
3. $0.5 \times 1.7 =$ _____



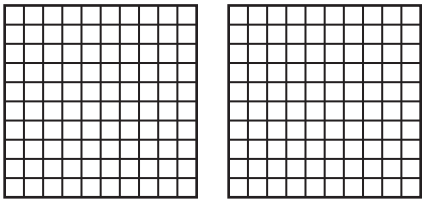
4. $0.6 \times 0.7 =$ _____



5. $0.8 \times 0.5 =$ _____



6. $0.4 \times 1.9 =$ _____



Problem Solving Real World

7. A certain type of bamboo plant grows 1.2 feet in 1 day. At that rate, how many feet could the plant grow in 0.5 day?

8. The distance from the park to the grocery store is 0.9 mile. Ezra runs 8 tenths of that distance and walks the rest of the way. How far does Ezra run from the park to the grocery store?

9. WRITE Math Write a story problem that involves multiplying a decimal less than 2 by a decimal less than 1. Include the solution and the work you did to find it.

Lesson Check

10. Liz is hiking a trail that is 0.8 mile long. Liz hikes the first 2 tenths of the distance by herself. She hikes the rest of the way with her friends. How far does Liz hike by herself?

11. One cup of cooked zucchini has 1.9 grams of protein. How much protein is in 0.5 cup of zucchini?

Spiral Review

12. What property does the statement show?

$$(4 \times 8) \times 3 = (8 \times 4) \times 3$$

13. At the beginning of the school year, Rochelle joins the school garden club. In her plot of land, she plants 4 rows of tulips, each containing 27 bulbs. How many tulip bulbs does Rochelle plant in all?

14. In which place is the first digit of the quotient?

$$3{,}589 \div 18$$

15. At a football game, Jasmine bought a soft pretzel for $2.25 and a bottle of water for $1.50. She paid with a $5 bill. How much change should Jasmine get back?

Name _____

Multiply Decimals

Florida's B.E.S.T.

- **Number Sense & Operations** 5.NSO.2.4, 5.NSO.2.5
- **Mathematical Thinking & Reasoning** MTR.1.1, MTR.2.1, MTR.3.1, MTR.4.1, MTR.5.1, MTR.6.1, MTR.7.1

I Can use place-value strategies to place a decimal point when multiplying.

CONNECT You can use what you have learned about patterns and place value to place the decimal point in the product when you multiply two decimals.

$1 \times 0.1 = 0.1$

$0.1 \times 0.1 = 0.01$

$0.01 \times 0.1 = 0.001$

Remember

When a number is multiplied by a decimal, the decimal point moves one place to the left in the product for each decreasing place value being multiplied.

UNLOCK the Problem Real World

A male leopard seal is measured and has a length of 2.8 meters. A male elephant seal is about 1.5 times as long. What length is the male elephant seal?

Multiply. 1.5 × 2.8

One Way Use place value.

STEP 1 Multiply as with whole numbers.

STEP 2 Place the decimal point.

Think: Tenths are being multiplied by tenths. Use the pattern 0.1 × 0.1.

Place the decimal point so the value of the decimal is _____.

$$\begin{array}{r} 28 \\ \times\ 15 \\ \hline 140 \\ +\ 280 \\ \hline 420 \end{array}$$

$28 \xrightarrow{\times 0.1} 2.8$ 1 place value

$\times 15 \xrightarrow{\times 0.1} \times 1.5$ 1 place value

1 + 1, or 2 place values

$420 \xrightarrow{\times 0.01}$

So, the length of a male elephant seal is about _____ meters.

- **MTR** What if you multiplied 2.8 by 1.74? What would be the place value of the product? Explain your answer.

_____

_____

Another Way Use estimation.

You can use an estimate to place the decimal point in a product.

Multiply. 7.8×3.12

STEP 1 Esimate by rounding each factor to the nearest whole number.

7.8×3.12
$\downarrow \quad \downarrow$
$\_\_\_\_ \times \_\_\_\_ = \_\_\_\_$

STEP 2 Multiply as with whole numbers.

$$\begin{array}{r} 312 \\ \times\ 78 \\ \hline \end{array} \qquad \begin{array}{r} 3.12 \\ \times\ 7.8 \\ \hline \end{array}$$

STEP 3 Use the estimate to place the decimal point.

Think: The product should be close to your estimate.

$7.8 \times 3.12 = \_\_\_\_\_$

Share and Show Math Board

Place the decimal point in the product.

1. $\begin{array}{r} 3.62 \\ \times\ 1.4 \\ \hline 5068 \end{array}$

Think: A hundredth is being multiplied by a tenth. Use the pattern 0.01×0.1.

2. $\begin{array}{r} 6.8 \\ \times\ 1.2 \\ \hline 816 \end{array}$

Estimate: $1 \times 7 = \_\_\_\_$

Find the product.

3. $\begin{array}{r} 0.9 \\ \times\ 0.8 \\ \hline \end{array}$

4. $\begin{array}{r} 84.5 \\ \times\ 5.5 \\ \hline \end{array}$

5. $\begin{array}{r} 2.39 \\ \times\ 2.7 \\ \hline \end{array}$

Math Talk

MTR 2.1 Demonstrate understanding in multiple ways.

How can you know the place value of the product for Problem 5 before you solve?

Name _____

On Your Own

Find the product.

6. $\begin{array}{r} 7.9 \\ \times\ 3.4 \\ \hline \end{array}$

7. $\begin{array}{r} 9.2 \\ \times\ 5.6 \\ \hline \end{array}$

8. $\begin{array}{r} 3.45 \\ \times\ 9.7 \\ \hline \end{array}$

9. $\begin{array}{r} 45.3 \\ \times\ 0.8 \\ \hline \end{array}$

10. $\begin{array}{r} 6.98 \\ \times\ 2.5 \\ \hline \end{array}$

11. $\begin{array}{r} 7.02 \\ \times\ 3.4 \\ \hline \end{array}$

Find the product.

12. 3.4×5.2

13. 0.9×2.46

14. 9.1×5.7

15. 4.8×6.01

16. 7.6×18.7

17. 1.5×9.34

18. 0.77×14.9

19. 3.3×58.14

20. Charlie has an adult Netherlands dwarf rabbit that weighs 1.2 kilograms. Cliff's adult Angora rabbit weighs 2.9 times as much as Charlie's rabbit. How much does Cliff's rabbit weigh?

21. Gina bought 2.5 pounds of peaches that cost $1.38 per pound at the grocery store. Amy went to the local farmer's market and purchased 3.5 pounds of peaches at $0.98 per pound. Who spent more money, and how much more?

Problem Solving · Applications

22. Juan has pet rabbits in an enclosure that has an area of 30.72 square feet. The enclosure Taylor is planning to build for his rabbits will be 2.2 times as large as Juan's. How many more square feet will Taylor's enclosure have than Juan's enclosure?

_____

23. MATH on the Spot

A zoo is planning a new building for the penguin exhibit. First, they made a model that was 1.3 meters tall. Then, they made a more detailed model that was 1.5 times as tall as the first model. The building will be 2.5 times as tall as the height of the detailed model. What will be the height of the building?

_____

24. MTR Leslie and Ali both solve the multiplication problem 5.5×4.6. Leslie says the answer is 25.30. Ali says the answer is 25.3. Whose answer is correct? Explain your reasoning.

_____

_____

_____

_____

25. For 25a–25d select True or False to indicate if the statement is correct.

25a. The product of 1.3 and 2.1 is 2.73.	○ True	○ False
25b. The product of 2.6 and 0.2 is 52.	○ True	○ False
25c. The product of 0.08 and 0.3 is 2.4.	○ True	○ False
25d. The product of 0.88 and 1.3 is 1.144.	○ True	○ False

Name _____

Multiply Decimals

Go Online
Interactive Examples

Find the product.

1. $5.8 \times 2.4 = 13.92$

$58 \times 24 = 232 + 1{,}160 = 1{,}392$

2. 7.3×9.6

3. 46.3×0.8

4. 29.5×1.3

5. 3.76×4.8

6. 9.07×6.5

7. 0.42×75.3

8. 5.6×61.84

9. 7.5×18.74

10. 0.9×53.8

Problem Solving Real World

11. Aretha runs a marathon in 3.25 hours. Neal takes 1.6 times as long to run the same marathon. How many hours does it take Neal to run the marathon?

_____

12. Tiffany catches a fish that weighs 12.3 pounds. Frank catches a fish that weighs 2.5 times as much as Tiffany's fish. How many pounds does Frank's fish weigh?

_____

13. WRITE Math Write a problem that includes multiplying decimals. Explain how you know where to place the decimal in the product.

_____

_____

Lesson Check

14. Sue buys material to make a costume. She buys 1.75 yards of red material. She buys 1.2 times as many yards of blue material. How many yards of blue material does Sue buy?

15. Last week Juan worked 20.5 hours. This week he works 1.5 times as many hours as he did last week. How many hours does Juan work this week?

Spiral Review

16. The expression below shows a number in expanded form. What is the standard form of the number?

$(2 \times 10) + (3 \times \frac{1}{10}) + (9 \times \frac{1}{100}) + (7 \times \frac{1}{1{,}000})$

17. Taliya buys a sweater for $16.79 and a pair of pants for $28.49. She pays with a $50 bill. How much change should Taliya get back?

18. Elvira is playing a pattern game and has the following sequence.

2.75, _____, 3.25, 3.50, 3.75

What is the unknown term in the sequence?

19. What digit should go in the box to make the following statement true?

$63.749 < 63.\square 2$

Name _____

Multiply Decimals with Zeros in the Product

Florida's B.E.S.T.

- **Number Sense & Operations** 5.NSO.2.5
- **Mathematical Thinking & Reasoning** MTR.1.1, MTR.3.1, MTR.4.1, MTR.5.1, MTR.6.1

I Can understand the concept of having the correct number of decimal places in a product.

UNLOCK the Problem Real World

When decimals are multiplied, the product may not have enough digits to place the decimal point. In these cases, you may need to write additional zeros as place holders.

Students are racing typical garden snails and measuring the distance the snails travel in 1 minute. Chris's snail travels a distance of 0.2 foot. Jamie's snail travels 0.4 times as far as Chris's snail. How far does Jamie's snail travel?

- Using the given information, describe what you are being asked to find.

_____

_____

_____

Multiply. 0.4 × 0.2

STEP 1 Multiply as with whole numbers.

STEP 2 Determine the position of the decimal point in the product.

Since tenths are being multiplied by tenths, the product will show _____.

$2 \xrightarrow{\times 0.1} 0.2$ 1 place value

$\times 4 \xrightarrow{\times 0.1} \times 0.4$ 1 place value

$8 \xrightarrow{\times 0.01} \quad 8$ 1 + 1, or 2 place values

STEP 3 Place the decimal point.

Are there enough digits in the product to place the decimal point? _____

Write zeros, as needed, to the left of the whole number product to place the decimal point.

So, Jamie's snail travels a distance of _____ foot.

Math Talk

MTR 3.1 Complete tasks with mathematical fluency.

Explain how you know when to write zeros in the product to place a decimal point.

Examples Multiply money.

0.2 × $0.30

STEP 1 Multiply as with whole numbers.

Think: The factors are 30 hundredths and 2 tenths.

What are the whole numbers you will multiply?

_____

$0.30
× 0.2

STEP 2 Determine the position of the decimal point in the product.

Since hundredths are being multiplied by tenths,

the product will show _____.

STEP 3 Place the decimal point. Write zeros to the left of the whole number product as needed.

Since the problem involves dollars and cents, what place value should you use to show cents?

_____

So, 0.2 × $0.30 is _____.

Try This! Find the product.

0.2 × 0.05 = _____

What steps did you take to find the product?

_____

_____

_____

_____

_____

_____

Math Talk

MTR 4.1 Engage in discussions on mathematical thinking.

Explain why the answer to the Try This! can have a digit with a place value of hundredths or thousandths and still be correct.

Name _____

Share and Show

Math Board

Write zeros in the product.

1. $0.05 \times 0.7 = 35$

Think: Hundredths are multiplied by tenths. What should be the place value of the product?

2. $0.2 \times 0.3 = 6$

3. $0.02 \times 0.2 = 4$

Find the product.

4. $\$0.05 \times 0.8$

5. 0.09×0.7

6. 0.2×0.1

Math Talk

MTR 4.1 Engage in discussions on mathematical thinking.

Why does 0.04×0.2 have the same product as 0.4×0.02?

On Your Own

Find the product.

7. 0.3×0.3

8. 0.05×0.3

9. 0.02×0.4

10. $\$0.40 \times 0.1$

MTR **Find the value of *n*.**

11. $0.03 \times 0.6 = n$

$n =$ _____

12. $n \times 0.2 = 0.08$

$n =$ _____

13. $0.09 \times n = 0.063$

$n =$ _____

14. Michael multiplies 0.2 by a number. He records the product as 0.008. What number did Michael use?

_____

MATH on the Spot

Problem Solving · Applications

15. On an average day, a garden snail can travel about 0.05 mile. The snail travels 0.2 times as far as the average distance on Day 1. It travels 0.6 times as far as the average distance on Day 2. How far does it travel in two days?

a. What are you being asked to find? _____

b. What information will you use to solve the problem? _____

_____

_____

c. Which operations can you use to solve the problem? _____

_____

_____

d. Show how you will solve the problem.

e. Complete the sentence. The garden snail travels _____ mile in 2 days.

16. In a science experiment, Tania uses 0.8 ounce of water to create a reaction. She wants the next reaction to be 0.1 times the size of the previous reaction. How much water should she use?

_____

17. The library is 0.5 mile from Celine's house. The dog park is 0.3 times as far from Celine's house as the library. How far is the dog park from Celine's house? Write an equation and solve.

_____

Name _____

Multiply Decimals with Zeros in the Product

Go Online
Interactive Examples

Find the product.

1. $0.07 \times 0.2 = 0.014$

$7 \times 2 = 14$

2. 0.3×0.1

3. 0.05×0.8

4. 0.08×0.3

5. 0.06×0.7

6. 0.2×0.4

7. 0.05×0.4

8. 0.08×0.8

9. $\$0.90 \times 0.1$

10. 0.02×0.3

11. 0.09×0.5

12. $\$0.05 \times 0.2$

Problem Solving Real World

13. A beaker contains 0.5 liter of a solution. Jordan uses 0.08 of the solution for an experiment. How much solution does Jordan use?

_____

14. A certain type of nuts is on sale at $0.35 per pound. Tamara buys 0.2 pound of nuts. How much will the nuts cost?

_____

15. WRITE Math Explain how you write products when there are not enough digits in the product to place the decimal point.

_____

_____

Lesson Check

16. Liam multiplies 0.06 and 0.5. What product should he record?

17. What is the product of 0.4 and 0.09?

Spiral Review

18. A florist makes 24 bouquets. She uses 16 flowers for each bouquet. Altogether, how many flowers does she use?

19. Pavel has 312 books in his bookcases. He has 11 times as many fiction books as nonfiction books. How many fiction books does Pavel have?

20. Dwayne buys a pumpkin that weighs 12.65 pounds. To the nearest tenth of a pound, how much does the pumpkin weigh?

21. What is the value of the digit 6 in the number 896,000?

Name _____

Apply Properties of Multiplication to Decimals

Florida's B.E.S.T.

- **Number Sense & Operations** 5.NSO.2.4, 5.NSO.2.5
- **Mathematical Thinking & Reasoning** MTR.1.1, MTR.2.1, MTR.3.1, MTR.5.1

I Can use properties of multiplication to solve problems.

You can use the properties of multiplication to help you evaluate numerical expressions more easily.

Properties of Multiplication	
Commutative Property of Multiplication If the order of factors changes, the product stays the same.	$3.6 \times 4.25 = 4.25 \times 3.6$
Associative Property of Multiplication If the grouping of factors changes, the product stays the same.	$1.2 \times (3 \times 5.64) = (1.2 \times 3) \times 5.64$
Identity Property of Multiplication The product of any number and 1 is that number.	$7.982 \times 1 = 7.982$
Zero Property of Multiplication The product of any number and 0 is 0.	$9.6 \times 0 = 0$

UNLOCK the Problem

Real World

Kalea purchases 1.5 rows of seats for the play. Each row has 8 seats. If every seat costs $6.25, how much did she pay?

Use properties to find $8 \times 6.25 \times 1.5$.

$8 \times 6.25 \times 1.5 = 6.25 \times$ _____ $\times 1.5$ Use the _____ Property to reorder the factors.

$= 6.25 \times (8 \times$ _____ $)$ Use the _____ Property to group the factors.

$= 6.25 \times$ _____ Use mental math to multiply.

$=$ _____

Kalea pays $ _____ for the seats.

Math Talk

MTR 4.1 Engage in discussions on mathematical thinking.

Explain why grouping 8 and 1.5 makes the problem easier to solve.

Distributive Property	
Multiplying a sum by a number is the same as multiplying each addend by the number and then adding the products.	$1.3 \times (3.58 + 9.1) = (1.3 \times 3.58) + (1.3 \times 9.1)$
The Distributive Property can also be used with multiplication and subtraction.	$4.57 \times (6.8 - 2.9) = (4.57 \times 6.8) - (4.57 \times 2.9)$

Example 1 Use the Distributive Property to find the product.

One Way Use addition.

$8 \times 3.6 = 8 \times (\_\_\_\_ + 0.6)$ Write 3.6 as a sum of a whole number and a decimal.

$= (\_\_\_\_ \times 3) + (8 \times \_\_\_\_)$ Use the Distributive Property.

$= \_\_\_\_ + \_\_\_\_$ Use mental math to multiply.

$= \_\_\_\_$ Use mental math to add.

Another Way Use subtraction.

$8 \times 3.6 = 8 \times (\_\_\_\_ - 0.4)$ Write 3.6 as a difference of a whole number and a decimal.

$= (\_\_\_\_ \times 4) - (8 \times \_\_\_\_)$ Use the Distributive Property.

$= \_\_\_\_ - \_\_\_\_$ Use mental math to multiply.

$= \_\_\_\_$ Use mental math to subtract.

Example 2 Complete the equation, and tell which property you used.

A $5.843 \times \_\_\_\_ = 5.843$

Think: A number times 1 is equal to itself.

Property: _____

_____

B $8.49 \times 2.7 = 2.7 \times \_\_\_\_$

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

Property: _____

_____

Math Talk

MTR 4.1 Engage in discussions on mathematical thinking.

Explain how to use the Distributive Property to find the product 6×7.99.

Name _____

Share and Show

Math Board

1. Use properties to find $4 \times 6.3 \times 2.5$.

$6.3 \times$ _____ $\times 2.5$ _____ Property of Multiplication

$6.3 \times ($_____ $\times$ _____$)$ _____ Property of Multiplication

$6.3 \times$ _____

_____

Use properties to find the product.

2. $1.2 \times 4.89 \times 5$

3. 9×5.204

4. $1.08 \times 0 \times 0.39 \times 1.003$

Complete the equation, and tell which property you used.

5. $5 \times (30 + 0.6) = (5 \times$ _____ $) + (5 \times 0.6)$

6. $1 \times$ _____ $= 7.463$

Math Talk

MTR 4.1 Engage in discussions on mathematical thinking.

How you can use properties to solve problems more easily?

On Your Own

Use properties to find the product.

7. 4×7.8

8. $8 \times 7.42 \times 0.05$

9. $4.5 \times 6.48 \times 2$

Complete the equation, and tell which property you used.

10. $2.3 \times (7.199 \times 8.24) = (2.3 \times$ _____ $) \times 8.24$

11. $8.04 \times 2.375 =$ _____ $\times 8.04$

12. MTR Show how you can use the Distributive Property to rewrite and find $(0.32 \times 10) - (0.32 \times 0.2)$.

Problem Solving · Applications

13. There are 11 rows of 24 boxes in the warehouse. Each box weighs 6.78 pounds. Use parentheses to write two different expressions to show the total weight of the boxes. Which property does your pair of expressions demonstrate? What is the total weight?

14. Apples cost $1.88 per pound. Use properties to determine how much 6.5 pounds would cost.

15. Sefina bought 8 tickets to a play. Each ticket costs $18.76. To find the total cost in dollars, she added the product 8×18 to the product 8×0.76, for a total of 150.08. Which property did Sefina use?

16. Omari wrote $1.8 \times (3.4 - 2.1) = (1.8 \times 3.4) - 2.1$. Is Omari's equation sense or nonsense? Did she apply the properties correctly? Explain.

MATH on the Spot

17. Find the property that each equation shows.

$2.1 \times (4.9 \times 3.72) = (2.1 \times 4.9) \times 3.72$ •	• Zero Property of Multiplication
$1 \times 13.604 = 13.604$ •	• Commutative Property of Multiplication
$0.007 \times 0.45 = 0.45 \times 0.007$ •	• Associative Property of Multiplication
$26.825 \times 0 = 0$ •	• Identity Property of Multiplication

Name _____

Apply Properties of Multiplication to Decimals

Go Online
Interactive Examples

Use properties to find the product.

1. 7×8.9

$7 \times (9 - 0.1)$
$(7 \times 9) - (7 \times 0.1)$
$63 - 0.7$
62.3

62.3

2. $7.5 \times (4 \times 2.34)$

3. $0.5 \times 6.47 \times 0.2$

4. 6×5.01

5. $5.4 \times 2.371 \times 0 \times 9.86$

6. 78.904×1

Complete the equation, and tell which property you used.

7. $(3.45 \times 4) \times 1.25 =$ _____ $\times (4 \times 1.25)$

8. $6.1 \times 3.1 = 3.1 \times$ _____

Problem Solving Real World

9. Four friends order smoothies. Each add-in costs $1.75. They each order 3 add-ins. How much do they spend on add-ins in all? Use properties to find the total cost.

10. Karl bought 1.6 pounds of oranges and 2.4 pounds of pears. They each cost $1.48 per pound. Use properties to find the total cost.

11. WRITE Math Explain how you could mentally find 12×9.5 by using the Distributive Property.

Lesson Check

12. To find $1.9 \times (3.1 \times 5.7)$. Jean multiplied 1.9 and 3.1. Then he multiplied the product by 5.7. What property did he use?

13. Use the Distributive Property to show an expression that is equal to 5×9.8.

Spiral Review

14. On average, Americans consume 1.31 pounds of honey every year. How many pounds of honey do they consume in 3 years?

15. A golden eagle flies a distance of 870 miles in 15 days. If the eagle flies the same distance each day of its journey, how far does the eagle fly per day?

16. What is the value of the underlined digit in the following number?

$3.49\underline{5}$

17. Write the decimal.
thirty-two and six hundred five thousandths.

Name _____

Chapter 6

Chapter Review

1. Patricio is making a scale model of his school. His school is 11.4 meters tall. If the model is 0.07 of the actual size of the school, how tall is the model?

_____ meters

2. For 2a–2d, choose Yes or No to indicate whether the product is correct.

2a. $0.3 \times 0.4 = 1.2$ ○ Yes ○ No

2b. $0.02 \times 0.4 = 0.008$ ○ Yes ○ No

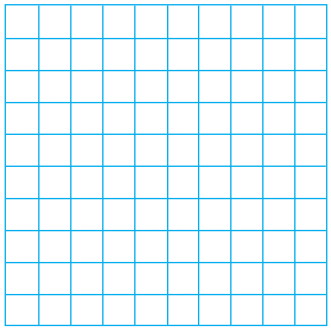
2c. $0.05 \times 0.3 = 0.015$ ○ Yes ○ No

2d. $0.06 \times 0.03 = 0.018$ ○ Yes ○ No

3. Leona is working with a piece of string that is 5.5 feet long. She needs the string to be 2.7 times as long. How long will the string be?

_____

4. Laurel models the product 0.9×0.6. Shade the correct amount of boxes that will show the product. Find the product.



$0.9 \times 0.6 =$ _____

5. Use properties to find $4 \times 7.9 \times 2.5$.

7.9 × _____ × 2.5 _____ Property of Multiplication

7.9 × _____ × _____ _____ Property of Multiplication

7.9 × _____

_____

6. Which problems will have two decimal places in the product? Mark all that apply.

Ⓐ 3.4×6.7 Ⓑ 7.4×10 Ⓒ 9.85×1

Ⓓ 8.4×9 Ⓔ 7×2.96

7. Madeleine is trying to multiply 0.5 x 0.34 x 2. Explain how she can use the Identity Property of Multiplication to find the product. What is the product?

_____

_____

_____

_____

8. Maria worked 31.75 hours this week.

Part A

Last week, Maria worked 0.8 times as many hours. How many hours did she work last week? Show your work.

_____ hours

Part B

Next week, Maria is scheduled to work 1.2 times as many hours. Assuming she works whatever she is scheduled for, how many hours will she work next week? Show your work.

_____ hours

Name _____

9. Arabella drives 17.8 miles a day. Yaya drives 1.6 times as far each day. How far does Yaya drive in 3 weeks? Show your work.

10. Elianna practices flute for 4.8 hours each week. Avery practices the oboe for 2.7 times as long each week. How many hours does Avery practice each week?

11. Use the numbers in the boxes to complete the number sentences. A number may be used more than once.

1,620	162	16.2	1.62	0.162

$3.6 \times 4.5 =$ ☐

$3.6 \times 45 =$ ☐

$3.6 \times 0.45 =$ ☐

$0.36 \times 0.45 =$ ☐

12. Beau spends 4 times as much as Jin on gear for the track season. Jin spent $12.89. How much did Beau spend?

$_____

13. Saul bought 2.3 pounds of apples and 4 pounds of oranges. They each cost $1.70 per pound.

Part A

Explain how you could mentally find the cost of the oranges by using the Distributive Property. What is the cost?

Part B

Show how you can use the Distributive Property to find the cost of the apples.

Part C

Show that your answers in Parts A and B are correct by multiplying to find the products. What is the total cost of the apples and oranges?

14. Complete the equation. Tell which property you used.

$7 \times 5.6 = 7 \times (\_\_\_\_\_ + 0.6)$

$= (\_\_\_\_\_ \times 5) + (7 \times \_\_\_\_\_)$

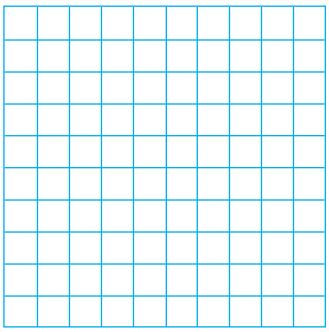
$= \_\_\_\_\_ + \_\_\_\_\_$

$= \_\_\_\_\_$

I used the _____ Property.

Name _____

15. Shade the model to show 0.5×0.3. Then find the product.



$0.5 \times 0.3 =$ ☐

16. Genesis reports that $4.5 \times 7.6 = 3.42$. Is she correct? Explain your reasoning.

17. Explain how an estimate helps you to place the decimal point when multiplying 3.9×5.3.

18. On Saturday, Ahmed walks his dog 0.7 mile. On the same day, Latisha walks her dog 0.4 times as far as Ahmed walks his dog. How far does Latisha walk her dog on Saturday?

_____ mile(s)

19. For 19a–19d select True or False for each statement.

19a. The product of 1.5 and 2.8 is 4.2. ○ True ○ False

19b. The product of 7.3 and 0.6 is 43.8. ○ True ○ False

19c. The product of 0.09 and 0.7 is 6.3. ○ True ○ False

19d. The product of 0.79 and 1.5 is 1.185. ○ True ○ False

20. A builder buys 24.5 acres of land to develop a new community of homes and parks.

Part A

The builder plans to use 0.25 of the land for a park. How many acres will he use for the park?

_____ acres

Part B

He buys a second property that has 0.62 times as many acres as the first property. How many acres of land does the second property have? Show your work.

21. Joaquin lives 0.3 mile from Keith. Layla lives 0.4 times as far from Keith as Joaquin. How far does Layla live from Keith? Write an equation to solve.

_____ mile

22. Brianna is getting materials for a chemistry experiment. Her teacher gives her a container that has 0.15 liter of a liquid in it. Brianna needs to use 0.4 of this liquid for the experiment. How much liquid will Brianna use?

_____ liter