3 More Multiplication Facts and Strategies

Chapter Learning Target:
Understand multiplication strategies.

Chapter Success Criteria:
- I can define a product.
- I can find the product of two numbers.
- I can make a plan to solve a problem.
- I can solve a problem.

- What is origami?
- You want to make 7 paper cubes. You need 6 sheets of paper to make each cube. How can you find the total number of sheets you need?

Name _____

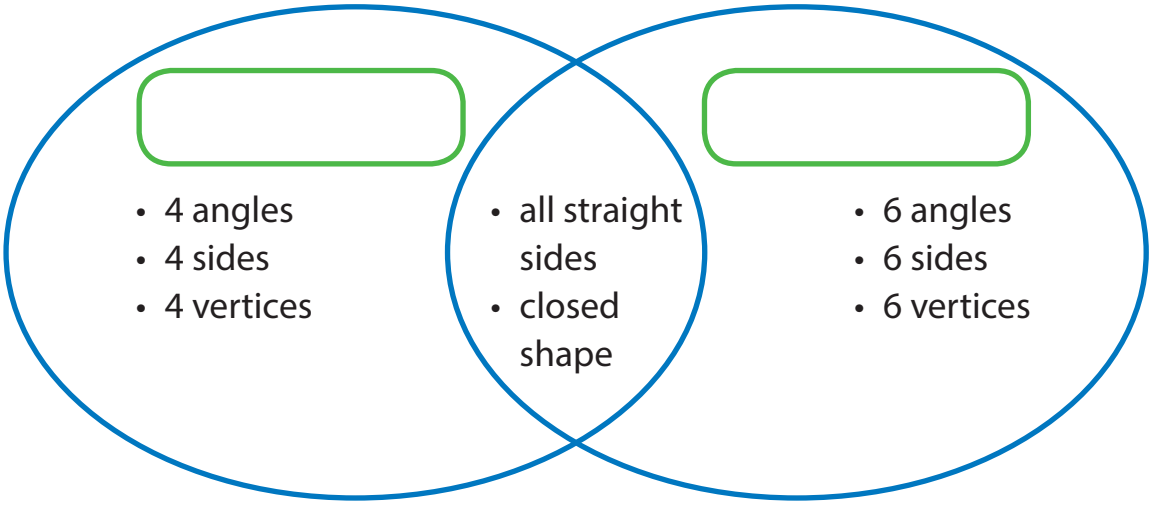
3 Vocabulary

Review Words

hexagon
quadrilateral

Organize It

Use the review words to complete the graphic organizer.



Define It

Use your vocabulary cards to match.

1. Associative Property of Multiplication

$3 \times (5 + 2) = (3 \times 5) + (3 \times 2)$

2. Distributive Property (with addition)

$2 \times (3 \times 4) = (2 \times 3) \times 4$

3. Distributive Property (with subtraction)

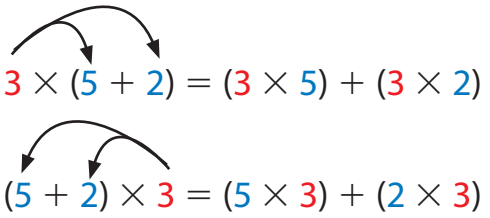
$3 \times (5 - 2) = (3 \times 5) - (3 \times 2)$

Chapter 3 Vocabulary Cards

Associative Property of Multiplication

Distributive Property (with addition)

Distributive Property (with subtraction)

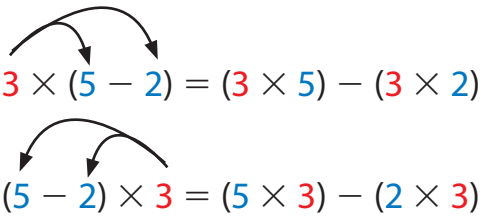


Changing the grouping of factors does not change the product.

$2 \times (3 \times 4) = 24$

$(2 \times 3) \times 4 = 24$

So, $2 \times (3 \times 4) = (2 \times 3) \times 4$.



Name _____

Multiply by 3

3.1

Learning Target: Multiply by 3.

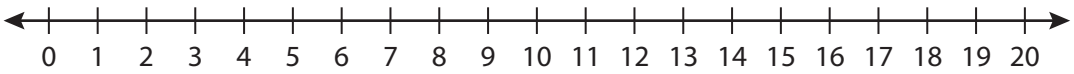
Success Criteria:

- I can use a model to multiply by 3.
- I can use known multiplication facts to multiply by 3.
- I can find the product of a number and 3.

Explore and Grow

Use the number line to find the product.

$4 \times 3 =$ _____

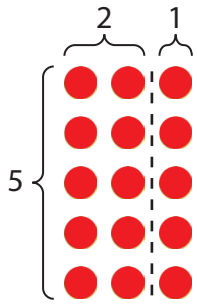


MP **Repeated Reasoning** Explain how you can use the number line to find products greater than 20. Complete the table.

3s Facts											
×	0	1	2	3	4	5	6	7	8	9	10
3											

Think and Grow: Multiply by 3

Example Find 5×3.



$5 \times 3 = \quad 5 \times (2 + 1)$ Rewrite 3 as $2 + 1$.

$5 \times 3 = (5 \times 2) + (5 \times 1)$ Distributive Property

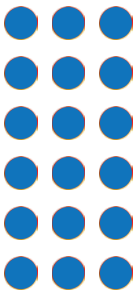
$5 \times 3 =$ ____ + ____

$5 \times 3 =$ ____

Show and Grow

Find the product.

1. 6×3



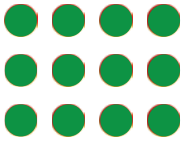
$6 \times 3 = \quad 6 \times (\_\_\_\_ + \_\_\_\_)$

$6 \times 3 = (\_\_\_\_ \times \_\_\_\_) + (\_\_\_\_ \times \_\_\_\_)$

$6 \times 3 =$ ____ + ____

$6 \times 3 =$ ____

2. 3×4



$3 \times 4 = \quad (\_\_\_\_ + \_\_\_\_) \times 4$

$3 \times 4 = (\_\_\_\_ \times \_\_\_\_) + (\_\_\_\_ \times \_\_\_\_)$

$3 \times 4 =$ ____ + ____

$3 \times 4 =$ ____

Name _____

Apply and Grow: Practice

Find the product.

3. 2×3

$2 \times 3 =$ $\quad 2 \times (\_\_\_\_ + \_\_\_\_)$

$2 \times 3 = (\_\_\_\_ \times \_\_\_\_) + (\_\_\_\_ \times \_\_\_\_)$

$2 \times 3 =$ $\quad \_\_\_\_ \quad + \quad \_\_\_\_$

$2 \times 3 =$ $\quad \_\_\_\_$

4. 3×7

$3 \times 7 =$ $\quad (\_\_\_\_ + \_\_\_\_) \times 7$

$3 \times 7 = (\_\_\_\_ \times \_\_\_\_) + (\_\_\_\_ \times \_\_\_\_)$

$3 \times 7 =$ $\quad \_\_\_\_ \quad + \quad \_\_\_\_$

$3 \times 7 =$ $\quad \_\_\_\_$

5. $3 \times 8 =$ _____

6. $3 \times 1 =$ _____

7. $3 \times 3 =$ _____

8. $3 \times 5 =$ _____

9.
$$\begin{array}{r} 3 \\ \times\ 6 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 10 \\ \times\ 3 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 4 \\ \times\ 3 \\ \hline \end{array}$$

12.
$$\begin{array}{r} 3 \\ \times\ 9 \\ \hline \end{array}$$

Compare.

13. $8 \times 3 \bigcirc 3 \times 6$

14. $3 \times 1 \bigcirc 3 \times 10$

15. $3 \times 0 \bigcirc 0 \times 3$

16. A baseball game has 9 innings. Each team gets 3 outs every inning. How many outs does each team get in one game?

17. **YOU BE THE TEACHER** Your friend says 23 is a multiple of 3 because there is a 3 in the ones place. Is your friend correct? Explain.

Think and Grow: Modeling Real Life

Ten people want to ride a camel. There are 3 camels. Two people can ride on each camel. Are there enough camels for all of the people to ride at the same time?

Multiplication equation:

There _____ enough camels for all of the people.

Show and Grow

18. You want to give each of your 10 friends a sticker. You buy 4 sheets. Each sheet has 3 stickers. Do you have enough stickers?

19. DIG DEEPER! You buy 2 heads of cauliflower and 5 ears of corn. How much money do you spend?

Farm Stand Prices	
Cauliflower	$3
Broccoli	$3
Corn	$1

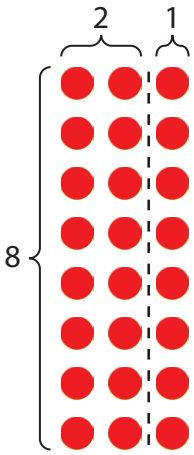
You buy 3 heads of broccoli and 1 head of cauliflower. How much money do you spend?

Name _____

Homework & Practice 3.1

Learning Target: Multiply by 3.

Example Find 8×3.



$8 \times 3 = 8 \times (2 + 1)$

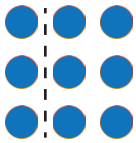
$8 \times 3 = (8 \times 2) + (8 \times 1)$

$8 \times 3 = 16 + 8$

$8 \times 3 = 24$

Find the product.

1. 3×3



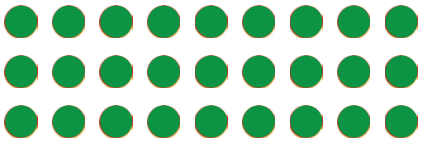
$3 \times 3 =$ $3 \times (\_\_\_\_ + \_\_\_\_)$

$3 \times 3 = (\_\_\_\_ \times \_\_\_\_) + (\_\_\_\_ \times \_\_\_\_)$

$3 \times 3 =$ $\_\_\_\_ + \_\_\_\_$

$3 \times 3 =$ $\_\_\_\_$

2. 3×9



$3 \times 9 =$ $(\_\_\_\_ + \_\_\_\_) \times 9$

$3 \times 9 = (\_\_\_\_ \times \_\_\_\_) + (\_\_\_\_ \times \_\_\_\_)$

$3 \times 9 =$ $\_\_\_\_ + \_\_\_\_$

$3 \times 9 =$ $\_\_\_\_$

3. $3 \times 2 = \_\_\_\_$

4. $3 \times 5 = \_\_\_\_$

5. $7 \times 3 = \_\_\_\_$

6. $0 \times 3 = \_\_\_\_$

7.
$$\begin{array}{r} 3 \\ \times\ 4 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 3 \\ \times\ 10 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 6 \\ \times\ 3 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 3 \\ \times\ 1 \\ \hline \end{array}$$

Compare.

11. $0 \times 3 \bigcirc 3 \times 3$

12. $8 \times 3 \bigcirc 7 \times 3$

13. $18 \bigcirc 6 \times 3$

14. A Russian guitar, called a *balalaika*, has 3 strings. A music teacher is replacing the strings on 5 balalaikas. How many strings does the teacher need?

15. MP **Number Sense** Circle the multiples of 3.

12 14 15 5 21 25

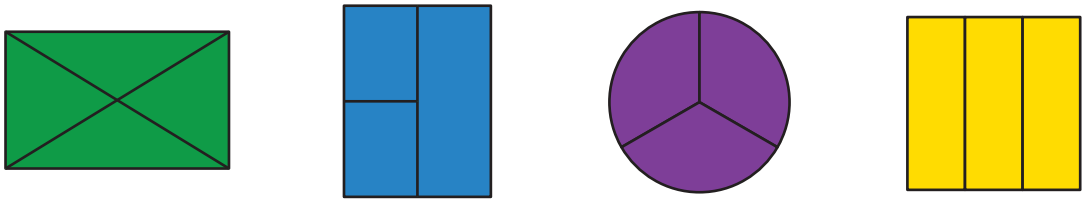
16. **Modeling Real Life** You need 24 tennis balls. You buy 6 packs of 3 tennis balls. Do you have enough tennis balls?

17. DIG DEEPER! Newton buys 3 packs of plates and 3 packs of cups. How much money does he spend?

Party Supply Packs	
Cups	$2
Plates	$4
Napkins	$1

Review & Refresh

18. Which shapes show thirds?



Name _____

Multiply by 4

3.2

Learning Target: Multiply by 4.

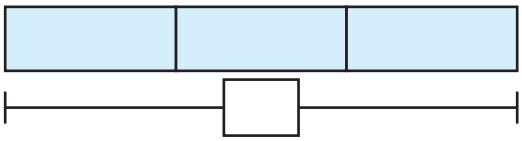
Success Criteria:

- I can use a model to multiply by 4.
- I can use known multiplication facts to multiply by 4.
- I can find the product of a number and 4.

Explore and Grow

Use the tape diagram to find the product.

$3 \times 4 =$ _____



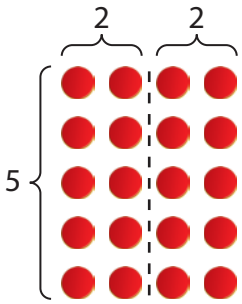
MP **Repeated Reasoning** Explain how you can use a tape diagram to find the missing products in the table. Complete the table.

4s Facts											
×	0	1	2	3	4	5	6	7	8	9	10
4											

Think and Grow: Multiply by 4

Example Find 5×4.

Think: $4 = 2 + 2$



So, the product of 5×4 is double the product of 5×2.

$5 \times 4 = 5 \times (2 + 2)$ Rewrite 4 as $2 + 2$.

$5 \times 4 = (5 \times 2) + (5 \times 2)$ Distributive Property

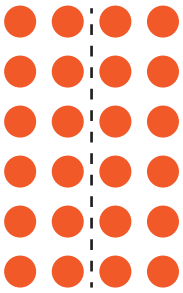
$5 \times 4 =$ ____ + ____

$5 \times 4 =$ ____

Show and Grow

Find the product.

1. 6×4



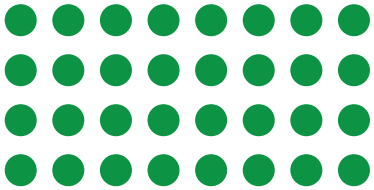
$6 \times 4 = 6 \times (\_\_\_\_ + \_\_\_\_)$

$6 \times 4 = (\_\_\_\_ \times \_\_\_\_) + (\_\_\_\_ \times \_\_\_\_)$

$6 \times 4 =$ ____ + ____

$6 \times 4 =$ ____

2. 4×8



$4 \times 8 = (\_\_\_\_ + \_\_\_\_) \times 8$

$4 \times 8 = (\_\_\_\_ \times \_\_\_\_) + (\_\_\_\_ \times \_\_\_\_)$

$4 \times 8 =$ ____ + ____

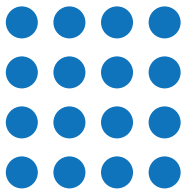
$4 \times 8 =$ ____

Name _____

Apply and Grow: Practice

Find the product.

3. 4×4



$4 \times 4 =$ $\quad 4 \times (\_\_\_\_ + \_\_\_\_)$

$4 \times 4 = (\_\_\_\_ \times \_\_\_\_) + (\_\_\_\_ \times \_\_\_\_)$

$4 \times 4 =$ $\quad \_\_\_\_ \quad + \quad \_\_\_\_$

$4 \times 4 =$ $\quad \_\_\_\_$

4. 4×2

$4 \times 2 =$ $\quad (\_\_\_\_ + \_\_\_\_) \times 2$

$4 \times 2 = (\_\_\_\_ \times \_\_\_\_) + (\_\_\_\_ \times \_\_\_\_)$

$4 \times 2 =$ $\quad \_\_\_\_ \quad + \quad \_\_\_\_$

$4 \times 2 =$ $\quad \_\_\_\_$

5. $4 \times 5 =$ _____

6. $4 \times 7 =$ _____

7. $4 \times 6 =$ _____

8. $4 \times 1 =$ _____

9.
$$\begin{array}{r} 10 \\ \times\ 4 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 3 \\ \times\ 4 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 8 \\ \times\ 4 \\ \hline \end{array}$$

12.
$$\begin{array}{r} 4 \\ \times\ 9 \\ \hline \end{array}$$

Find the missing factor.

13. $4 \times \_\_\_\_ = 0$

14. $\_\_\_\_ \times 4 = 40$

15. $4 = \_\_\_\_ \times 4$

16. MP **Number Sense** You exchange some dollar bills for quarters. How many quarters might you receive?

40	18	24	36	34
22	12	38	16	26

17. **Writing** Explain how you can use 2×3 to find 4×3.

Think and Grow: Modeling Real Life

The graph shows the number of cars scheduled to get a new set of tires installed. How many new tires are installed on the busiest day?

Cars Getting New Tires									
Monday	◯	◯	◯	◯	◯	◯			
Tuesday	◯	◯	◯	◯	◯	◯	◯		
Wednesday	◯	◯	◯						
Thursday	◯	◯	◯	◯	◯	◯	◯	◯	
Friday	◯	◯	◯	◯					

Each ◯ = 1 car.

What is the busiest day?

Multiplication equation:

_____ new tires are installed on the busiest day.

Show and Grow

18. Use the graph above. How many new tires are installed on the least busy day?

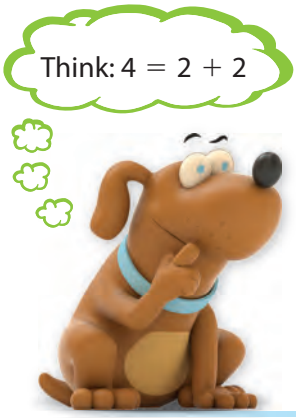
19. **DIG DEEPER!** Descartes is packing bags for party favors. Each bag needs 1 container of bubbles, 5 stickers, and 3 balloons. How many of each item does Descartes need to make 4 bags?

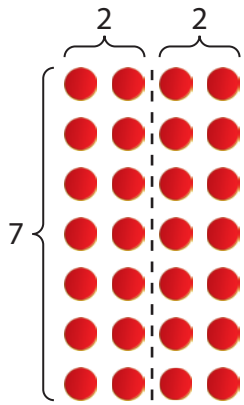
Name _____

Homework & Practice 3.2

Learning Target: Multiply by 4.

Example Find 7×4.





$7 \times 4 = 7 \times (2 + 2)$

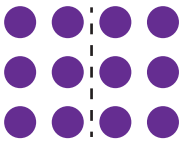
$7 \times 4 = (7 \times 2) + (7 \times 2)$

$7 \times 4 = 14 + 14$

$7 \times 4 = 28$

Find the product.

1. 3×4



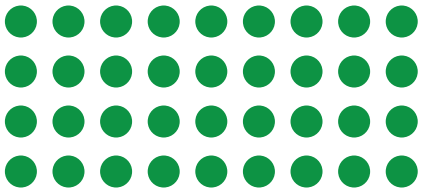
$3 \times 4 =$ $3 \times (\_\_\_\_ + \_\_\_\_)$

$3 \times 4 = (\_\_\_\_ \times \_\_\_\_) + (\_\_\_\_ \times \_\_\_\_)$

$3 \times 4 =$ $\_\_\_\_ + \_\_\_\_$

$3 \times 4 =$ $\_\_\_\_$

2. 4×9



$4 \times 9 =$ $(\_\_\_\_ + \_\_\_\_) \times 9$

$4 \times 9 = (\_\_\_\_ \times \_\_\_\_) + (\_\_\_\_ \times \_\_\_\_)$

$4 \times 9 =$ $\_\_\_\_ + \_\_\_\_$

$4 \times 9 =$ $\_\_\_\_$

3. $8 \times 4 = \_\_\_\_$

4. $4 \times 4 = \_\_\_\_$

5. $10 \times 4 = \_\_\_\_$

6. $4 \times 6 = \_\_\_\_$

7.
$$\begin{array}{r} 4 \\ \times\ 5 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 0 \\ \times\ 4 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 1 \\ \times\ 4 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 2 \\ \times\ 4 \\ \hline \end{array}$$

Find the missing factor.

11. $10 \times \_\_\_\_ = 40$

12. $\_\_\_\_ \times 1 = 4$

13. $8 = \_\_\_\_ \times 4$

14. A string quartet has 4 musicians. Each musician's instrument has 4 strings. How many total strings are there in a string quartet?

15. **Which One Doesn't Belong?** Which one does *not* belong with the other three?

4×6

6×4

$(2 \times 3) + (2 \times 3)$

$(2 \times 6) + (2 \times 6)$

16. **Modeling Real Life** The tally chart shows the number of tables a carpenter makes each day. Each table has 4 legs. How many legs does the carpenter make on the busiest day?

Tables Made	
Monday	𝍸 𝍸
Tuesday	𝍸 | | |
Wednesday	| | | |

17. DIG DEEPER! Newton is packing lunches. Each lunch needs 1 sandwich, 2 celery sticks, 3 carrot sticks, and 4 strawberries. How many of each item does Newton need to make 4 lunches?

Review & Refresh

Write the number in expanded form and word form.

18. 837

____ + ____ + ____

_____

19. 954

____ + ____ + ____

_____

Name _____

Multiply by 6

3.3

Learning Target: Multiply by 6.

Success Criteria:

- I can use a model to multiply by 6.
- I can use known multiplication facts to multiply by 6.
- I can find the product of a number and 6.

Explore and Grow

Use equal groups to find the product. Draw your model.

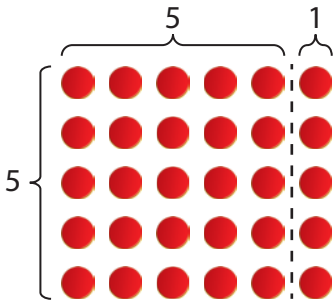
$4 \times 6 =$ _____

MP **Repeated Reasoning** Explain how you can use equal groups to multiply. Complete the table.

6s Facts											
×	0	1	2	3	4	5	6	7	8	9	10
6											

Think and Grow: Multiply by 6

Example Find 5×6.



$5 \times 6 = \quad 5 \times (5 + 1)$ Rewrite 6 as $5 + 1$.

$5 \times 6 = (5 \times 5) + (5 \times 1)$ Distributive Property

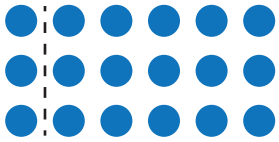
$5 \times 6 =$ ____ + ____

$5 \times 6 =$ ____

Show and Grow

Find the product.

1. 3×6



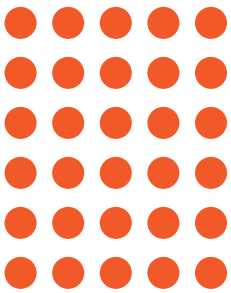
$3 \times 6 = \quad 3 \times (\_\_\_\_ + \_\_\_\_)$

$3 \times 6 = (\_\_\_\_ \times \_\_\_\_) + (\_\_\_\_ \times \_\_\_\_)$

$3 \times 6 =$ ____ + ____

$3 \times 6 =$ ____

2. 6×5



$6 \times 5 = \quad (\_\_\_\_ + \_\_\_\_) \times 5$

$6 \times 5 = (\_\_\_\_ \times \_\_\_\_) + (\_\_\_\_ \times \_\_\_\_)$

$6 \times 5 =$ ____ + ____

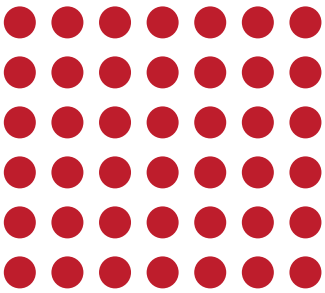
$6 \times 5 =$ ____

Name _____

Apply and Grow: Practice

Find the product.

3. 6×7



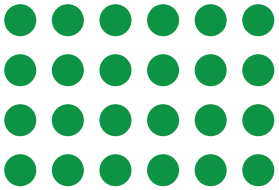
$6 \times 7 =$ $(\_\_\_ + \_\_\_) \times 7$

$6 \times 7 = (\_\_\_ \times \_\_\_) + (\_\_\_ \times \_\_\_)$

$6 \times 7 =$ $\_\_\_ + \_\_\_$

$6 \times 7 =$ $\_\_\_$

4. 4×6



$4 \times 6 =$ $4 \times (\_\_\_ + \_\_\_)$

$4 \times 6 = (\_\_\_ \times \_\_\_) + (\_\_\_ \times \_\_\_)$

$4 \times 6 =$ $\_\_\_ + \_\_\_$

$4 \times 6 =$ $\_\_\_$

5. $8 \times 6 =$ _____

6. $7 \times 6 =$ _____

7. $6 \times 0 =$ _____

8. $6 \times 4 =$ _____

9.
$$\begin{array}{r} 6 \\ \times\ 6 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 6 \\ \times\ 1 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 2 \\ \times\ 6 \\ \hline \end{array}$$

12.
$$\begin{array}{r} 9 \\ \times\ 6 \\ \hline \end{array}$$

Compare.

13. 8×6 ◯ 48

14. 6×0 ◯ 10×6

15. 6×1 ◯ 6×3

16. There are 9 volleyball teams in a tournament. There are 6 players on each team. How many volleyball players are in the tournament?

17. **YOU BE THE TEACHER** Your friend says that all multiples of 3 are also multiples of 6. Is your friend correct? Explain.

Think and Grow: Modeling Real Life

You have 5 apples. You cut each apple into 8 slices. You have 6 oranges and cut each orange into 4 slices. Do you have more apple slices or orange slices?

Multiplication equations:

Compare: _____ ◯ _____

You have more _____ slices.

Show and Grow

18. Your friend makes 6 bracelets each day for 7 days. Your cousin makes 10 bracelets each day for 3 days. Who makes fewer bracelets?

19. You draw 6 octagons. How many sides do you draw?

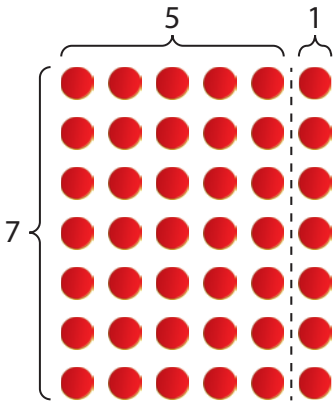
20. You draw 9 hexagons. How many sides do you draw?

Name _____

Homework & Practice 3.3

Learning Target: Multiply by 6.

Example Find 7×6.



$7 \times 6 = 7 \times (5 + 1)$

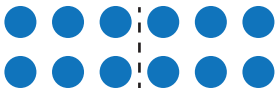
$7 \times 6 = (7 \times 5) + (7 \times 1)$

$7 \times 6 = 35 + 7$

$7 \times 6 = 42$

Find the product.

1. 2×6



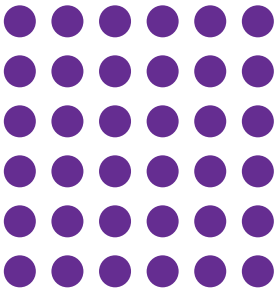
$2 \times 6 = 2 \times (\_\_\_ + \_\_\_)$

$2 \times 6 = (\_\_\_ \times \_\_\_) + (\_\_\_ \times \_\_\_)$

$2 \times 6 = \_\_\_ + \_\_\_$

$2 \times 6 = \_\_\_$

2. 6×6



$6 \times 6 = (\_\_\_ + \_\_\_) \times 6$

$6 \times 6 = (\_\_\_ \times \_\_\_) + (\_\_\_ \times \_\_\_)$

$6 \times 6 = \_\_\_ + \_\_\_$

$6 \times 6 = \_\_\_$

3. $9 \times 6 =$ _____

4. $5 \times 6 =$ _____

5. $6 \times 3 =$ _____

6. $4 \times 6 =$ _____

7.
$$\begin{array}{r} 8 \\ \times\ 6 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 6 \\ \times\ 0 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 6 \\ \times\ 1 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 10 \\ \times\ 6 \\ \hline \end{array}$$

Compare.

11. $4 \times 6 \bigcirc 6 \times 6$

12. $6 \times 5 \bigcirc 4 \times 5$

13. $42 \bigcirc 6 \times 7$

14. There are 6 faces on a standard die. How many faces are on 5 dice?

15. **DIG DEEPER!** You have a muffin tin with 6 cups. You want to bake 36 muffins. How many times must you use the muffin tin?

16. **Modeling Real Life** You practice the saxophone 1 hour in the morning and 2 hours at night each day. How many hours do you practice in 6 days?

17. **Modeling Real Life** You want to make 6 pentagons using toothpicks. How many toothpicks do you need?

Review & Refresh

18. Find the total value.

Total value: _____

Name _____

Multiply by 7

3.4

Learning Target: Multiply by 7.

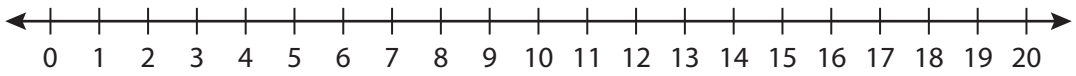
Success Criteria:

- I can use a model to multiply by 7.
- I can use known multiplication facts to multiply by 7.
- I can find the product of a number and 7.

Explore and Grow

Use the number line to find the product.

$2 \times 7 =$ _____

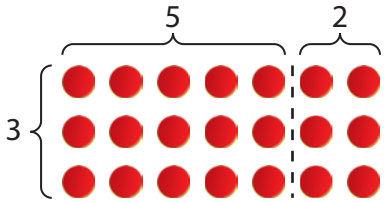


MP **Repeated Reasoning** Complete the table. Explain how you found the missing products.

7s Facts											
×	0	1	2	3	4	5	6	7	8	9	10
7											

Think and Grow: Multiply by 7

Example Find 3×7.



$3 \times 7 = \quad 3 \times (5 + 2)$ Rewrite 7 as $5 + 2$.

$3 \times 7 = (3 \times 5) + (3 \times 2)$ Distributive Property

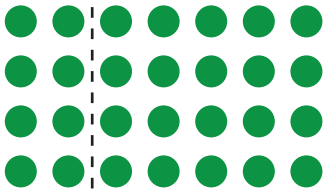
$3 \times 7 =$ _____ + _____

$3 \times 7 =$ _____

Show and Grow

Find the product.

1. 4×7



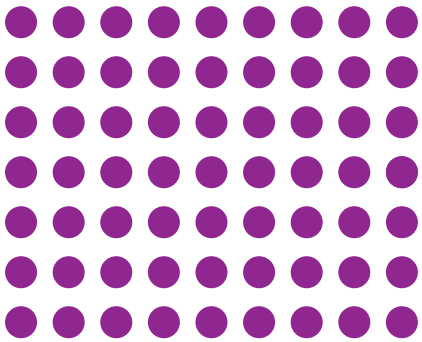
$4 \times 7 = \quad 4 \times (\_\_\_\_ + \_\_\_\_)$

$4 \times 7 = (\_\_\_\_ \times \_\_\_\_) + (\_\_\_\_ \times \_\_\_\_)$

$4 \times 7 =$ _____ + _____

$4 \times 7 =$ _____

2. 7×9



$7 \times 9 = \quad (\_\_\_\_ + \_\_\_\_) \times 9$

$7 \times 9 = (\_\_\_\_ \times \_\_\_\_) + (\_\_\_\_ \times \_\_\_\_)$

$7 \times 9 =$ _____ + _____

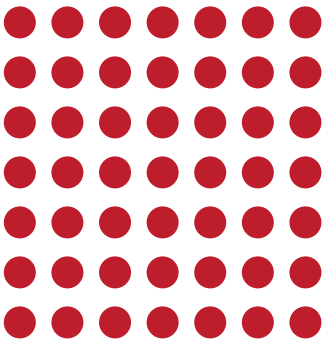
$7 \times 9 =$ _____

Name _____

Apply and Grow: Practice

Find the product.

3. 7×7



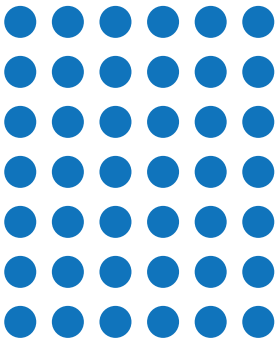
$7 \times 7 =$ ____ $7 \times (\_\_\_\_ + \_\_\_\_)$

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

$7 \times 7 =$ ____ + ____

$7 \times 7 =$ ____

4. 7×6



$7 \times 6 =$ ____ $(\_\_\_\_ + \_\_\_\_) \times 6$

$7 \times 6 = (\_\_\_\_ \times \_\_\_\_) + (\_\_\_\_ \times \_\_\_\_)$

$7 \times 6 =$ ____ + ____

$7 \times 6 =$ ____

5. $7 \times 5 =$ _____

6. $7 \times 1 =$ _____

7. $2 \times 7 =$ _____

8. $3 \times 7 =$ _____

9.
$$\begin{array}{r} 10 \\ \times\ 7 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 7 \\ \times\ 0 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 8 \\ \times\ 7 \\ \hline \end{array}$$

12.
$$\begin{array}{r} 7 \\ \times\ 9 \\ \hline \end{array}$$

Find the missing factor.

13. $7 \times$ _____ $= 0$

14. _____ $\times 7 = 35$

15. $70 =$ _____ $\times 7$

16. How many days are in 4 weeks?

17. MP **Number Sense** How can you use the Commutative Property of Multiplication to find 7×3?

Think and Grow: Modeling Real Life

A child ticket costs $7. An adult ticket costs 4 times as much as the child ticket. Descartes has $40. Can he buy an adult ticket?

Multiplication equation:

Descartes _____ buy an adult ticket.

Show and Grow

18. A small painting costs $5. A large painting costs 7 times as much as the small painting. Newton has $30. Can he buy a large painting?

19. DIG DEEPER! You study your spelling words for 5 minutes twice a day. How many minutes do you spend studying your spelling words in one week?

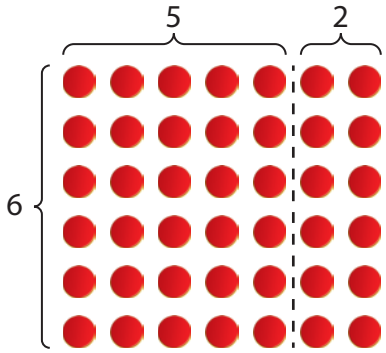
20. DIG DEEPER! Your dentist tells you to brush your teeth for 3 minutes three times a day. How many minutes should you spend brushing your teeth in one week?

Name _____

Homework & Practice 3.4

Learning Target: Multiply by 7.

Example Find 6×7.



$6 \times 7 = 6 \times (5 + 2)$

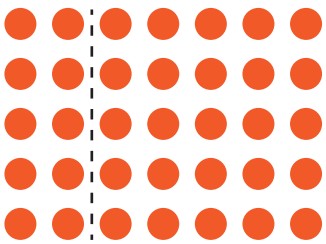
$6 \times 7 = (6 \times 5) + (6 \times 2)$

$6 \times 7 = 30 + 12$

$6 \times 7 = 42$

Find the product.

1. 5×7



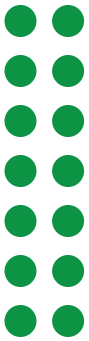
$5 \times 7 = 5 \times (\_\_\_ + \_\_\_)$

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

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

$5 \times 7 = \_\_\_$

2. 7×2



$7 \times 2 = (\_\_\_ + \_\_\_) \times 2$

$7 \times 2 = (\_\_\_ \times \_\_\_) + (\_\_\_ \times \_\_\_)$

$7 \times 2 = \_\_\_ + \_\_\_$

$7 \times 2 = \_\_\_$

3. $0 \times 7 = \_\_\_\_$

4. $7 \times 7 = \_\_\_\_$

5. $10 \times 7 = \_\_\_\_$

6. $8 \times 7 = \_\_\_\_$

7.
$$\begin{array}{r} 7 \\ \times\ 1 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 7 \\ \times\ 9 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 4 \\ \times\ 7 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 3 \\ \times\ 7 \\ \hline \end{array}$$

Find the missing factor.

11. $7 \times \_\_\_\_ = 7$

12. $\_\_\_\_ \times 7 = 14$

13. $56 = \_\_\_\_ \times 7$

14. You go to school 5 days each week. You spend 7 hours at school each day. How many hours do you spend at school in one week?

15. MP **Number Sense** Circle the multiples of 7.

63 24 35 21 32 56

16. MP **Structure** Find 7×6 in two different ways.

17. **Modeling Real Life** A pair of regular shoes costs $9. A pair of light-up shoes costs 7 times as much as the pair of regular shoes. Newton has $60. Can he buy the pair of light-up shoes?

18. DIG DEEPER! A veterinarian tells you to feed your dog 2 cups of food twice a day. How many cups of food should you feed your dog in one week?

Review & Refresh

19. What is the best estimate of the length of a thumbtack?

2 centimeters

1 meter

15 centimeters

20. What is the best estimate of the height of a trampoline?

4 centimeters

2 meters

30 meters

Name _____

Multiply by 8

3.5

Learning Target: Multiply by 8.

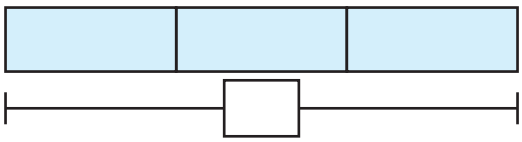
Success Criteria:

- I can use a model to multiply by 8.
- I can use known multiplication facts to multiply by 8.
- I can find the product of a number and 8.

Explore and Grow

Use the tape diagram to find the product.

$3 \times 8 =$ _____

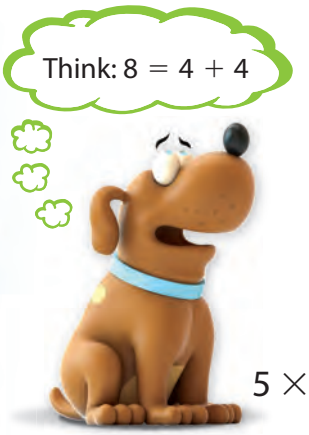


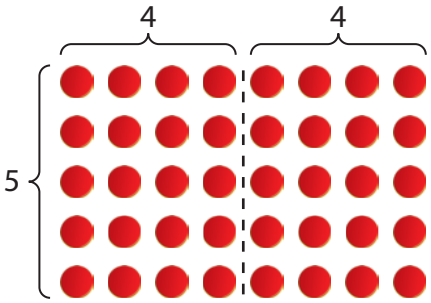
MP **Repeated Reasoning** Explain how you can use a different model to solve. Complete the table.

8s Facts											
×	0	1	2	3	4	5	6	7	8	9	10
8											

Think and Grow: Multiply by 8

Example Find 5×8.



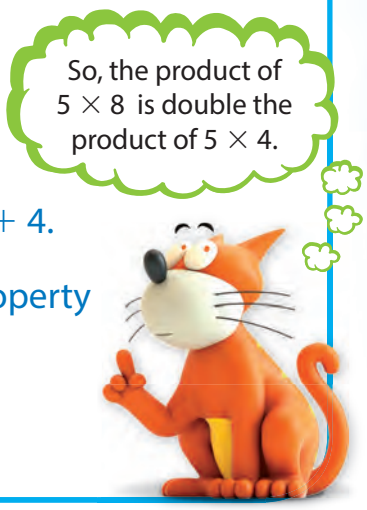


$5 \times 8 = 5 \times (4 + 4)$ Rewrite 8 as $4 + 4$.

$5 \times 8 = (5 \times 4) + (5 \times 4)$ Distributive Property

$5 \times 8 =$ ____ + ____

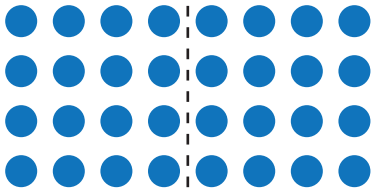
$5 \times 8 =$ ____



Show and Grow

Find the product.

1. 4×8



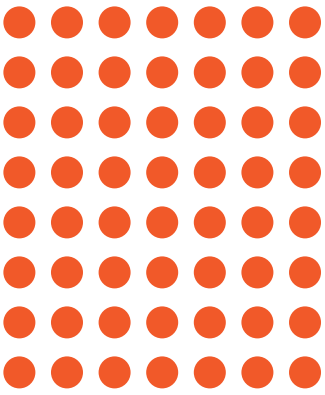
$4 \times 8 =$ $4 \times$ (____ + ____)

$4 \times 8 =$ (____ × ____) + (____ × ____)

$4 \times 8 =$ ____ + ____

$4 \times 8 =$ ____

2. 8×7



$8 \times 7 =$ (____ + ____) × 7

$8 \times 7 =$ (____ × ____) + (____ × ____)

$8 \times 7 =$ ____ + ____

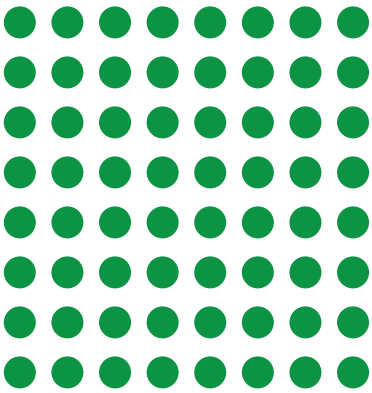
$8 \times 7 =$ ____

Name _____

Apply and Grow: Practice

Find the product.

3. 8×8



$8 \times 8 =$ (____ + ____) × 8

$8 \times 8 =$ (____ × ____) + (____ × ____)

$8 \times 8 =$ ____ + ____

$8 \times 8 =$ ____

4. 3×8

$3 \times 8 =$ 3 × (____ + ____)

$3 \times 8 =$ (____ × ____) + (____ × ____)

$3 \times 8 =$ ____ + ____

$3 \times 8 =$ ____

5. $8 \times 2 =$ _____

6. $7 \times 8 =$ _____

7. $8 \times 6 =$ _____

8. $10 \times 8 =$ _____

9.
$$\begin{array}{r} 0 \\ \times\ 8 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 8 \\ \times\ 9 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 8 \\ \times\ 5 \\ \hline \end{array}$$

12.
$$\begin{array}{r} 1 \\ \times\ 8 \\ \hline \end{array}$$

Compare.

13. 8×8 ◯ 64

14. 8×0 ◯ 8×1

15. 8×6 ◯ 5×8

16. **Which One Doesn't Belong?** Which expression does *not* belong with the other three?

$4 \times (4 + 3)$

$3 \times (3 + 5)$

$3 \times (1 + 7)$

$3 \times (4 + 4)$

Think and Grow: Modeling Real Life

A marching band has 7 rows with 8 musicians in each row. There is also a row of 6 people who carry flags. How many people are in the marching band in all?

Multiplication equation:

Addition equation:

There are _____ people in the marching band in all.

Show and Grow

17. A table has 3 rows with 8 prizes in each row. There is also a row of 4 prizes on the floor. How many prizes are there in all?

18. DIG DEEPER! One section of a parking lot has 2 rows of 8 cars. Another section of the parking lot has 8 rows of 6 cars. How many cars are in the parking lot in all?

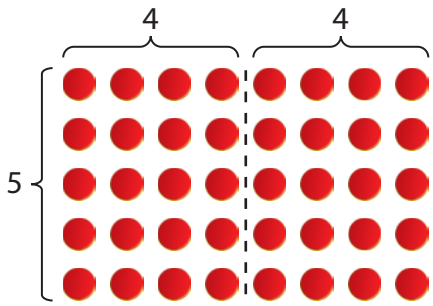
19. DIG DEEPER! One building has 8 rows of 5 windows. Another building has 9 rows of 8 windows. How many windows are on the two buildings in all?

Name _____

Homework & Practice 3.5

Learning Target: Multiply by 8.

Example Find 5×8.



$5 \times 8 = 5 \times (4 + 4)$

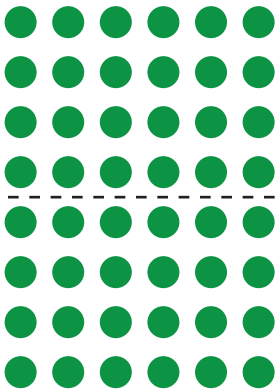
$5 \times 8 = (5 \times 4) + (5 \times 4)$

$5 \times 8 = 20 + 20$

$5 \times 8 = 40$

Find the product.

1. 8×6



$8 \times 6 = (\_\_\_\_ + \_\_\_\_) \times 6$

$8 \times 6 = (\_\_\_\_ \times \_\_\_\_) + (\_\_\_\_ \times \_\_\_\_)$

$8 \times 6 = \_\_\_\_ + \_\_\_\_$

$8 \times 6 = \_\_\_\_$

2. 2×8

$2 \times 8 = 2 \times (\_\_\_\_ + \_\_\_\_)$

$2 \times 8 = (\_\_\_\_ \times \_\_\_\_) + (\_\_\_\_ \times \_\_\_\_)$

$2 \times 8 = \_\_\_\_ + \_\_\_\_$

$2 \times 8 = \_\_\_\_$

3. $8 \times 0 = \_\_\_\_$

4. $4 \times 8 = \_\_\_\_$

5. $8 \times 10 = \_\_\_\_$

6. $1 \times 8 = \_\_\_\_$

7.
$$\begin{array}{r} 8 \\ \times\ 3 \\ \hline \end{array}$$

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

9.
$$\begin{array}{r} 7 \\ \times\ 8 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 8 \\ \times\ 9 \\ \hline \end{array}$$

Compare.

11. $8 \times 3 \bigcirc 8 \times 2$ | **12.** $8 \times 7 \bigcirc 64$ | **13.** $8 \times 1 \bigcirc 1 \times 8$

14. There are 8 batteries in a package. You buy 7 packages. How many batteries do you have?

15. MP **Patterns** Tell whether each statement is *true* or *false*. If false, explain.

The ones digit in multiples of 8 follows the pattern 8, 6, 4, 2, 0. _____

The product of an odd factor and 8 is always odd. _____

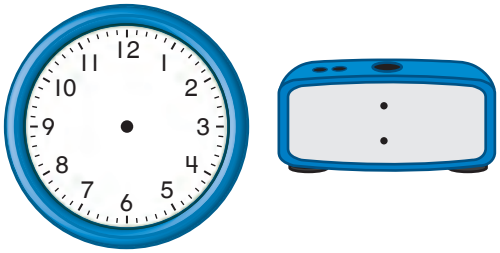
16. **Modeling Real Life** A trophy case has 4 shelves with 8 trophies on each shelf and 1 shelf with 3 trophies. How many trophies are there in all?

17. DIG DEEPER! In a science experiment, one group of students tests 2 rows of 8 magnets. A different group tests 1 row of 8 magnets. How many magnets do they test in all?

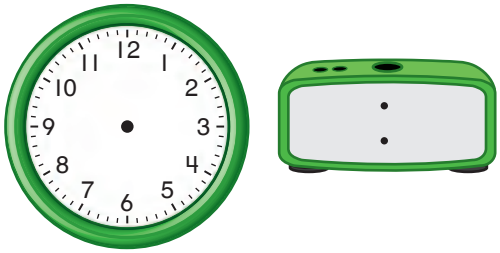
Review & Refresh

Show and write the time.

18. half past 3



19. quarter to 11



Name _____

Multiply by 9

3.6

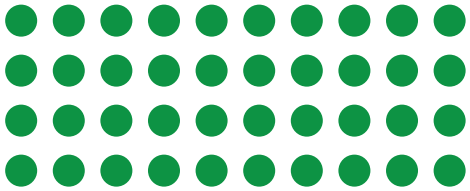
Learning Target: Multiply by 9.

Success Criteria:

- I can use a model to multiply by 9.
- I can use known multiplication facts to multiply by 9.
- I can find the product of a number and 9.

Explore and Grow

Write an equation to match the array.



_____ × _____ = _____

Cross out the last column. Write an equation to match the new array.

_____ × _____ = _____

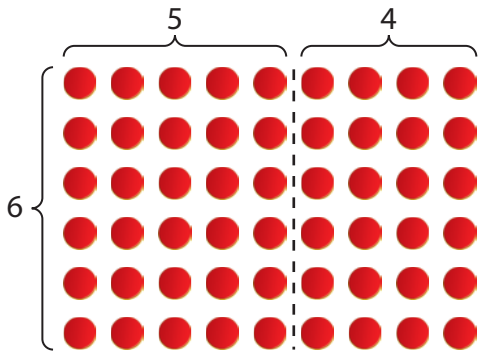
MP **Repeated Reasoning** Explain how multiplying by 10 can help you multiply by 9. Complete the table.

9s Facts											
×	0	1	2	3	4	5	6	7	8	9	10
9											

Think and Grow: Multiply by 9

Example Find 6×9.

One Way: Use the Distributive Property. Rewrite 9 as $5 + 4$.



$6 \times 9 = \quad 6 \times (5 + 4)$

$6 \times 9 = (6 \times 5) + (6 \times 4)$

$6 \times 9 = \_\_\_\_ + \_\_\_\_$

$6 \times 9 = \quad \_\_\_\_$

Distributive Property (with subtraction)

$3 \times (5 - 2) = (3 \times 5) - (3 \times 2)$

$(5 - 2) \times 3 = (5 \times 3) - (2 \times 3)$

Another Way: Use the Distributive Property. Rewrite 9 as $10 - 1$.

$6 \times 9 = \quad 6 \times (10 - 1)$

$6 \times 9 = (6 \times 10) - (6 \times 1)$

$6 \times 9 = \_\_\_\_ - \_\_\_\_$

$6 \times 9 = \quad \_\_\_\_$

Show and Grow

1. Find 3×9.

$3 \times 9 = \quad 3 \times (\_\_\_\_ - \_\_\_\_)$

$3 \times 9 = (\_\_\_\_ \times \_\_\_\_) - (\_\_\_\_ \times \_\_\_\_)$

$3 \times 9 = \quad \_\_\_\_ - \_\_\_\_$

$3 \times 9 = \quad \_\_\_\_$

Name _____

Apply and Grow: Practice

Find the product.

2.

$4 \times 9 =$ $4 \times (\_\_\_\_ - \_\_\_\_)$

$4 \times 9 = (\_\_\_\_ \times \_\_\_\_) - (\_\_\_\_ \times \_\_\_\_)$

$4 \times 9 =$ $\_\_\_\_ - \_\_\_\_$

$4 \times 9 =$ $\_\_\_\_$

3.

$9 \times 8 =$ $(\_\_\_\_ - \_\_\_\_) \times 8$

$9 \times 8 = (\_\_\_\_ \times \_\_\_\_) - (\_\_\_\_ \times \_\_\_\_)$

$9 \times 8 =$ $\_\_\_\_ - \_\_\_\_$

$9 \times 8 =$ $\_\_\_\_$

4. $9 \times 7 =$ _____

5. $9 \times 1 =$ _____

6. $2 \times 9 =$ _____

7. $0 \times 9 =$ _____

8.
$$\begin{array}{r} 9 \\ \times\ 10 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 9 \\ \times\ 5 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 8 \\ \times\ 9 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 9 \\ \times\ 9 \\ \hline \end{array}$$

Find the missing factor.

12. $9 \times \_\_\_\_ = 0$

13. $\_\_\_\_ \times 9 = 45$

14. $9 \times \_\_\_\_ = 36$

15. A softball team has 9 positions and 2 players for each position. How many players are on the team?

16. MP **Number Sense** Which are *not* multiples of 9?

50 36 42 45 18 10

Think and Grow: Modeling Real Life

In *geocaching*, people search for a cache, or collection of objects, using a GPS device. You go geocaching for 9 days. You find 2 caches each day. Your goal is to find 20 caches. Do you reach your goal?

Multiplication equation:

You _____ reach your goal.

Show and Grow

17. You have 9 math problems for homework. You spend 4 minutes on each problem. Your goal is to finish your math homework in 40 minutes. Do you reach your goal?

18. **DIG DEEPER!** You exercise for 6 days. You exercise for 10 minutes each day. Your friend exercises for 8 days. Your friend exercises for 9 minutes each day. Who exercises the most minutes?

19. **DIG DEEPER!** Your school is collecting cans for a food drive. Seven students from your class each collect 9 cans. Eight students from your friend's class each collect 8 cans. Which class collects the most cans?

Name _____

Homework & Practice 3.6

Learning Target: Multiply by 9.

Example Find 5×9.

Use the Distributive Property.
Rewrite 9 as $10 - 1$.

$5 \times 9 = 5 \times (10 - 1)$

$5 \times 9 = (5 \times 10) - (5 \times 1)$

$5 \times 9 = 50 - 5$

$5 \times 9 = 45$

Find the product.

1. $7 \times 9 = 7 \times (\_\_\_\_ - \_\_\_\_)$

$7 \times 9 = (\_\_\_\_ \times \_\_\_\_) - (\_\_\_\_ \times \_\_\_\_)$

$7 \times 9 = \_\_\_\_ - \_\_\_\_$

$7 \times 9 = \_\_\_\_$

2. $9 \times 2 = (\_\_\_\_ - \_\_\_\_) \times 2$

$9 \times 2 = (\_\_\_\_ \times \_\_\_\_) - (\_\_\_\_ \times \_\_\_\_)$

$9 \times 2 = \_\_\_\_ - \_\_\_\_$

$9 \times 2 = \_\_\_\_$

3. $1 \times 9 =$ _____

4. $9 \times 9 =$ _____

5. $10 \times 9 =$ _____

6. $3 \times 9 =$ _____

7.
$$\begin{array}{r} 9 \\ \times\ 8 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 9 \\ \times\ 6 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 4 \\ \times\ 9 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 0 \\ \times\ 9 \\ \hline \end{array}$$

Find the missing factor.

11. $9 \times \_\_\_\_ = 9$

12. $\_\_\_\_ \times 5 = 45$

13. $90 = \_\_\_\_ \times 10$

14. You see 9 chipmunks on your walk to school. You see twice as many pigeons. How many pigeons do you see?

15. **Patterns** Use the table.

×	1	2	3	4	5	6	7	8	9	10
9	9	18	27	36	45	54	63	72	81	90

What pattern do you notice in the ones digits? the tens digits?

What do you notice about the sum of the digits for each multiple of 9?

16. **YOU BE THE TEACHER** Your friend says the product of 7×9 is 69. Is your friend correct? Explain.

17. **Modeling Real Life** You sell 8 orchids. You want to raise $70. Do you meet your goal?

Flower Sale	
Lily	$6
Orchid	$9

DIG DEEPER! Newton sells 9 lilies. Descartes sells 5 orchids. Who raises more money, Newton or Descartes?

Review & Refresh

Complete the equation.

18. $4 \times 5 = 5 \times$ _____

19. $8 \times$ _____ $= 7 \times 8$

Name _____

Practice Multiplication Strategies 3.7

Learning Target: Use a strategy to multiply two factors.

Success Criteria:

- I can choose a strategy to multiply two factors.
- I can multiply two factors and write the product.
- I can explain the strategy I used.

Explore and Grow

Show how to find the product.

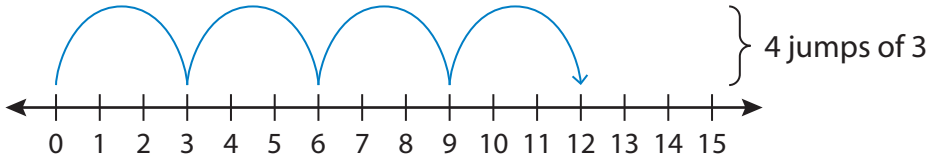
$6 \times 7 =$ _____

MP **Reasoning** What other strategies can you use to solve?

Think and Grow: Practice Multiplication Strategies

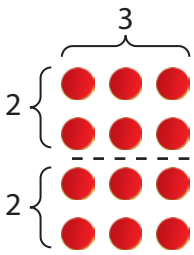
Example Use any strategy to find 4×3.

One Way: Use a number line. Skip count by 3s four times.



$4 \times 3 =$ _____

Another Way: Use the Distributive Property.



$4 \times 3 = \quad (2 + 2) \times 3$

$4 \times 3 = (2 \times 3) + (2 \times 3)$

$4 \times 3 =$ _____ + _____

$4 \times 3 =$ _____

Show and Grow

Use any strategy to find the product.

1. $5 \times 6 =$ _____

2. $3 \times 8 =$ _____

3. $7 \times 8 =$ _____

4. $9 \times 6 =$ _____

Name _____

Apply and Grow: Practice

Use any strategy to find the product.

5. $5 \times 9 =$ _____

6. $5 \times 7 =$ _____

7. $10 \times 3 =$ _____

8. $7 \times 1 =$ _____

9. $5 \times 5 =$ _____

10. $4 \times 9 =$ _____

11.
$$\begin{array}{r} 8 \\ \times\ 6 \\ \hline \end{array}$$

12.
$$\begin{array}{r} 4 \\ \times\ 7 \\ \hline \end{array}$$

13.
$$\begin{array}{r} 5 \\ \times\ 2 \\ \hline \end{array}$$

Name the strategy or property used to solve.

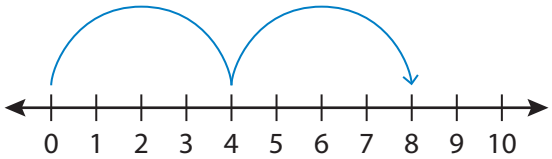
14. $9 \times 9 = 9 \times (10 - 1)$

$9 \times 9 = (9 \times 10) - (9 \times 1)$

$9 \times 9 = 90 - 9$

$9 \times 9 = 81$

15. $2 \times 4 = 8$



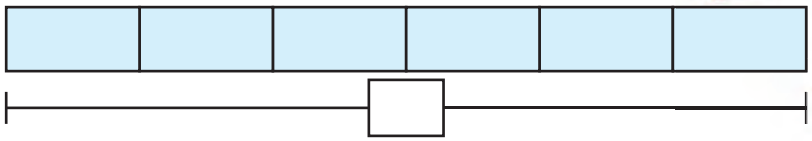
16. DIG DEEPER! Use known facts to find 6×12. Explain your strategy.

$6 \times 12 =$ _____

Think and Grow: Modeling Real Life

You want to make a dragon that is 25 feet long for a parade. You have 6 pieces of fabric that are each 5 feet long. Do you have enough fabric to make the dragon?

Model:



You _____ have enough fabric to make the dragon.

Show and Grow

17. A book is 70 pages long. You read 9 pages each day for one week. Do you finish the book in one week?

18. **DIG DEEPER!** You buy 4 packs of juice boxes. How many juice boxes do you buy in all?

Explain how you solved the problem.

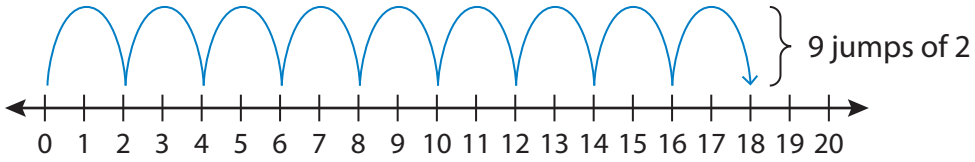
Name _____

Homework & Practice 3.7

Learning Target: Use a strategy to multiply two factors.

Example Use any strategy to find 9×2.

One Way: Use a number line.



$9 \times 2 = 18$

Use any strategy to find the product.

1. $0 \times 6 =$ _____

2. $2 \times 10 =$ _____

3. $1 \times 9 =$ _____

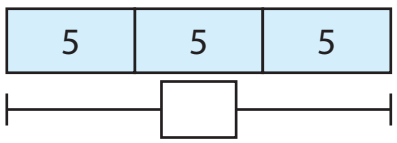
4.
$$\begin{array}{r} 4 \\ \times\ 5 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 8 \\ \times\ 9 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 7 \\ \times\ 3 \\ \hline \end{array}$$

Name the strategy or property used to solve.

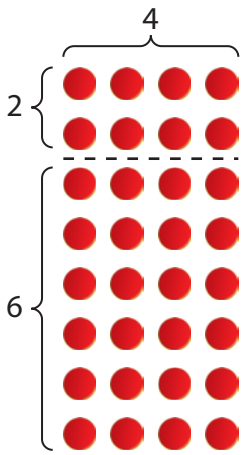
7. $3 \times 5 = ?$



$5 + 5 + 5 = 15$

$3 \times 5 = 15$

8.



$8 \times 4 = (2 + 6) \times 4$

$8 \times 4 = (2 \times 4) + (6 \times 4)$

$8 \times 4 = 8 + 24$

$8 \times 4 = 32$

9. **Logic** Without multiplying, how can you tell which product will be greater, 6×3 or 6×4? Explain.

10. **YOU BE THE TEACHER** Descartes uses the Distributive Property to solve 5×8. Is he correct? Explain.

$5 \times 8 = 5 \times (10 - 2)$
$5 \times 8 = (5 \times 10) + (5 \times 2)$
$5 \times 8 = 50 + 10$
$5 \times 8 = 60$

11. **Modeling Real Life** You order 24 eggs from a farmer. The farmer has 8 chickens. Each chicken lays 3 eggs. Does the farmer have enough eggs for your order? Explain.

12. **DIG DEEPER!** You have 3 piles of sports cards. There are 3 baseball cards, 2 basketball cards, and 4 football cards in each pile. How many sports cards do you have in all?

Review & Refresh

Find the sum.

13.
$$\begin{array}{r} 32 \\ 13 \\ +\ 47 \\ \hline \end{array}$$

14.
$$\begin{array}{r} 46 \\ 14 \\ +\ 24 \\ \hline \end{array}$$

15.
$$\begin{array}{r} 55 \\ 10 \\ +\ 12 \\ \hline \end{array}$$

16.
$$\begin{array}{r} 21 \\ 13 \\ +\ 29 \\ \hline \end{array}$$

Name _____

Multiply Three Factors 3.8

Learning Target: Use the Associative Property of Multiplication.

Success Criteria:

- I can explain the Associative Property of Multiplication.
- I can change the grouping of factors.
- I can multiply three factors to find a product.

Explore and Grow

Model 2 arrays that each have 4 rows and 3 columns. Draw your model. Complete the equation for the arrays.

$2 \times \_\_\_\_ \times \_\_\_\_ = \_\_\_\_$

Model 3 arrays that each have 2 rows and 4 columns. Draw your model. Complete the equation for the arrays.

$3 \times \_\_\_\_ \times \_\_\_\_ = \_\_\_\_$

MP **Structure** Compare the equations. How are they the same? How are they different?

Think and Grow: Associative Property of Multiplication

Associative Property of Multiplication: Changing the grouping of factors does not change the product.

Example Find $(5 \times 2) \times 3$.

One Way: Find 5×2 first.

$(5 \times 2) \times 3$

$\_\_\_\_ \times 3 = \_\_\_\_$

Another Way: Change the grouping. Find 2×3 first.

$5 \times (2 \times 3)$

$5 \times \_\_\_\_ = \_\_\_\_$

$(5 \times 2) \times 3 = \_\_\_\_$

Example Find $4 \times (7 \times 2)$.

$4 \times (7 \times 2) = 4 \times (2 \times 7)$ Commutative Property of Multiplication

$4 \times (2 \times 7) = (4 \times 2) \times 7$ Associative Property of Multiplication

$(4 \times 2) \times 7$

$\_\_\_\_ \times 7 = \_\_\_\_$

$4 \times (7 \times 2) = \_\_\_\_$

Show and Grow

Find the product.

1. $(3 \times 2) \times 2 = \_\_\_\_$

2. $3 \times (4 \times 3) = \_\_\_\_$

Name _____

Apply and Grow: Practice

Find the product.

3. $(3 \times 2) \times 7 =$ _____

4. $5 \times (4 \times 2) =$ _____

5. $(3 \times 6) \times 2 =$ _____

6. $3 \times (5 \times 3) =$ _____

7. $(4 \times 10) \times 2 =$ _____

8. $6 \times (0 \times 7) =$ _____

Tell whether the equation is *true* or *false*. Explain.

9. $(5 \times 3) \times 4 \stackrel{?}{=} 3 \times (5 \times 4)$

10. $4 \times (2 \times 6) \stackrel{?}{=} 8 \times 4$

11. A water ride has 4 log boats. Each boat has 2 sections with 2 seats in each section. How many seats does the water ride have?

12. DIG DEEPER! Complete the square so that the product of the numbers in each row and each column equals 24.

2		2
		2
4		

Think and Grow: Modeling Real Life

There are 26 students in your class. Your teacher brings in 4 boxes of muffins. Each box has 4 packages with 2 muffins in each package. Are there enough muffins for the class?

Multiplication equation:

There _____ enough muffins for the class.

Show and Grow

13. Newton needs to send out 50 letters. He buys 4 sheets of stamps. Each sheet has 2 rows with 6 stamps in each row. Does Newton have enough stamps to send out all the letters?

14. **DIG DEEPER!** There are 60 people in line to ride the tram at a zoo. There are 5 benches on each tram car. Two people fit on each bench. The tram is 5 cars long. How many people will have to wait for the next tram?

Name _____

Homework & Practice 3.8

Learning Target: Use the Associative Property of Multiplication.

Example Find $(5 \times 2) \times 2$.

One Way: Find 5×2 first.

$(5 \times 2) \times 2$

$\downarrow$

$10 \times 2 = 20$

Another Way: Change the grouping. Find 2×2 first.

$5 \times (2 \times 2)$

$\downarrow$

$5 \times 4 = 20$

$(5 \times 2) \times 2 = 20$

Example Find $(3 \times 8) \times 2$.

$(3 \times 8) \times 2 = (8 \times 3) \times 2$ Commutative Property of Multiplication

$= 8 \times (3 \times 2)$ Associative Property of Multiplication

$= 8 \times (3 \times 2)$

$\downarrow$

$= 8 \times 6 = 48$

$(3 \times 8) \times 2 = 48$

Find the product.

1. $(2 \times 4) \times 1 =$ _____

2. $2 \times (3 \times 3) =$ _____

3. $(4 \times 2) \times 9 =$ _____

4. $2 \times (8 \times 5) =$ _____

Tell whether the equation is *true* or *false*. Explain.

5. $7 \times (0 \times 3) \stackrel{?}{=} 7 \times 3$

6. $2 \times (6 \times 5) \stackrel{?}{=} (6 \times 2) \times 5$

7. A sudoku puzzle is made of 9 large squares. Each large square is made of an array with 3 rows and 3 columns of small squares. How many small squares are there?

8. **DIG DEEPER!** Use the number cards to complete the equations.

$(2 \times 3) \times$ _____ $= 54$

_____ $\times (2 \times 5) = 100$

$8 \times ($_____ $\times 1) = 0$

$(2 \times$ _____$) \times 10 = 20$

0	1	9	10

9. **YOU BE THE TEACHER** Your friend says that $(2 \times 1) \times 7$ is *not* equal to $2 \times (1 \times 7)$. Is your friend correct? Explain.

10. **Writing** How do you know $2 \times 9 \times 5$ is the same as 10×9?

11. **Modeling Real Life** There are 64 soccer players. Some coaches bring 7 boxes of protein bars. Each box has 5 packages with 2 protein bars in each package. Are there enough protein bars for each soccer player to get one?

Review & Refresh

12. A training academy certifies 12 firefighting Dalmations. They divide the Dalmations among different cities with 3 Dalmatians in each city. How many cities receive firefighting Dalmations?

_____ $\div$ _____ $=$ _____

Name _____

More Problem Solving: Multiplication

3.9

Learning Target: Use the problem-solving plan to solve word problems.

Success Criteria:

- I can understand a problem.
- I can make a plan to solve.
- I can solve a problem.

Explore and Grow

Model the story.

A baseball league gives 8 new baseballs to each team. There are 8 teams. How many baseballs does the league need?

The baseball league needs _____ baseballs.

MP **Reasoning** Explain how you can use a different strategy to solve.

Think and Grow: Using the Problem-Solving Plan

Example You want to make 8 dream catchers. You have 30 feathers. You tie 3 feathers to each dream catcher. How many feathers do you have left?

Understand the Problem

What do you know?

- You want to make _____ dream catchers.
- You have _____ feathers in all.
- You tie _____ feathers to each dream catcher.

What do you need to find?

- You need to find how many _____ are left after you make _____ dream catchers.

Make a Plan

How will you solve?

- Multiply _____ by _____ to find how many _____ you used to make 8 dream catchers.
- Subtract the product from _____.

Solve

$8 \times 3 =$ _____

$30 -$ _____ $=$ _____

You have _____ feathers left.

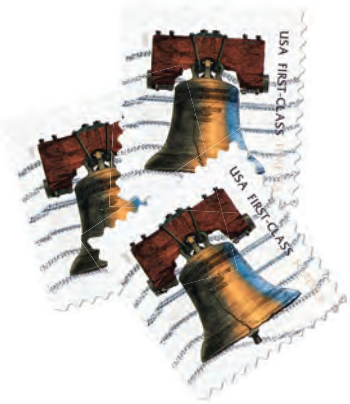
Show and Grow

1. You want to make 6 cheese sandwiches. You have 8 slices of cheese in all. You put 2 slices on each sandwich. How many more slices of cheese do you need?

Name _____

Apply and Grow: Practice

2. You have 60 fluid ounces of water and 6 water bottles. You pour 8 fluid ounces of water into each bottle . What information do you know that will help you find how much water you have left?



3. A sheet of stamps has 2 rows with 5 stamps in each row. You buy 3 sheets of stamps. How many stamps do you buy?

4. Your cousin works two jobs. She walks dogs 4 days each week for 2 hours each day. She babysits 2 days each week for 5 hours each day. How many hours does your cousin work in one week?

5. Four arcade tokens cost $1. You buy $5 in tokens. You play 6 games that cost 3 tokens each. How many tokens do you have left?

Think and Grow: Modeling Real Life

A basketball team scores 6 three-pointers, 9 two-pointers, and 7 free throws in the first quarter. How many points does the team score in all?

Basketball Points	
Three-pointer	3 points
Two-pointer	2 points
Free throw	1 point

Understand the problem:

Make a plan:

Solve:

The team scores _____ points in all.

Show and Grow

6. Descartes buys 4 shirts, 3 pairs of shorts, and 2 pairs of pants. How much does he spend in all?

Store Sale	
Shirts	$5
Shorts	$7
Pants	$10

7. DIG DEEPER! City workers set up 100 chairs for a concert in a park. Section A has 4 rows with 9 chairs in each row. Section B has 3 rows with 8 chairs in each row. Section C has 8 equal rows. How many chairs are in each of section C's rows?

Name _____

Homework & Practice 3.9

Learning Target: Use the problem-solving plan to solve word problems.

Example A store sells pool toys for $9 each. Newton buys 6 pool toys. He gives the cashier $60. What is his change?

Understand the Problem

What do you know?

- Pool toys cost 9 each.
- Newton buys 6 pool toys.
- Newton gives the cashier 60.

What do you need to find?

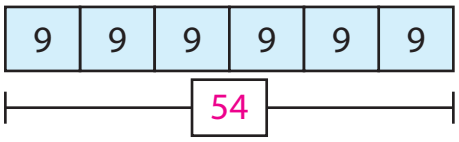
- You need to find how much $change$ Newton receives.

Make a Plan

How will you solve?

- Multiply 9 by 6 to find how much the $pool\ toys$ cost in all.
- Then subtract the product from 60.

Solve



$9 \times 6 = 54$

$9 + 9 + 9 + 9 + 9 + 9 = 54$

$60 - 54 = 6$

Newton's change is 6.

1. You and 3 of your friends each spend $9 on a present. How much does the present cost?

2. A landlord is replacing windows in an apartment complex. There are 6 apartments. Each apartment has 8 windows. Seven windows do not need replacing. How many windows does the landlord need to replace?

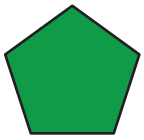
3. Women's boxing consists of four 2-minute rounds. There is a 1-minute rest interval between each round. What information do you know that will help you find how long a boxing match lasts?

4. **Writing** Write and solve your own word problem that involves multiplication.

5. **Modeling Real Life** You play a trivia game with your friends. Team A answers 3 hard questions and 6 easy questions. Team B answers 5 hard questions and 2 easy questions. Which team is winning? by how many points?

Trivia Game		
Question Type	Hard	Easy
Number of Points	5	2

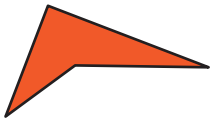
Review & Refresh

6. 

_____ sides

_____ vertices

Shape: _____

7. 

_____ sides

_____ vertices

Shape: _____

Name _____

Performance Task 3

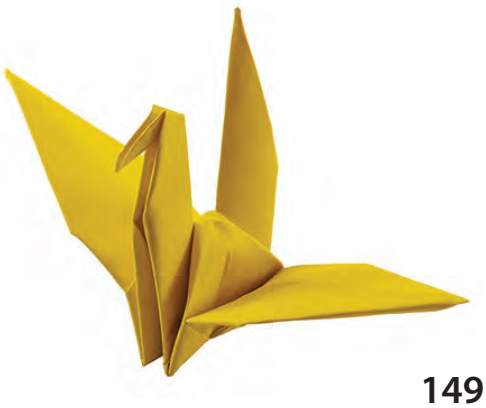
1. You and your friend make origami animals.

a. You have two packages of paper. One package has 8 colors with 6 sheets of each color. Another package has 3 white sheets and 9 times as many colored sheets as white sheets. How many sheets of paper do you have in all?

b. You and your friend each want to make 5 origami animals every day for one week. Do you have enough paper? Explain.

c. You make a jumping frog. The first step is to fold the paper into fourths that are shaped like triangles. Draw lines to show how you would fold your paper.

d. It takes 12 steps to make a crane. Your friend makes 8 paper cranes. How many steps does your friend do in all? Explain.



Product Lineup

Directions:

1. Players take turns flipping two number cards.
2. On your turn, multiply the two numbers and place a counter on the product.
3. If you flip two of the same number, take another turn.
4. The first player to create two lines of 5 in a row, horizontally, vertically, or diagonally, wins!

5	27	9	40	72	56	10
64	3	80	35	50	4	48
30	12	28	100	6	21	70
7	25	32	15	49	54	18
90	2	16	20	1	60	45
14	81	42	63	24	8	36

Name _____

Chapter Practice 3

3.1 Multiply by 3

Draw a model to find the product.

1. 3×8

2. 3×4

Find the product.

3. $\begin{array}{r} 3 \\ \times\ 5 \\ \hline \end{array}$

4. $\begin{array}{r} 0 \\ \times\ 3 \\ \hline \end{array}$

5. $\begin{array}{r} 1 \\ \times\ 3 \\ \hline \end{array}$

6. $\begin{array}{r} 3 \\ \times\ 6 \\ \hline \end{array}$

3.2 Multiply by 4

Find the product.

7. $\begin{array}{r} 4 \\ \times\ 8 \\ \hline \end{array}$

8. $\begin{array}{r} 10 \\ \times\ 4 \\ \hline \end{array}$

9. $\begin{array}{r} 7 \\ \times\ 4 \\ \hline \end{array}$

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

Find the missing factor.

11. $1 \times \_\_\_\_ = 4$

12. $\_\_\_\_ \times 4 = 0$

13. $20 = \_\_\_\_ \times 4$

14. MP **Number Sense** How can you use 2×5 to find 4×5?

3.3 Multiply by 6

Find the product.

15. $\begin{array}{r} 6 \\ \times\ 5 \\ \hline \end{array}$

16. $\begin{array}{r} 6 \\ \times\ 2 \\ \hline \end{array}$

17. $\begin{array}{r} 9 \\ \times\ 6 \\ \hline \end{array}$

18. $\begin{array}{r} 3 \\ \times\ 6 \\ \hline \end{array}$

Compare.

19. $7 \times 6 \bigcirc 6 \times 8$

20. $6 \times 9 \bigcirc 4 \times 6$

21. $36 \bigcirc 6 \times 6$

3.4 Multiply by 7

Find the product.

22. $\begin{array}{r} 0 \\ \times\ 7 \\ \hline \end{array}$

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

24. $\begin{array}{r} 10 \\ \times\ 7 \\ \hline \end{array}$

25. $\begin{array}{r} 7 \\ \times\ 2 \\ \hline \end{array}$

26. $\begin{array}{r} 7 \\ \times\ 1 \\ \hline \end{array}$

27. $\begin{array}{r} 7 \\ \times\ 9 \\ \hline \end{array}$

28. $\begin{array}{r} 4 \\ \times\ 7 \\ \hline \end{array}$

29. $\begin{array}{r} 8 \\ \times\ 7 \\ \hline \end{array}$

3.5 Multiply by 8

Find the product.

30. $\begin{array}{r} 8 \\ \times\ 6 \\ \hline \end{array}$

31. $\begin{array}{r} 9 \\ \times\ 8 \\ \hline \end{array}$

32. $\begin{array}{r} 4 \\ \times\ 8 \\ \hline \end{array}$

33. $\begin{array}{r} 8 \\ \times\ 5 \\ \hline \end{array}$

34. MP **Precision** There are 8 fluid ounces in 1 cup. How many fluid ounces are in 3 cups?

3.6 Multiply by 9

Find the product.

35. $\begin{array}{r} 10 \\ \times\ 9 \\ \hline \end{array}$

36. $\begin{array}{r} 9 \\ \times\ 4 \\ \hline \end{array}$

37. $\begin{array}{r} 9 \\ \times\ 6 \\ \hline \end{array}$

38. $\begin{array}{r} 3 \\ \times\ 6 \\ \hline \end{array}$

39. MP **Reasoning** An artist needs 80 flower petals for a craft. She picks 9 flowers that each have 8 petals. Does she have enough flower petals for her craft? Explain.

3.7 Practice Multiplication Strategies

Use any strategy to find the product.

40. $2 \times 7 =$ _____

41. $6 \times 6 =$ _____

42. $5 \times 1 =$ _____

43. $8 \times 10 =$ _____

44. $4 \times 0 =$ _____

45. $10 \times 10 =$ _____

46. **Modeling Real Life** Newton has 4 bundles of balloons. There is 1 blue balloon, 2 purple balloons, and 1 green balloon in each bundle. How many balloons does he have in all?

3.8 Multiply Three Factors

Find the product.

47. $(4 \times 2) \times 2 =$ _____

48. $3 \times (3 \times 3) =$ _____

49. $(3 \times 3) \times 6 =$ _____

50. $2 \times (8 \times 4) =$ _____

51. $(2 \times 0) \times 4 =$ _____

52. $0 \times (8 \times 5) =$ _____

3.9 More Problem Solving: Multiplication

53. You find 2 four-leaf clovers and 9 three-leaf clovers. What is the total number of leaves on the clovers you find?

54. A bakery sells croissants for $2 each. A tray contains 2 rows of 4 croissants. You buy 2 trays. How many croissants do you buy?