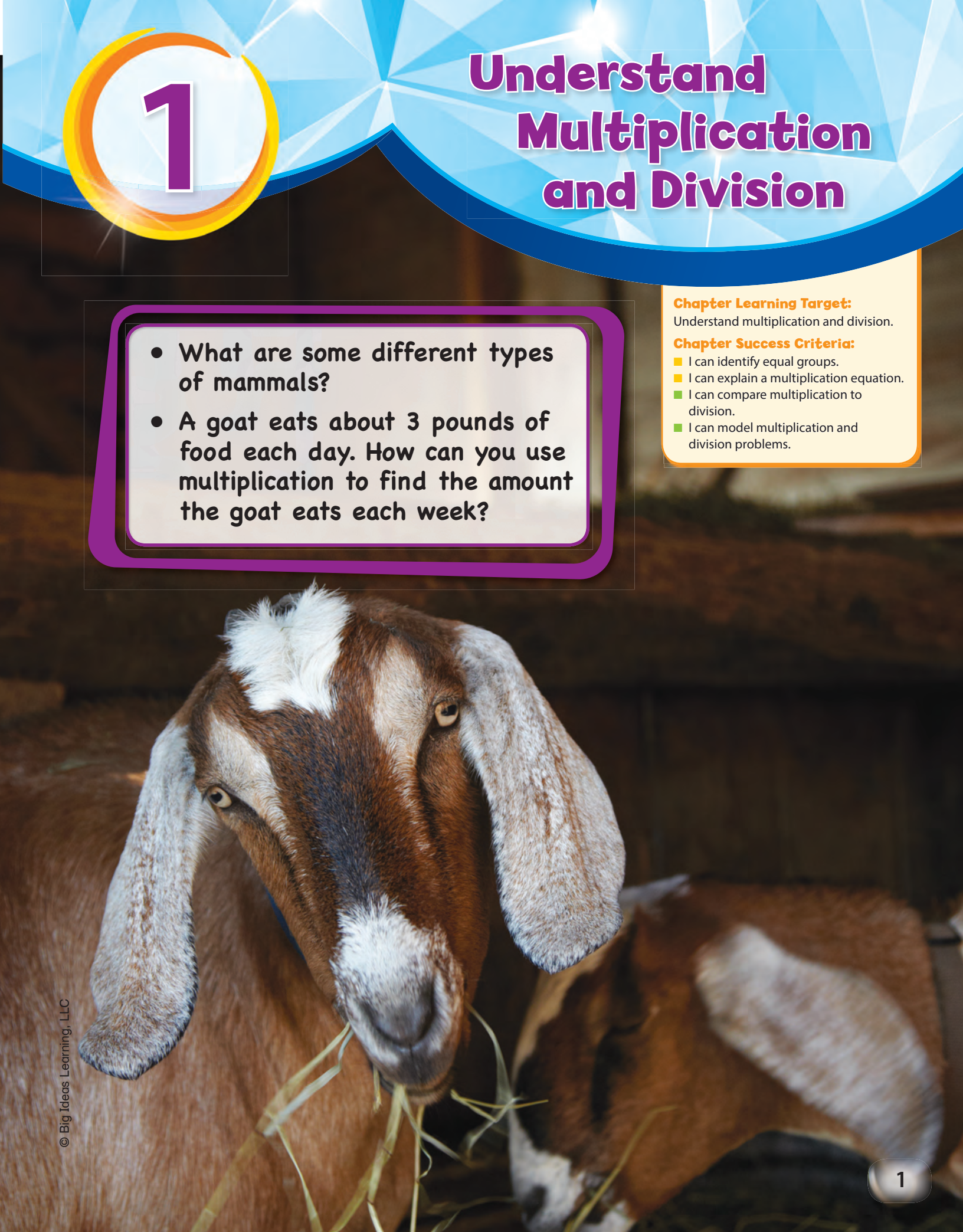
1 Understand Multiplication and Division

- What are some different types of mammals?
- A goat eats about 3 pounds of food each day. How can you use multiplication to find the amount the goat eats each week?

Chapter Learning Target:
Understand multiplication and division.

Chapter Success Criteria:
- I can identify equal groups.
- I can explain a multiplication equation.
- I can compare multiplication to division.
- I can model multiplication and division problems.



Name _____

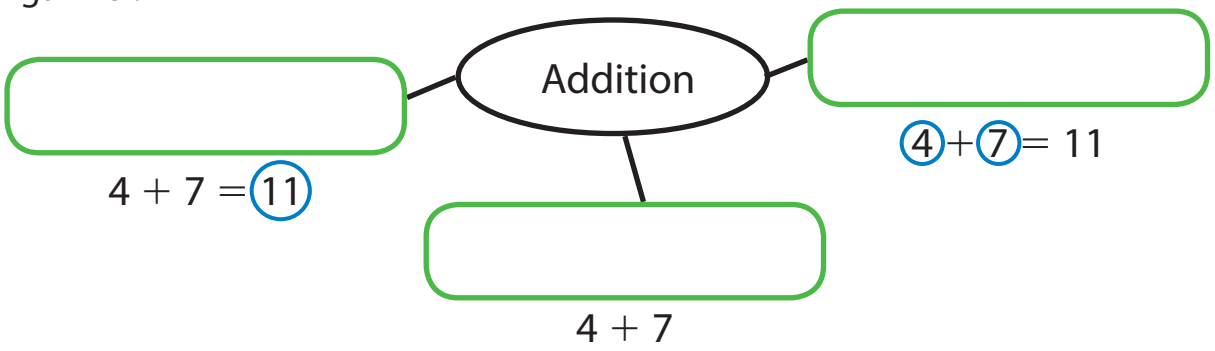
1 Vocabulary

Review Words

addends
expression
sum

Organize It

Use the review words to complete the graphic organizer.



Define It

Use your vocabulary cards to complete the puzzle.

Across

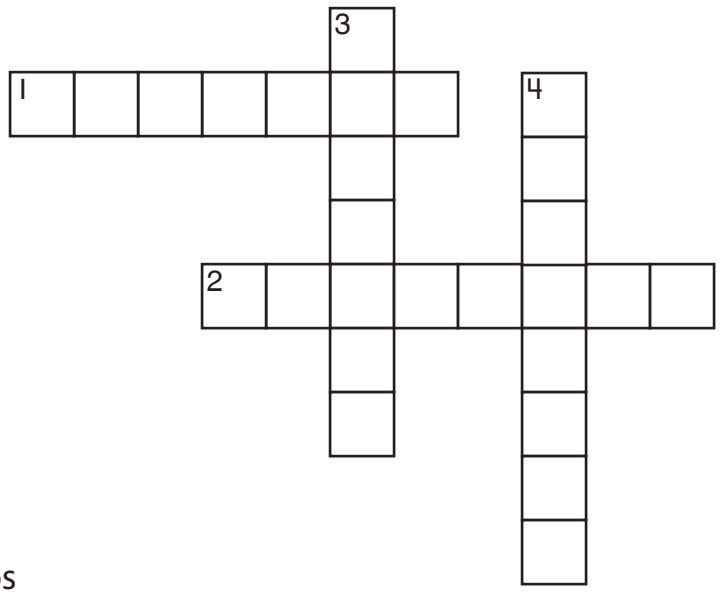
1. Numbers that are multiplied to get a product

2. A mathematical sentence that uses an equal sign, =, to show that two expressions are equal

Down

3. The answer to a multiplication problem

4. An operation that separates a group of objects into groups of equal size



Chapter 1 Vocabulary Cards

array

column

Commutative Property of Multiplication

division

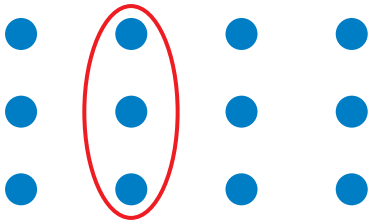
division symbol

equal groups

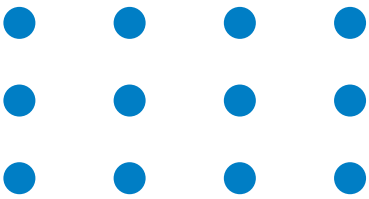
equation

factors

A vertical (up and down) arrangement of objects in an array



A group of objects arranged into rows and columns



An operation that separates a group of objects into groups of equal size

$12 \div 3 = 4$

$12 \div 4 = 3$

Changing the order of factors does not change the product.

$4 \times 3 = 12$

$3 \times 4 = 12$

So, $4 \times 3 = 3 \times 4$.

Groups that have the same number of objects

$12 \div 3 = 4$

Numbers that are multiplied to get a product

$3 \times 4 = 12$

A mathematical sentence that uses an equal sign, =, to show that two expressions are equal.

$4 \times 3 = 12$

$12 \div 4 = 3$

multiplication

multiplication symbol

product

row

tape diagram

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$3 \times 4 = 12$

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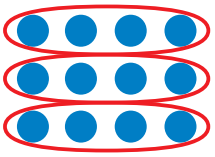
An operation that gives the total number of objects when you combine equal groups



$3 \times 4 = 12$

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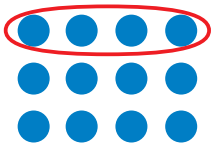
A horizontal (left to right) arrangement of objects in an array



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The answer to a multiplication problem

$3 \times 4 = 12$

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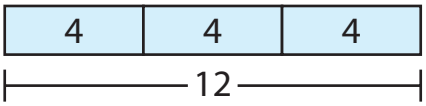
A model that shows a whole divided into parts



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Name _____

Use Equal Groups to Multiply

1.1

Learning Target: Use equal groups to multiply.

Success Criteria:

- I can identify equal groups.
- I can write a repeated addition equation for equal groups.
- I can write a multiplication equation for equal groups.

Explore and Grow

Put 24 counters into equal groups. Draw to show your groups.

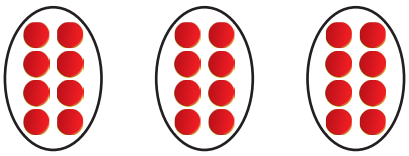
Put 24 counters into a different number of equal groups.
Draw to show your groups.

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

Think and Grow: Using Equal Groups to Multiply

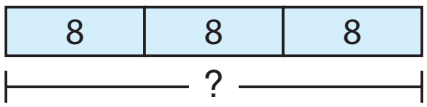
Multiplication is an operation that gives the total number of objects when you combine equal groups.

Example How many counters are there in all?



Each group has the same number of counters, so they are **equal groups**.

tape diagram



3 groups of 8

Repeated addition equation: $8 + 8 + 8 =$ _____

multiplication symbol

Multiplication equation: $3 \times 8 =$ _____

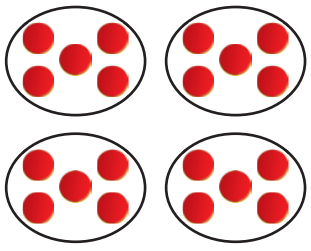
number of equal groups | size of equal groups | total

An **equation** is a mathematical sentence that uses an equal sign, =, to show that two expressions are equal.

Show and Grow

Use the model to complete the statements.

1.

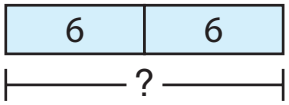


_____ groups of _____

_____ + _____ + _____ + _____ = _____

_____ × _____ = _____

2.



_____ groups of _____

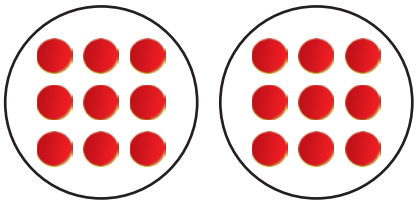
_____ + _____ = _____

_____ × _____ = _____

Name _____

Apply and Grow: Practice

3. Use the model to complete the statements.



_____ groups of _____

_____ + _____ = _____

_____ × _____ = _____

Draw equal groups. Then complete the equations.

4. 4 groups of 2

_____ + _____ + _____ + _____ = _____

_____ × _____ = _____

5. 3 groups of 5

_____ + _____ + _____ = _____

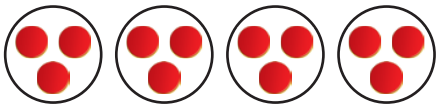
_____ × _____ = _____

Write the addition equation as a multiplication equation.

6. $8 + 8 + 8 = 24$

7. $7 + 7 + 7 + 7 + 7 = 35$

8. **YOU BE THE TEACHER** Newton says he circled 3 groups of 4 counters. Is he correct? Explain.



9. **DIG DEEPER!** You wash 5 cars. How many tires do you wash?

Think and Grow: Modeling Real Life

You buy 6 packs of 10 trading cards. How many cards do you buy in all?

Complete the statement: _____ groups of _____

Repeated addition equation:

Multiplication equation:

You buy _____ cards in all.

Show and Grow

10. You buy 8 packs of 4 highlighters. How many highlighters do you buy in all?

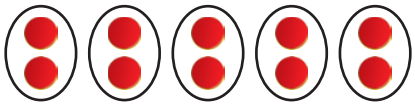
11. **DIG DEEPER!** You make 5 bracelets. Each of your bracelets has 3 beads. Your friend makes 6 bracelets. Each of your friend's bracelets has 2 beads. How many beads do you and your friend use in all?

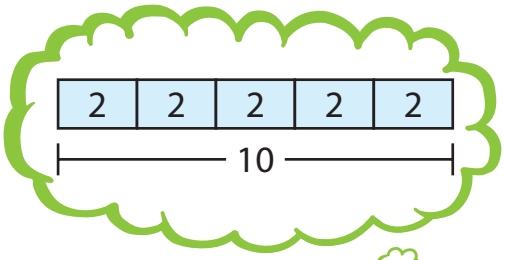
Name _____

Homework & Practice 1.1

Learning Target: Use equal groups to multiply.

Example Use the model to complete the statements.





5 groups of 2

2 + 2 + 2 + 2 + 2 = 10

5 × 2 = 10

1. Use the model to complete the statements.

4	4	4

? = ?

_____ groups of _____

_____ + _____ + _____ = _____

_____ × _____ = _____

Draw equal groups. Then complete the equations.

2. 2 groups of 8

_____ + _____ = _____

_____ × _____ = _____

3. 5 groups of 3

_____ + _____ + _____ + _____ + _____ = _____

_____ × _____ = _____

Write the addition equation as a multiplication equation.

4. $3 + 3 + 3 + 3 + 3 + 3 = 18$

5. $2 + 2 + 2 + 2 + 2 + 2 + 2 = 14$

6. DIG DEEPER! You have 16 action figures. Can you put an equal number of figures on 3 shelves? Explain.

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

2 groups of 3

$2 + 2 + 2 = 6$

8. **Modeling Real Life** You make 7 gift bags for your friends. Each gift bag has 3 pom-pom pets. How many pom-pom pets are there in all?

9. DIG DEEPER! Newton has 2 stacks of 5 books. Descartes has 3 stacks of 4 books. How many books do they have in all?

Review & Refresh

10. $50 + 30 =$ _____

11. $27 + 40 =$ _____

12. $19 + 20 =$ _____

Name _____

Use Number Lines to Multiply

1.2

Learning Target: Use a number line to multiply.

Success Criteria:

- I can explain the parts of a multiplication equation.
- I can use a number line to skip count.

Explore and Grow

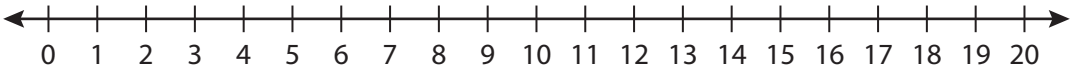
Find the sums. Use each sum as the missing addend in the next equation. Model the problems on the number line.

$0 + 3 =$ _____

_____ $+ 3 =$ _____

_____ $+ 3 =$ _____

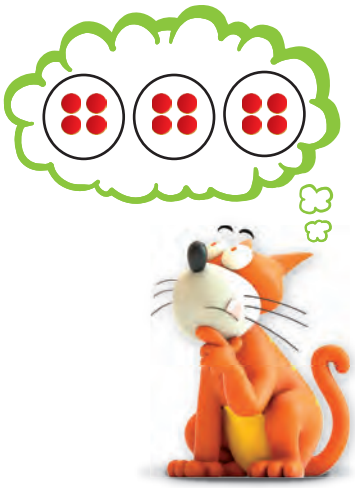
_____ $+ 3 =$ _____



MP **Reasoning** How can you use a number line to help you find 4×3?

Think and Grow: Multiplication and Number Lines

Example Find 3×4.

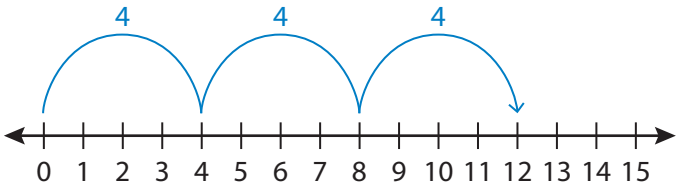


3×4 means 3 groups of 4.

Number of jumps: _____

Size of each jump: _____

Start at 0. Skip count by 4s three times.

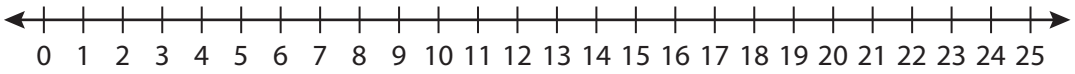


$3 \times 4 =$ _____

Show and Grow

1. Find 2×4.

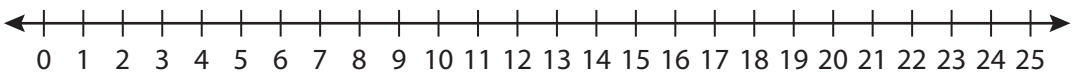
Number of jumps: _____ Size of each jump: _____



$2 \times 4 =$ _____

2. Find 6×3.

Number of jumps: _____ Size of each jump: _____



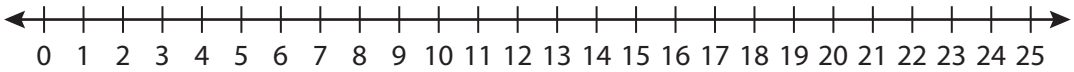
$6 \times 3 =$ _____

Name _____

Apply and Grow: Practice

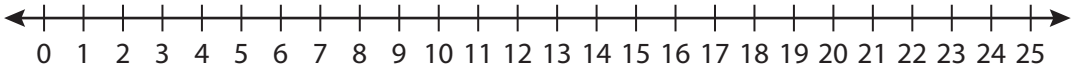
3. Find 3×5.

Number of jumps: _____ Size of each jump: _____



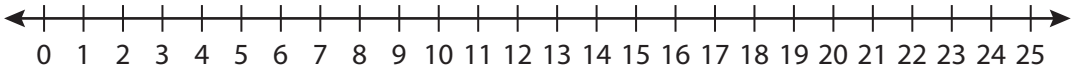
$3 \times 5 =$ _____

4. Find 5×4.



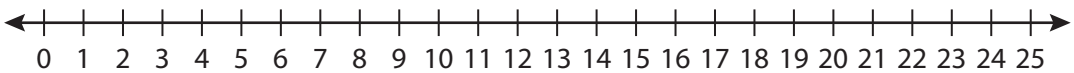
$5 \times 4 =$ _____

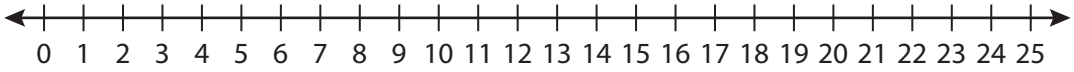
5. Find 3×8.



$3 \times 8 =$ _____

6. MP **Structure** Draw jumps to show 4 groups of 6 and 6 groups of 4.
Think: How are they the same? How are they different?

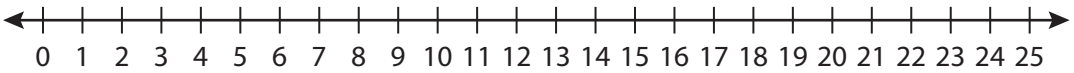




Think and Grow: Modeling Real Life

A group of lions is called a *pride*. There are 2 prides in a savanna. Each pride has 9 lions. How many lions are there in all?

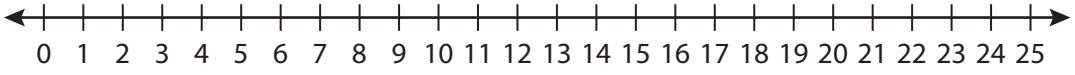
Model:



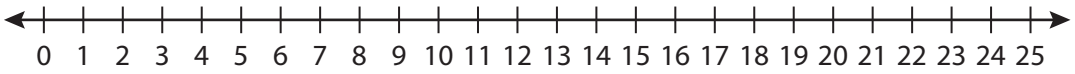
There are _____ lions in all.

Show and Grow

7. There are 3 bike racks at a park. Each bike rack has 4 bikes. How many bikes are there in all?



8. DIG DEEPER! You dig 8 holes. You plant 2 flower bulbs in each hole. You have 5 bulbs left. How many flower bulbs did you have to start?



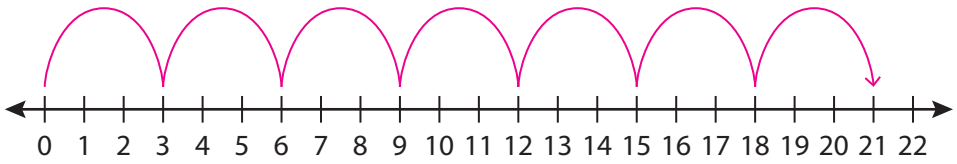
Name _____

Homework & Practice 1.2

Learning Target: Use a number line to multiply.

Example Find 7×3.

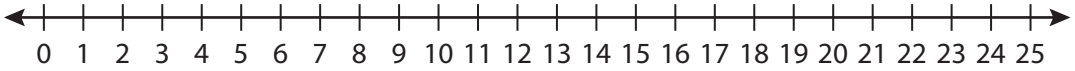
Number of jumps: 7 Size of each jump: 3



$7 \times 3 = 21$

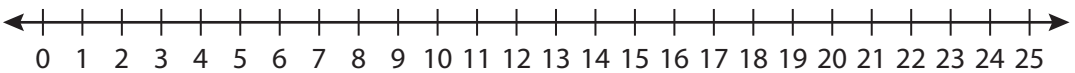
1. Find 3×6.

Number of jumps: _____ Size of each jump: _____



$3 \times 6 =$ _____

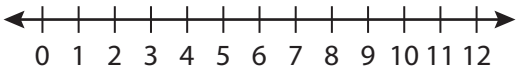
2. Find 4×5.



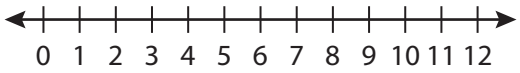
$4 \times 5 =$ _____

3. **Structure** Complete the multiplication equations in two different ways. Model each equation on the number line.

_____ × _____ = 12



_____ × _____ = 12



4. **Writing** Explain how you can use a number line to find 5 × 3.

5. **Modeling Real Life** You have 6 boxes of blueberry muffins. Each box has 4 muffins. How many muffins do you have in all?

6. **DIG DEEPER!** You fill 8 pages of a photo album. Each page has 3 photos. You have 1 photo left. How many photos did you have to start?

Review & Refresh

7. 9 + 8 + 2 = _____

8. 6 + 5 + 3 = _____

9. 7 + 4 + 7 = _____

Name _____

Use Arrays to Multiply 1.3

Learning Target: Use an array to multiply.

Success Criteria:

- I can identify the number of rows and columns in an array.
- I can draw an array.
- I can write a multiplication equation for an array.

Explore and Grow

Put 24 counters into equal rows. Draw your model.

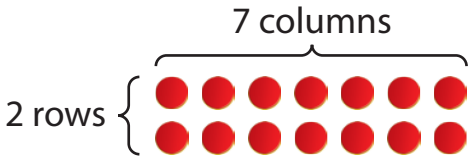
Put 24 counters into a different number of equal rows. Draw your model.

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

Think and Grow: Multiplication and Arrays

An **array** is a group of objects organized into **rows** and **columns**.
Each row has the same number of objects.

Example How many counters are there in all?



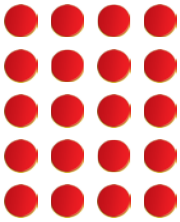
Repeated addition equation: $7 + 7 =$ _____

Multiplication equation: $2 \times 7 =$ _____

number of rows — number in each row — total

Show and Grow

1. How many counters are there in all?



_____ rows

_____ columns

_____ + _____ + _____ + _____ + _____ = _____

_____ × _____ = _____

2. Draw an array to multiply 6×3.

$6 \times 3 =$ _____

Name _____

Apply and Grow: Practice

Draw an array to multiply.

3. $4 \times 8 =$ _____

4. $3 \times 9 =$ _____

5. $7 \times 3 =$ _____

6. $6 \times 5 =$ _____

7. MP **Number Sense** Newton has a 2×10 array of baseballs. He adds another row. How many baseballs does he add? Write a multiplication equation for his new array.

He adds _____ baseballs.

_____ × _____ = _____

8. DIG DEEPER! Use 6 counters to make as many different arrays as possible using all of the counters. Draw the arrays. Then write a multiplication equation for each array.

Think and Grow: Modeling Real Life

A phone has 6 rows of apps with 4 apps in each row. How many apps are on the phone?

Draw:

Equation:

There are _____ apps on the phone.

Show and Grow

9. Your classroom has 3 rows of desks with 10 desks in each row. How many desks are in your classroom?

10. **DIG DEEPER!** A square array has an equal number of rows and columns. A farmer has 9 corn seeds to plant in a square array. Draw the square array the farmer can use to plant all of the seeds. How many rows and columns are there?

Name _____

Homework & Practice 1.3

Learning Target: Use an array to multiply.

Example How many counters are there in all?

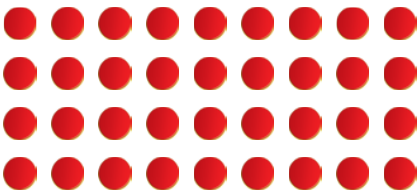
3 rows

5 columns

5 + 5 + 5 = 15

3 × 5 = 15

1. How many counters are there in all?



_____ rows

_____ columns

_____ + _____ + _____ + _____ = _____

_____ × _____ = _____

Draw an array to multiply.

2. 9 × 2 = _____

3. 4 × 5 = _____

4. **YOU BE THE TEACHER** Descartes has 24 counters. He says he can use all the counters to make an array with 3 rows. Is he correct? Explain.

5. **Number Sense** Newton has a 4×8 array of dominoes. He adds 2 more rows. How many dominoes does he add? Write a multiplication equation for his new array.

He adds _____ dominoes. _____ $\times$ _____ = _____

6. **Modeling Real Life** An art teacher hangs 2 rows of paintings with 10 paintings in each row. How many paintings does she hang?

7. **DIG DEEPER!** A museum has 16 shark teeth to display in a square array. Draw the square array the museum can use to display all of the teeth. How many rows and columns are there?

Review & Refresh

Complete the equation.

8. $3 + 8 = 8 +$ _____

9. $10 + 0 =$ _____ $+ 10$

10. $6 +$ _____ $= 7 + 6$

11. _____ $+ 8 = 8 + 9$

Name _____

Multiply in Any Order 1.4

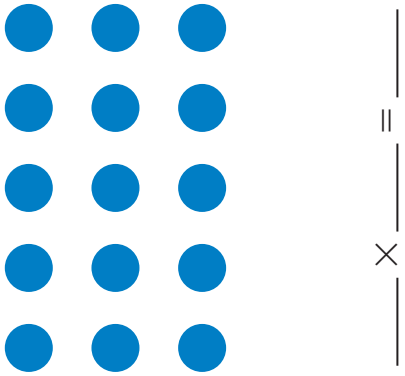
Learning Target: Multiply factors in any order.

Success Criteria:

- I can use arrays to show the Commutative Property of Multiplication.
- I can write two multiplication equations for an array.
- I can use the Commutative Property of Multiplication.

Explore and Grow

Write the multiplication equation for the array. Turn your paper and write the equation for the array.



_____ × _____ = _____

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

Think and Grow: Commutative Property of Multiplication

In a multiplication equation, the numbers that are multiplied are called **factors**. The answer is called the **product**.

$3 \times 5 = 15$

factors product

Commutative Property of Multiplication: Changing the order of factors does not change the product.

Example Complete the statements.

3 rows of _____

$3 \times 4 =$ _____

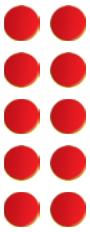
4 rows of _____

$4 \times 3 =$ _____

So, $3 \times$ _____ $= 4 \times$ _____.

Show and Grow

1. Complete the statements.



_____ rows of _____

_____ $\times$ _____ $=$ _____

_____ rows of _____

_____ $\times$ _____ $=$ _____

So, _____ $\times$ _____ $=$ _____ $\times$ _____.

2. Draw an array to show the Commutative Property of Multiplication. Complete the statements.

_____ $\times$ _____ $=$ _____

_____ $\times$ _____ $=$ _____

So, _____ $\times$ _____ $=$ _____ $\times$ _____.

Name _____

Apply and Grow: Practice

Draw an array to show the Commutative Property of Multiplication.
Complete the statements.

3. 

_____ × _____ = _____

_____ × _____ = _____

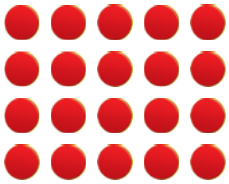
So, _____ × _____ = _____ × _____.

4. 

_____ × _____ = _____

_____ × _____ = _____

So, _____ × _____ = _____ × _____.

5. 

_____ × _____ = _____

_____ × _____ = _____

So, _____ × _____ = _____ × _____.

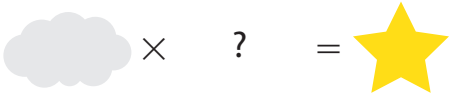
Complete the equation.

6. $8 \times 3 = 3 \times$ _____

7. $10 \times 2 =$ _____ $\times 10$

8. $1 \times$ _____ $= 9 \times 1$

9. MP **Structure** Which shape completes the equation?



Think and Grow: Modeling Real Life

Your friend makes 7 rows of 6 stickers. You want to put the same number of stickers into 6 rows. How many stickers do you put in each row? Explain.

You put _____ stickers in each row.

Explain:

Show and Grow

10. Your friend makes 9 rows of 4 award ribbons. You want to put the same number of award ribbons into 4 rows. How many award ribbons do you put in each row? Explain.

11. **DIG DEEPER!** You have 2 rows of 8 toy cars. Your friend has 5 rows of 2 toy cars. How can you use the Commutative Property of Multiplication to find how many rows your friend needs to add so that you both have the same number of toy cars?

Name _____

Homework & Practice 1.4

Learning Target: Multiply factors in any order.

Example Complete the statements.

2 rows of 4

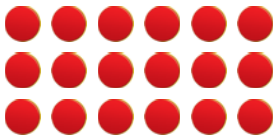
2 × 4 = 8

4 rows of 2

4 × 2 = 8

So, 2 × 4 = 4 × 2.

1. Complete the statements.



_____ rows of _____

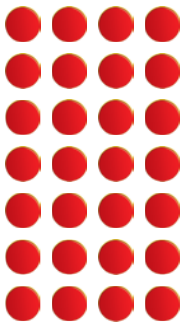
_____ × _____ = _____

_____ rows of _____

_____ × _____ = _____

So, _____ × _____ = _____ × _____.

2. Draw an array to show the Commutative Property of Multiplication. Complete the statements.

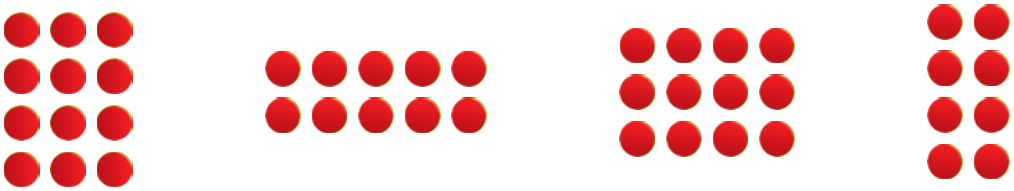


_____ × _____ = _____

_____ × _____ = _____

So, _____ × _____ = _____ × _____.

3. **Structure** Which two arrays can you use to show the Commutative Property of Multiplication?



4. **Precision** Write two equations that show the Commutative Property of Multiplication.

_____ × _____ = _____ × _____

_____ × _____ = _____ × _____

5. **Modeling Real Life** A computer lab has 6 rows of 5 computers. A technology teacher wants to rearrange the computers into 5 rows. How many computers does the teacher put in each row? Explain.

6. DIG DEEPER! You have 6 rows of 4 pennies. Your friend has 2 rows of 6 pennies. How many rows does your friend need to add so that you both have the same number of pennies?

Review & Refresh

7. Newton hits a ball 5 fewer times than Descartes does. Newton hits the ball 9 times. How many times does Descartes hit the ball?

Name _____

Divide: Size of Equal Groups

1.5

Learning Target: Use division to find the size of equal groups.

Success Criteria:

- I can model equal groups.
- I can identify the size of equal groups.
- I can write a division equation.

Explore and Grow

Put 18 counters in 6 equal groups. Draw to show your groups.

Number of counters in each group: _____

Put 18 counters in 3 equal groups. Draw to show your groups.

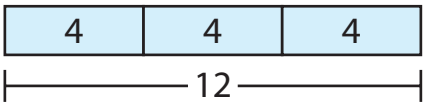
Number of counters in each group: _____

MP **Structure** How does changing the number of equal groups change the number of counters in each group?

Think and Grow: Using Equal Groups to Divide

Division is an operation that gives the size of equal groups or the number of equal groups. When you know the total number of objects and the number of equal groups, you can divide to find the size of each group.

Example Divide 12 counters into *3 equal groups*. How many counters are in each group?



12 ÷ 3 is read as "twelve divided by three."

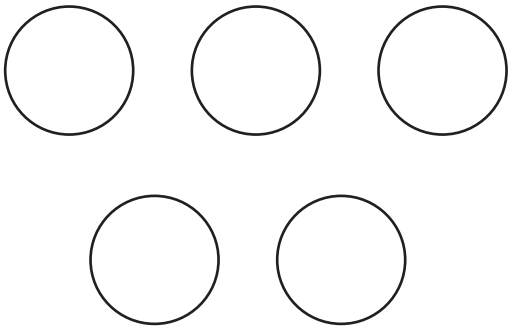
division symbol

Division equation: 12 ÷ 3 = _____

- 12: total
- 3: number of equal groups
- _____: size of each group

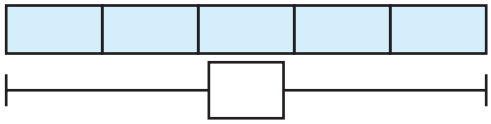
Show and Grow

1. Divide 15 counters into 5 equal groups. How many counters are in each group?



15 ÷ 5 = _____

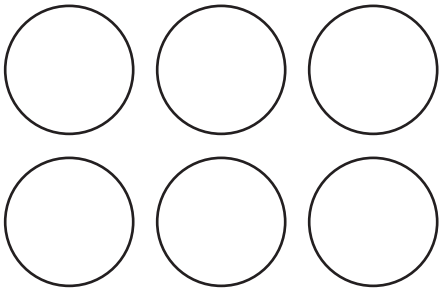
Use the tape diagram to model the equation.



Name _____

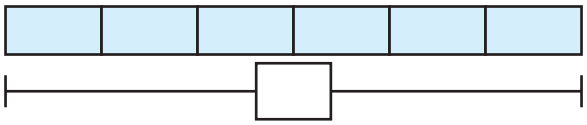
Apply and Grow: Practice

2. Divide 30 counters into 6 equal groups. How many counters are in each group?



30 ÷ 6 = _____

Use the tape diagram to model the equation.



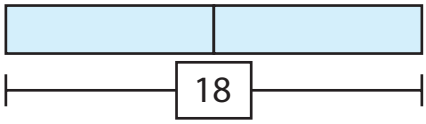
3. Divide 16 counters into 2 equal groups. How many counters are in each group?

16 ÷ 2 = _____

4. Divide 9 counters into 3 equal groups. How many counters are in each group?

9 ÷ 3 = _____

5. MP **Structure** Write the division equation that matches the tape diagram.



_____ ÷ _____ = _____

6. DIG DEEPER! Newton has a tennis ball collection. He can divide the balls into 3 equal groups with none left over. He can also divide the balls into 4 equal groups with none left over. How many tennis balls does he have?

Think and Grow: Modeling Real Life

You have 30 seashells. You put an equal number of seashells in 5 bags. How many seashells are in each bag?

Model:

Division equation:

There are _____ seashells in each bag.

Show and Grow

7. You have 28 rocks. You put an equal number of rocks in 4 piles. How many rocks are in each pile?

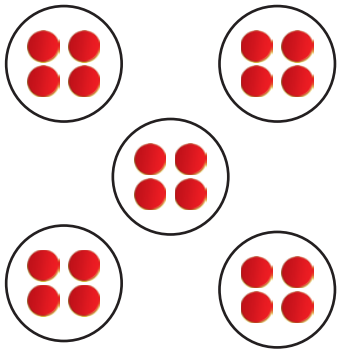
8. **DIG DEEPER!** Newton and Descartes each have 40 quarters. Newton puts his quarters into 5 equal groups. Descartes puts his quarters into 4 equal groups. Who has more quarters in each group?

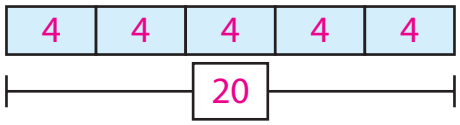
Name _____

Homework & Practice 1.5

Learning Target: Use division to find the size of equal groups.

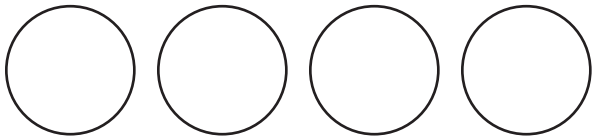
Example Divide 20 counters into 5 equal groups. How many counters are in each group?





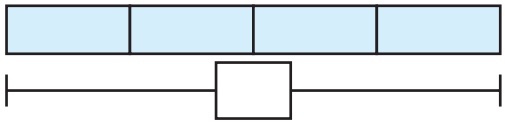
$20 \div 5 = \underline{4}$

1. Divide 16 counters into 4 equal groups. How many counters are in each group?



$16 \div 4 = \_\_\_\_$

Use the tape diagram to model the equation.



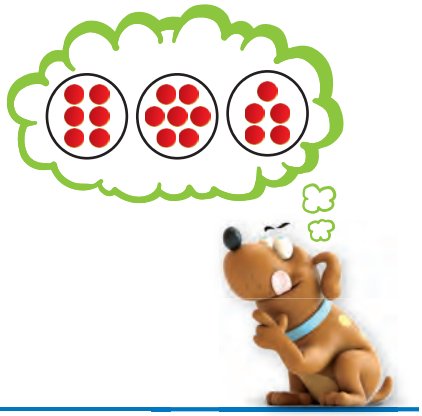
2. Divide 28 counters into 7 equal groups. How many counters are in each group?

$28 \div 7 = \_\_\_\_$

3. Divide 27 counters into 3 equal groups. How many counters are in each group?

$27 \div 3 = \_\_\_\_$

4. **YOU BE THE TEACHER** Newton says you *cannot* divide 18 counters into 3 equal groups. Is he correct?



5. **Precision** A class has 14 boys and 18 girls. Can the teacher divide the class equally into 4 groups with no students remaining? Explain.

6. **Modeling Real Life** You have 14 erasers. You and your friend share them equally. How many erasers do you and your friend each get?

7. **DIG DEEPER!** Newton and Descartes each have 42 glow-in-the-dark stickers. Newton divides his into 6 equal groups. Descartes divides his into 7 equal groups. Who has more stickers in each group?

Review & Refresh

8.
$$\begin{array}{r} 26 \\ +\ 15 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 32 \\ +\ 55 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 49 \\ +\ 12 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 24 \\ +\ 68 \\ \hline \end{array}$$

Name _____

Divide: Number of Equal Groups

1.6

Learning Target: Use division to find the number of equal groups.

Success Criteria:

- I can model equal groups.
- I can identify the number of equal groups.
- I can write a division equation.

Explore and Grow

Put 24 counters in equal groups of 4. Draw to show your groups.

Number of groups: _____

Put 24 counters in equal groups of 6. Draw to show your groups.

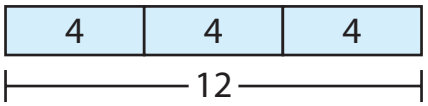
Number of groups: _____

MP **Structure** How does changing the size of the groups change the number of equal groups?

Think and Grow: Using Equal Groups to Divide

When you know the total number of objects and the size of each group, you can divide to find the number of equal groups.

Example Divide 12 counters into *groups of 4*. How many groups are there?



Division equation: $12 \div 4 = \_\_\_\_$

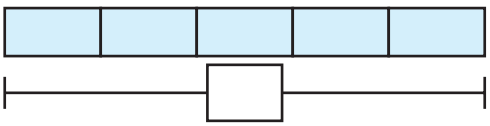
total — number in each group — number of equal groups

Show and Grow

1. Divide 10 counters into groups of 2. How many groups are there?

$10 \div 2 = \_\_\_\_$

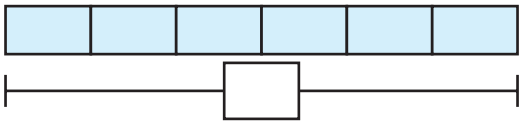
Use the tape diagram to model the equation.



2. Divide 24 counters into groups of 4. How many groups are there?

$24 \div 4 = \_\_\_\_$

Use the tape diagram to model the equation.



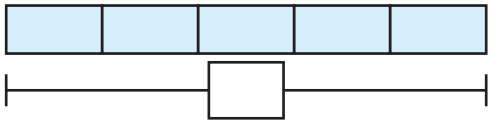
Name _____

Apply and Grow: Practice

3. Divide 30 counters into groups of 6. How many groups are there?

30 ÷ 6 = _____

Use the tape diagram to model the equation.



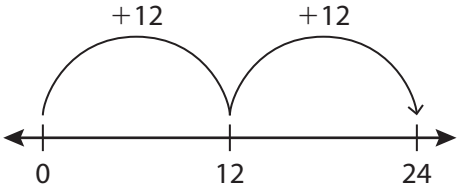
4. Divide 15 counters into groups of 5. How many groups are there?

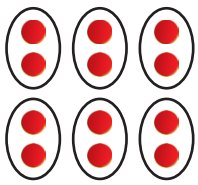
15 ÷ 5 = _____

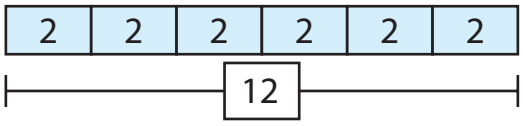
5. Divide 16 counters into groups of 4. How many groups are there?

16 ÷ 4 = _____

6. MP **Structure** You want to bake as many loaves of banana bread as possible with 12 eggs. Each loaf of bread requires 2 eggs. Which models can you use to find how many loaves of bread you can make?







Think and Grow: Modeling Real Life

A florist uses 35 roses to make bouquets. Each bouquet has 7 roses. How many bouquets does the florist make?

Equation:

Model:

The florist makes _____ bouquets.

Show and Grow

7. A farmer puts 48 eggs into cartons. He puts 6 eggs in each carton. How many cartons does he use?

8. DIG DEEPER! Newton uses his subway pass 3 times each day. Descartes uses his pass 2 times each day. Who will use all of his rides first? Explain.

	Subway Rides Left
Newton	24
Descartes	18

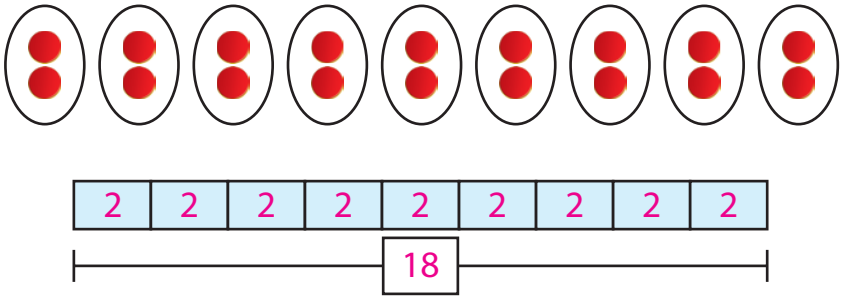
Would your answer change if Newton and Descartes both use their passes 3 times each day? Explain.

Name _____

Homework & Practice 1.6

Learning Target: Use division to find the number of equal groups.

Example Divide 18 counters into groups of 2. How many groups are there?

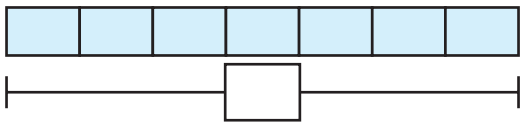


$18 \div 2 = \underline{9}$

1. Divide 28 counters into groups of 4. How many groups are there?

$28 \div 4 = \_\_\_\_$

Use the tape diagram to model the equation.



2. Divide 25 counters into groups of 5. How many groups are there?

$25 \div 5 = \_\_\_\_$

3. Divide 12 counters into groups of 6. How many groups are there?

$12 \div 6 = \_\_\_\_$

4. **Writing** Write and solve a problem in which you need to find the number of equal groups.

5. **Reasoning** Your classroom has 30 chairs that need to be stacked with 5 chairs in each stack. Your teacher already made 2 stacks. How many stacks of chairs still need to be made?

6. **DIG DEEPER!** You have more than 30 and fewer than 40 piñata toys. You divide them into groups with 8 in each group. How many groups do you make?

7. **Modeling Real Life** A street vendor puts 42 apples into baskets. She puts 6 apples in each basket. How many baskets does she use?

8. **DIG DEEPER!** Newton and Descartes are at an amusement park. Newton uses 2 tickets to ride each roller coaster. Descartes uses 3 tickets to ride at the front of each roller coaster. Who runs out of tickets first? Explain.

	Coaster Tickets
Newton	14
Descartes	21

Newton Descartes They run out of tickets at the same time.

Review & Refresh

Find the difference. Use addition to check your answer.

9.

$$\begin{array}{r} 96 \\ -\ 58 \\ \hline \end{array} \qquad + \_\_\_\_$$

10.

$$\begin{array}{r} 48 \\ -\ 32 \\ \hline \end{array} \qquad + \_\_\_\_$$

Name _____

Use Number Lines to Divide 1.7

Learning Target: Use a number line to divide.

Success Criteria:

- I can use a number line to skip count backward.
- I can write repeated subtraction equations and a division equation.

Explore and Grow

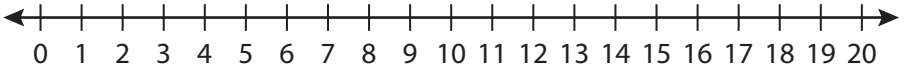
Find the difference. Use each difference as the starting number in the next equation. Model the problems on the number line.

$12 - 3 =$ _____

_____ $- 3 =$ _____

_____ $- 3 =$ _____

_____ $- 3 =$ _____

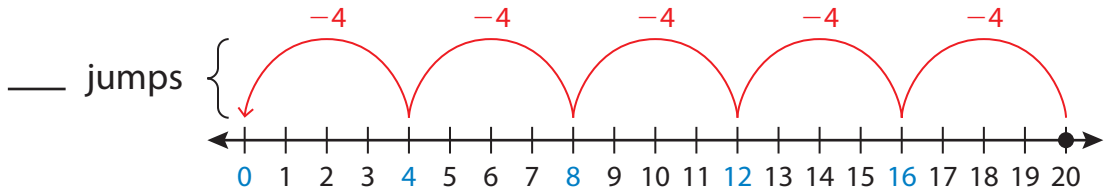


MP **Structure** How can you use a number line to help you find $12 \div 3$?

Think and Grow: Number Lines and Repeated Subtraction

Example Find 20 ÷ 4.

One Way: Use a number line. Start at 20. Count back by 4s until you reach 0.



There are 5 groups of 4. So, 20 ÷ 4 = _____.

Another Way:

Use repeated subtraction. Start with 20. Subtract 4 until you reach 0.

20 − 4 = 16
16 − 4 = 12
12 − 4 = 8
8 − 4 = 4
4 − 4 = 0

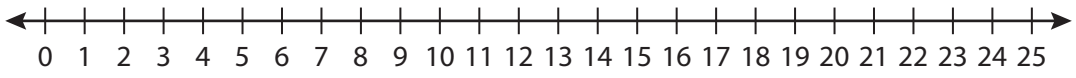
You subtract 4 _____ times.

20 ÷ 4 = _____

Show and Grow

Complete the equations.

1. 24 ÷ 6 = _____



2. 16 ÷ 8 = _____

16 − 8 = _____

_____ − 8 = 0

3. 27 ÷ 9 = _____

27 − 9 = _____

_____ − 9 = _____

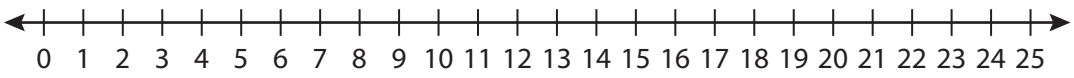
_____ − 9 = 0

Name _____

Apply and Grow: Practice

Complete the equations.

4. 25 ÷ 5 = _____



5. 21 − 7 = _____

_____ − 7 = _____

_____ − 7 = 0

_____ ÷ _____ = _____

6. 36 − 9 = _____

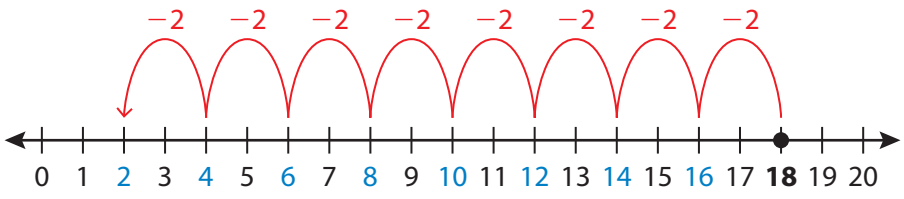
_____ − 9 = _____

_____ − 9 = _____

_____ − 9 = 0

_____ ÷ _____ = _____

7. **YOU BE THE TEACHER** Descartes uses a number line to find 18 ÷ 2. Is he correct? Explain.



18 ÷ 2 = 8

Think and Grow: Modeling Real Life

Each age group is divided into teams with 6 players on each team. Each team receives a trophy at the end of the season. How many trophies are needed?

Age Group	Number of Players
6–7 years old	18
8–9 years old	24

Division equations:

Addition equation:

_____ trophies are needed.

Show and Grow

8. Each age group is put into cabins with 8 campers in each cabin. How many cabins are needed?

Age Group	Number of Campers
5–7 years old	32
8–10 years old	24

The two age groups are combined into one group. Does the total number of cabins that are needed change? Explain.

Name _____

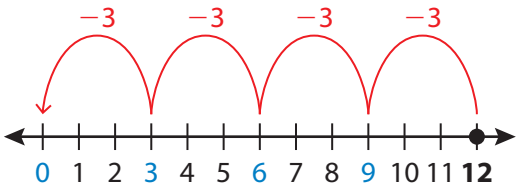
Homework & Practice 1.7

Learning Target: Use a number line to divide.

Example Find 12 ÷ 3.

One Way:

12 ÷ 3 = 4



Another Way:

12 − 3 = 9

9 − 3 = 6

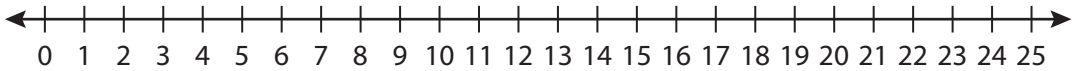
6 − 3 = 3

3 − 3 = 0

12 ÷ 3 = 4

Complete the equations.

1. 9 ÷ 3 = _____



2. 20 − 5 = _____

_____ − 5 = _____

_____ − 5 = _____

_____ − 5 = 0

_____ ÷ _____ = _____

3. 10 − 2 = _____

_____ − 2 = _____

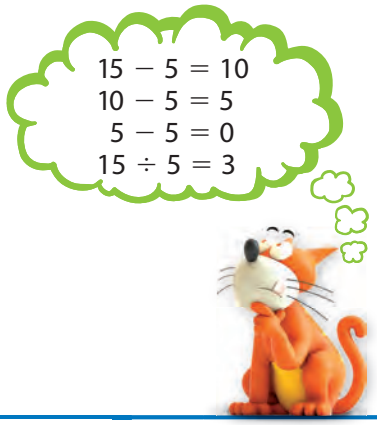
_____ − 2 = _____

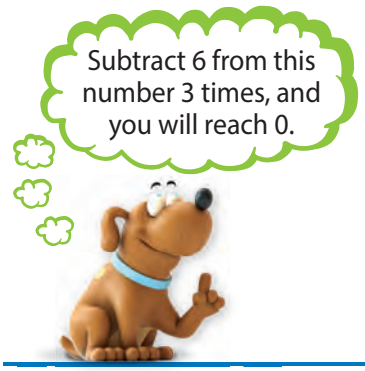
_____ − 2 = _____

_____ − 2 = 0

_____ ÷ _____ = _____

4. **YOU BE THE TEACHER** Descartes uses repeated subtraction to find 15 ÷ 5. Is he correct? Explain.





5. **DIG DEEPER!** Find Newton's missing number. Explain how you solved.

6. **Modeling Real Life** Each age group is divided into groups of 7 swimmers. How many groups are there in each age group?

Age Group	Number of Swimmers
6–8 years old	28
9–11 years old	14

The two age groups are combined into one group. Does the total number of groups change? Explain.

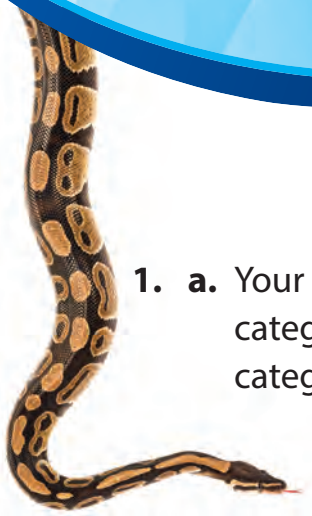
Review & Refresh

7. Circle the values of the underlined digit.

5<u>8</u>1 | 8 tens | 8 | 80

Name _____

Performance Task 1



1. a. Your science teacher gives you 71 picture cards to sort into categories, living and nonliving. You sort 11 cards into the nonliving category. How many cards do you sort into the living category?

b. You sort the living cards into 2 categories, plants and animals. The numbers of cards in each category are equal. How many cards are in the animal category?

c. You divide the animal cards into 6 equal groups. How many animal cards are in each group?

d. The animals in 5 of the groups have backbones, and the animals in the other group do not have backbones. How many more cards have animals with backbones? Explain.

Hooray Array!

Getting Started: Fill in your board with each number from the Number List. You may write each number in any square. Each square can only have one number.

Directions:

1. Choose a player to be the caller. The caller selects a Hooray Array Equation Card and reads the equation.
2. All players solve the equation and place a counter on the answer. Cover only 1 number per turn.
3. Repeat the process with players taking turns as the caller.
4. The winner is the first player who creates a 3 × 3 array on the board and yells, "HOORAY ARRAY!"

		FREE		

Number List

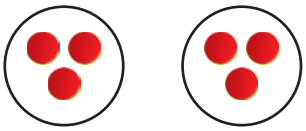
2
3
3
4
4
5
6
6
6
7
8
8
9
9
10
12
12
15
16
18
18
20
24
24

Name _____

Chapter Practice 1

1.1 Use Equal Groups to Multiply

1. Use the model to complete the statements.



_____ groups of _____

_____ + _____ = _____

_____ × _____ = _____

Draw equal groups. Then complete the equations.

2. 3 groups of 6

_____ + _____ + _____ = _____

_____ × _____ = _____

3. 4 groups of 5

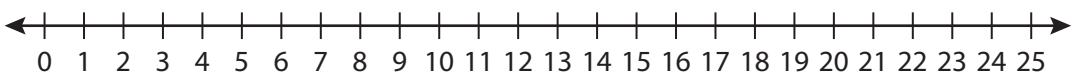
_____ + _____ + _____ + _____ = _____

_____ × _____ = _____

1.2 Use Number Lines to Multiply

4. Find 8 × 3.

Number of jumps: _____ Size of each jump: _____



8 × 3 = _____

1.3 Use Arrays to Multiply

Draw an array to multiply.

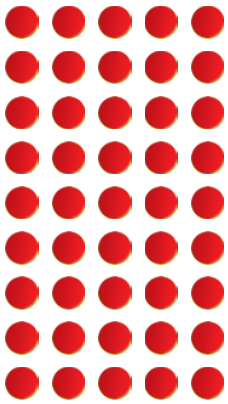
5. $2 \times 8 =$ _____

6. $7 \times 4 =$ _____

7. **YOU BE THE TEACHER** Newton has 32 counters. He says that he can use all the counters to make an array with 6 rows. Is he correct? Explain.

1.4 Multiply in Any Order

8. Draw an array to show the Commutative Property of Multiplication. Complete the statements.



_____ × _____ = _____

_____ × _____ = _____

So, _____ × _____ = _____ × _____.

Complete the equation.

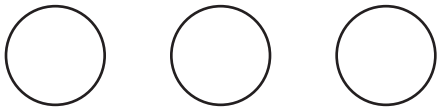
9. $4 \times 10 = 10 \times$ _____

10. $3 \times 9 =$ _____ $\times 3$

11. $8 \times$ _____ $= 4 \times 8$

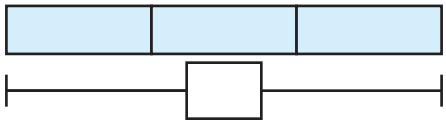
1.5 Divide: Size of Equal Groups

12. Divide 27 counters into 3 equal groups. How many counters are in each group?



$27 \div 3 =$ _____

Use the tape diagram to model the equation.



13. Divide 32 counters into 4 equal groups. How many counters are in each group?

$32 \div 4 =$ _____

14. Divide 12 counters into 4 equal groups. How many counters are in each group?

$12 \div 4 =$ _____

1.6 Divide: Number of Equal Groups

15. Divide 15 counters into groups of 3. How many groups are there?

15 ÷ 3 = _____

16. Divide 20 counters into groups of 2. How many groups are there?

20 ÷ 2 = _____

17. **Modeling Real Life** Newton and Descartes are trying a new music app. Newton uses 4 credits a day to hear songs without commercials. Descartes uses 2 credits a day to hear songs with commercials. Who runs out of credits first? Explain.

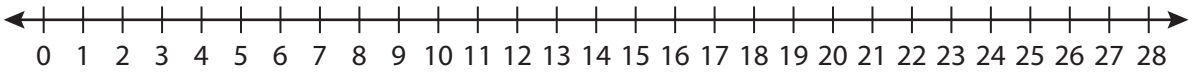
	Credits
Newton	24
Descartes	14

Newton Descartes They run out of credits at the same time.

1.7 Use Number Lines to Divide

Complete the equations.

18. 28 ÷ 7 = _____



19. 18 − 9 = _____

_____ − 9 = 0

_____ ÷ _____ = _____

20. 12 − 4 = _____

_____ − 4 = _____

_____ − 4 = 0

_____ ÷ _____ = _____