Support Coach™

4 TARGET Foundational Mathematics

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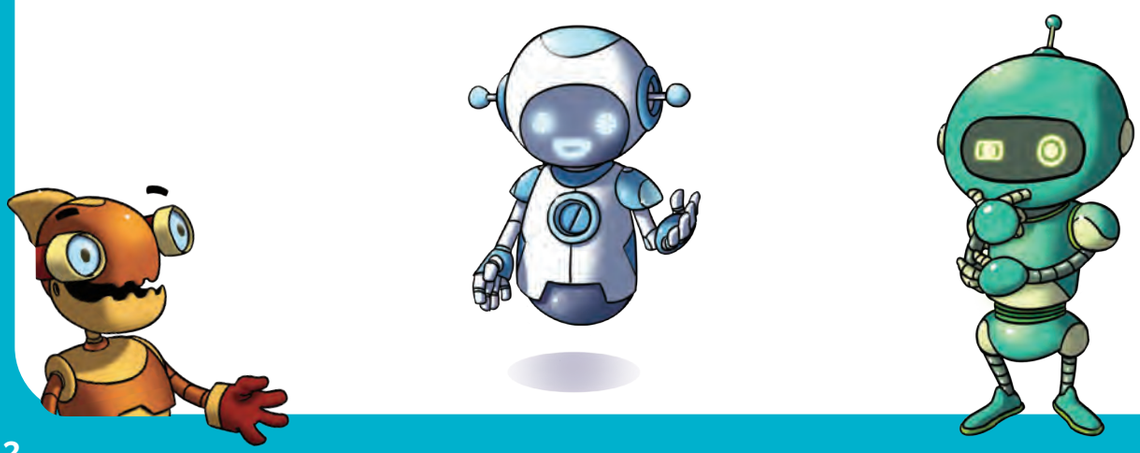
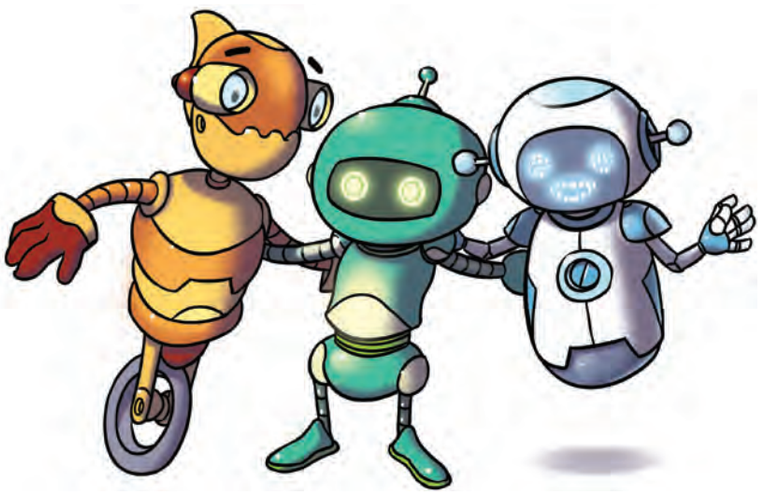
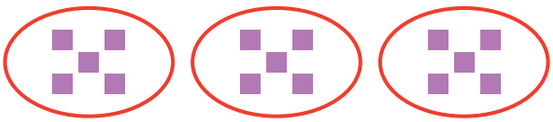




LESSON 1

Multiplicative Comparisons

PLUG IN Multiplication and Division Facts



You can use repeated addition to help you find the **product**.

$3 \times 5 = \boxed{15}$

$5 + 5 + 5 = 15$

Think: 3 times 5 means "3 groups of 5."

You can use repeated subtraction to help you find the **quotient**.

$15 \div 5 = \boxed{3}$

$15 - 5 = 10$

$10 - 5 = 5$

$5 - 5 = 0$

Think: Subtract 5 each time until you reach 0.

A **fact family** shows how multiplication and division are related.

$3 \times 5 = 15$

$5 \times 3 = 15$

$15 \div 3 = 5$

$15 \div 5 = 3$

I see! Related facts use the same numbers.

Words to Know

product
the answer in a multiplication problem
$2 \times 3 = 6$

quotient
the answer in a division problem
$6 \div 3 = 2$

fact family
a set of related facts that use the same numbers
$2 \times 3 = 6$ $6 \div 2 = 3$
$3 \times 2 = 6$ $6 \div 3 = 2$

DISCUSS What would happen to the product if you made 5 groups of 3 squares?

A You can use repeated addition to find the product.

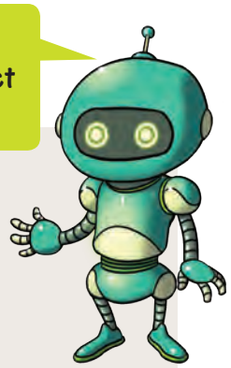
DO Multiply. $4 \times 5 = \square$

1. Think about the number sentence.
2. Add 5 four times.
3. Find the product.

4×5 means **4** groups of _____.

_____ + _____ + _____ + _____ = _____

$4 \times 5 =$ _____



B You can use repeated subtraction to find the quotient.

DO

Divide. $16 \div 4 = \square$

1. Start with 16. Subtract 4 each time until you reach 0.
2. Count the number of times you subtracted.
3. Write the quotient.

16 − **4** = _____

_____ − _____ = _____

_____ − _____ = _____

_____ − _____ = _____

You subtracted 4 _____ times.

$16 \div 4 =$ _____

C You can use a related fact to help you find the quotient.

DO

Divide. $21 \div 3 = \square$

1. Look at the numbers in the number sentence.
2. Write a related multiplication fact with 3 and 21.
3. Write the quotient.

The number sentence has the numbers **21** and _____.

Think: 3 times what number is 21?

$3 \times$ _____ $= 21$

$21 \div 3 =$ _____

PRACTICE

Use repeated addition or subtraction to find the product or quotient.

1 $6 \times 5 =$ _____

2 $36 \div 9 =$ _____

Use a related fact to find the quotient.

3 $40 \div 8 =$ _____

$8 \times$ _____ $= 40$

4 $27 \div 3 =$ _____

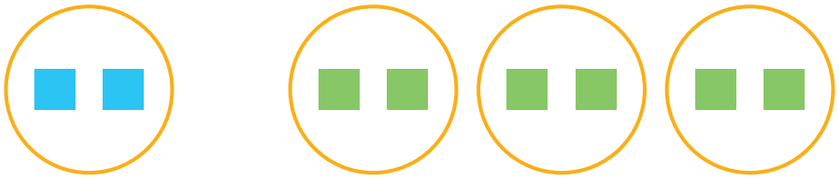
$3 \times$ _____ $= 27$

POWER UP Multiplication as a Comparison

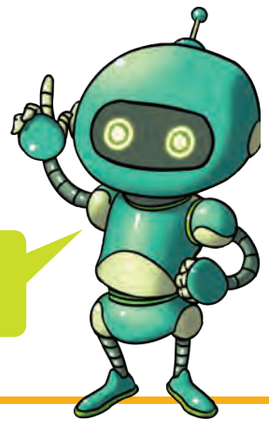
You can use multiplication to compare two numbers.

There is 1 group of 2 blue squares. There are 3 groups of 2 green squares.

There are 3 times as many green squares as blue squares.



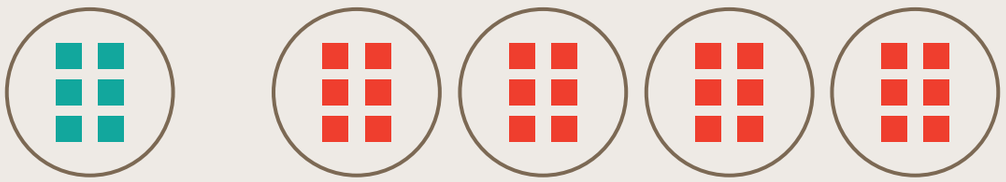
$6 = 3 \times 2$



DISCUSS Use multiplication to compare the two numbers 4 and 12.

A You can compare numbers to show multiplication.

DO Compare the two sets of squares.



1. Count the blue squares.
2. Count the red squares.
3. Complete the sentence to compare the two sets.

_1_ group of _6_ blue squares

There are _____ blue squares.

_____ groups of _____ red squares

There are _____ red squares.

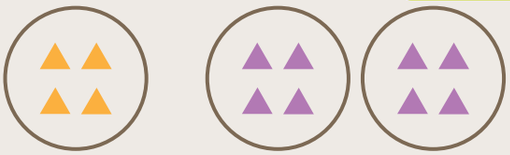
24 is _____ times as many as 6.

B You can write a multiplication sentence to compare numbers.

Multiply the number of groups by the number in each group.

DO

Write a multiplication sentence to represent the two sets of triangles.



1. Count the yellow triangles and the purple triangles.
2. Complete the sentence to compare the two sets.
3. Write the multiplication sentence.

There are _____ yellow triangles.

There are _____ purple triangles.

8 is _____ times as many as 4.

_____ = _____ × _____

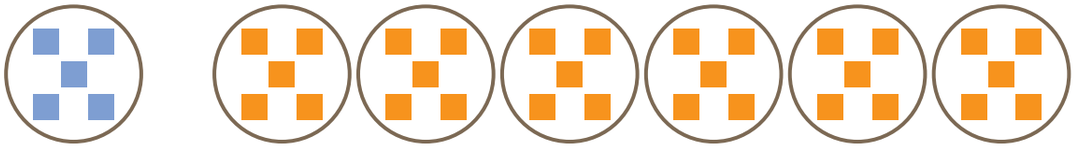
DISCUSS

Ashley said, "These pictures show that 9 is 3 times as many as 2." What can you tell Ashley about her statement?

PRACTICE

Write a multiplication sentence to represent the two sets of shapes.

1



_1_ group of _____ blue squares. There are _____ blue squares.

_____ groups of _____ orange squares.There are _____ orange squares.

30 is _____ times as many as 5.

_____ = _____ × _____

Use the comparison to write a multiplication sentence.

2 27 is 3 times as many as 9.

_____ = _____ × _____

3 28 is 7 times as many as 4.

_____ = _____ × _____

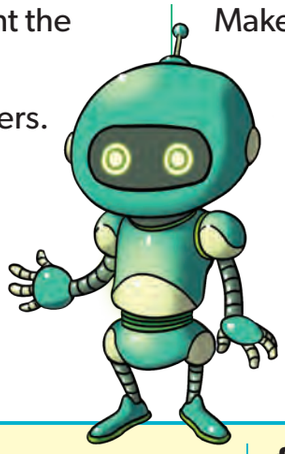
READY TO GO Multiplicative Comparisons

Ava has 3 stickers. Kylie has 4 times as many stickers as Ava.
How many stickers does Kylie have?

Write an **equation** to represent the problem.

Use △ to stand for Kylie's stickers.
Use 4 and 3 as **factors**.

△ is 4 times as many as 3.
$\triangle = 4 \times 3$
$\triangle = 12$



Make a drawing to model the problem.

Ava Kylie

Kylie has 12 stickers.

Words to Know

equation
a number sentence with an equal sign (=)

$4 \times 3 = \square$
$\square = 4 \times 3$

factors
the numbers you multiply

$\underbrace{3}_{\text{factors}} \times \underbrace{2}_{\text{factors}} = 6$

DISCUSS Make a comparison word problem using the number sentence $4 \times 4 = 16$.

LESSON LINK

PLUG IN

There are many ways to find products and quotients.

$2 \times 4 = 8$
$8 \div 4 = 2$

POWER UP

Multiplication can compare two numbers.

6 is 3 times as many as 2
$6 = 3 \times 2$

GO!

I see! I can use multiplication to solve comparison problems.

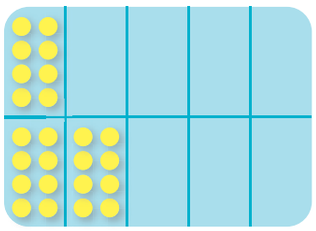
WORK TOGETHER

Write an equation to solve. Use a Grouping Mat and draw counters to model the problem.

- The equation $\square = 2 \times 8$ represents the problem.
- The top row shows Michael's cards. He has 8 cards.
- The bottom row shows Isa's cards. She has twice as many as 8.

Isa bought 16 cards.

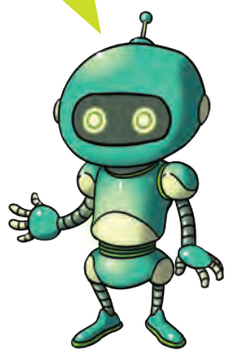
Michael bought 8 cards. Isa bought twice as many cards as Michael. How many cards did Isa buy?



$\square$ is twice as many as 8.

$\square = 2 \times 8$

$\square = 16$



Grouping Mat can be found on p. 211.

A Use a Grouping Mat and draw counters to model the problem.

DO

Write an equation and solve.
A small rug is 5 feet long. A big rug is 3 times as long as the small rug. How many feet long is the big rug?

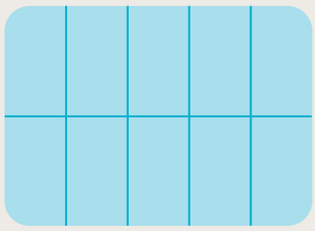
1. Use a symbol to represent the number you need to find.
2. Write the equation.
3. Multiply and solve.
4. Model the problem.

Use △ to stand for _____.

△ is _____ times as long as _____ feet.

△ = _____ × _____

△ = _____



The big rug is _____ feet long.

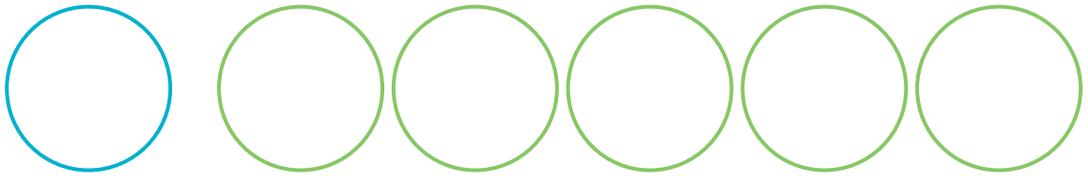
DISCUSS

Jerome said "14 is 6 times as many as 2." How can Jerome check his answer?

PRACTICE

Make a drawing to model the problem.

1 James has 4 football cards. Benjamin has 5 times as many football cards as James. How many football cards does Benjamin have?



Benjamin has _____ football cards.

Write an equation to solve. Make a model to represent the problem.

Grouping Mat can be found on p. 213.

2 Mrs. Walker has 4 boys in her karate class. There are 2 times as many girls as boys in the class. How many girls are in Mrs. Walker's karate class?

Use □ to stand for _____.

□ is _____ times as many as **4**.

□ = _____ × _____

□ = _____

There are _____ girls in Mrs. Walker's karate class.

HINT
The number in one group is one of the factors.

3 Bella read 3 times as many pages as Morgan. Morgan read 8 pages. How many pages did Bella read?

Use △ to stand for _____.

△ is _____ times as many as _____.

△ = _____ × _____

△ = _____

Bella read _____ pages.

Write an equation to solve.

4 There are 6 green apples in a basket. There are 3 times as many red apples in the basket. How many red apples are in the basket?

□ = _____ × _____

□ = _____

The basket has _____ red apples.

5 A truck has 4 times as many wheels as a car. A car has 4 wheels. How many wheels does the truck have?

□ = _____ × _____

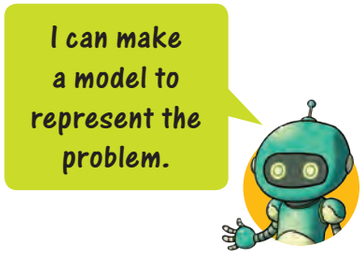
□ = _____

The truck has _____ wheels.

Solve.

6 Linda's bracelet is 6 inches long. She has a necklace that is 5 times as long as the bracelet. How many inches long is the necklace? _____

7 The library is 5 miles from Gabriel's house. The art museum is 4 times as many miles away from Gabriel's house. How far is the art museum from Gabriel's house? _____

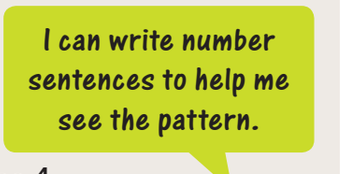


DISCUSS

See the Pattern

Jasmine completed some multiplication comparisons.

Find the missing numbers.



2 is 2 times as many as 1. _____ is 2 times as many as 4.

4 is 2 times as many as 2. _____ is 2 times as many as 5.

_____ is 2 times as many as 3. _____ is 2 times as many as 6.

What pattern do you see in these comparisons?

PROBLEM SOLVING

PLANTING TREES

READ

Mr. Garcia has 5 maple trees. He planted 7 times as many ash trees as maple trees. How many ash trees did Mr. Garcia plant?

PLAN

- What is the problem asking you to find?

  You need to find the number of _____.

- What do you need to know to solve the problem?

  Mr. Garcia has _____ maple trees.

  He planted _____ times as many ash trees as maple trees.

- How can you compare the numbers?

  You can write an equation and make a model.

SOLVE

Use △ to stand for _____.

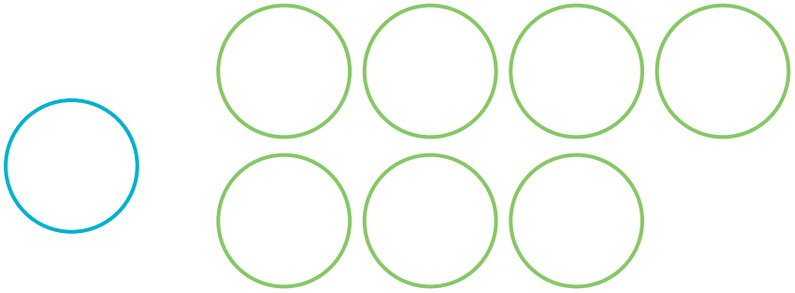
△ is _____ times as many as _____.

△ = _____ × _____

△ = _____

CHECK

Make a model.



Mr. Garcia planted _____ ash trees.

PRACTICE

Use the problem-solving steps to help you.

1 The Pizza Shack sold 6 pizzas in one hour. The next hour they sold 5 times as many pizzas. How many pizzas did they sell during the second hour?

CHECKLIST
- ☐ READ
- ☐ PLAN
- ☐ SOLVE
- ☐ CHECK

2 Natalie ran 4 times as many miles in June as in May. She ran 9 miles in May. How many miles did Natalie run in June?

CHECKLIST
- ☐ READ
- ☐ PLAN
- ☐ SOLVE
- ☐ CHECK

3 Gavin sold peanuts and popcorn at a baseball game. He sold 8 bags of popcorn. He sold 2 times as many bags of peanuts as popcorn. How many bags of peanuts did Gavin sell?

CHECKLIST
- ☐ READ
- ☐ PLAN
- ☐ SOLVE
- ☐ CHECK