

Name _____

Comparison Problems

Essential Question How does a model help you solve a comparison problem?



Operations and Algebraic Thinking—4.OA.A.2

MATHEMATICAL PRACTICES
MP1, MP3, MP4, MP7

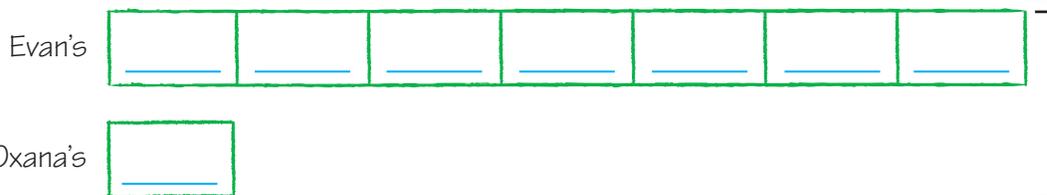
Unlock the Problem

Evan's dog weighs 7 times as much as Oxana's dog. Together, the dogs weigh 72 pounds. How much does Evan's dog weigh?

 **Example 1** Use a multiplication model.

STEP 1 Draw a model. Let n represent the unknown.

Think: Let n represent how much Oxana's dog weighs. Together, the dogs weigh 72 pounds.



STEP 2 Use the model to write an equation. Find the value of n .

_____ $\times n =$ _____ **Think:** There are 8 parts. The parts together equal 72.

$8 \times$ _____ $= 72$ **Think:** What times 8 equals 72?

The value of n is 9.

n is how much _____ weighs.

STEP 3 Find how much Evan's dog weighs.

Think: Evan's dog weighs 7 times as much as Oxana's dog.

Evan's dog $=$ _____ \times _____ **Multiply.**

$=$ _____

So, Evan's dog weighs 63 pounds.

Math Talk

MATHEMATICAL PRACTICES 6

Attend to Precision How can you tell if you found the correct weight of Evan's dog?

To find how many times as much, use a multiplication model. To find how many more or fewer, model the addition or subtraction.

Evan's dog weighs 63 pounds. Oxana's dog weighs 9 pounds. How much more does Evan's dog weigh than Oxana's dog?



Example 2 Use an addition or subtraction model.

STEP 1 Draw a model. Let n represent the unknown.

Think: Let n represent the difference.



STEP 2 Use the model to write an equation. Find the value of n .

_____ - _____ = n **Think:** The model shows a difference.

63 - 9 = _____ **Subtract.**

The value of n is _____.

n is _____.

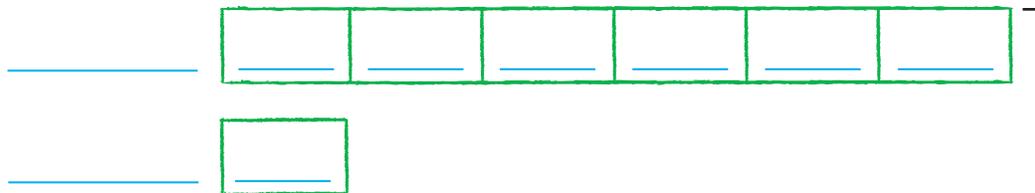
So, Evan's dog weighs 54 pounds more than Oxana's dog.

Share and Show



- Maria's dog weighs 6 times as much as her rabbit. Together the pets weigh 56 pounds. What does Maria's dog weigh?

Draw a model. Let n represent the unknown.



Write an equation to find the value of n . $7 \times n = \underline{\hspace{2cm}}$. n is _____ pounds.

Multiply to find how much Maria's dog weighs. $8 \times 6 = \underline{\hspace{2cm}}$

So, Maria's dog weighs _____ pounds.



MATHEMATICAL PRACTICES 4

Use Models How do you know which model to use to solve a comparison problem?

Name _____

Draw a model. Write an equation and solve.

-  2. Last month Kim trained 3 times as many dogs as cats. If the total number of cats and dogs she trained last month is 28, how many cats did Kim train?

Draw a model.

Write an equation and solve.

-  3. How many more dogs than cats did Kim train?

Draw a model.

Write an equation and solve.

On Your Own

Practice: Copy and Solve Draw a model.

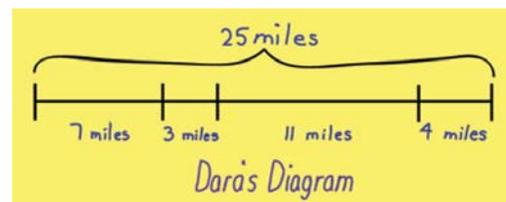
Write an equation and solve.

- | | |
|---|---|
| <p>4. At the dog show, there are 4 times as many boxers as spaniels. If there are a total of 30 dogs, how many dogs are spaniels?</p> <hr/> | <p>5. There are 5 times as many yellow labs as terriers in the dog park. If there are a total of 18 dogs, how many dogs are terriers?</p> <hr/> |
| <p>6. Ben has 3 times as many guppies as goldfish. If he has a total of 20 fish, how many guppies does he have?</p> <hr/> | <p>7.  Carlita saw 5 times as many robins as cardinals while bird watching. She saw a total of 24 birds. How many more robins did she see than cardinals?</p> <hr/> |

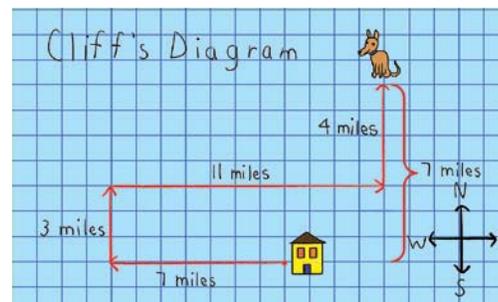
Problem Solving • Applications



8. **GO DEEPER** To get to a dog show, Mr. Luna first drives 7 miles west from his home and then 3 miles north. Next, he turns east and drives 11 miles. Finally, he turns north and drives 4 miles to the dog show. How far north of Mr. Luna's home is the dog show?



To solve the problem, Dara and Cliff drew diagrams. Which diagram is correct? Explain.

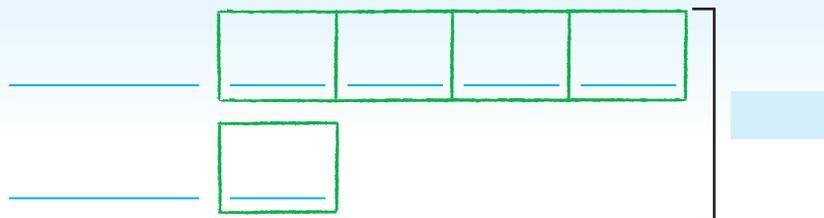


9. **MATHEMATICAL PRACTICE 2 Use Reasoning** Valerie and Bret have a total of 24 dog show ribbons. Bret has twice as many ribbons as Valerie. How many ribbons does each have?

10. **THINK SMARTER** Noah built a fenced dog run that is 8 yards long and 6 yards wide. He placed posts at every corner and every yard along the length and width of the run. How many posts did he use?



11. **THINK SMARTER** Last weekend, Mandy collected 4 times as many shells as Cameron. Together, they collected 40 shells. How many shells did Mandy collect? Complete the bar model. Then, write an equation and solve.



WRITE Math
Show Your Work

Name _____

Comparison Problems

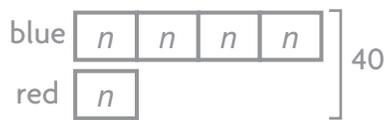


COMMON CORE STANDARD—4.OA.A.2
Use the four operations with whole numbers to solve problems.

Draw a model. Write an equation and solve.

1. Stacey made a necklace using 4 times as many blue beads as red beads. She used a total of 40 beads. How many blue beads did Stacey use?

Think: Stacey used a total of 40 beads. Let n represent the number of red beads.



$5 \times n = 40; 5 \times 8 = 40;$

$4 \times 8 = 32$ blue beads

2. At the zoo, there were 3 times as many monkeys as lions. Tom counted a total of 24 monkeys and lions. How many monkeys were there?
-
-

Problem Solving

3. Rafael counted a total of 40 white cars and yellow cars. There were 9 times as many white cars as yellow cars. How many white cars did Rafael count?
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4. Sue scored a total of 35 points in two games. She scored 6 times as many points in the second game as in the first. How many more points did she score in the second game?
-

5.  **WRITE** *Math* Write a problem involving *how much more than* and solve it. Explain how drawing a diagram helped you solve the problem.
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Lesson Check (4.OA.A.2)

1. Sari has 3 times as many pencil erasers as Sam. Together, they have 28 erasers. How many erasers does Sari have?
2. In Sean's fish tank, there are 6 times as many goldfish as guppies. There are a total of 21 fish in the tank. How many more goldfish are there than guppies?

Spiral Review (4.OA.A.1, 4.OA.A.3, 4.NBT.A.2)

3. Barbara has 9 stuffed animals. Trish has 3 times as many stuffed animals as Barbara. How many stuffed animals does Trish have?
4. There are 104 students in the fourth grade at Allison's school. One day, 15 fourth-graders were absent. How many fourth-graders were at school that day?

5. Joshua has 112 rocks. Jose has 98 rocks. Albert has 107 rocks. Write the boy's names in order from the least to the greatest number of rocks owned.
6. Alicia has 32 stickers. This is 4 times as many stickers as Benita has. How many stickers does Benita have?

