Unit 1

Working With Data and Solving Comparison Problems

Essential Questions

- How can you use patterns and strategies to find sums and differences?
- How can picture graphs and bar graphs help you solve problems about data?

Unit Story:
A New Class Pet

You can read the Unit Story with your student by visiting the Unit Story page on the Caregiver Hub.

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Unit Investigation

Lesson 1 is the Unit Investigation. Students look for patterns in the addition table with addends up to 9 to build curiosity and apply their own knowledge in a variety of ways. Use the **Caregiver Connection** to help students continue to explore the math they will see in the unit.

Caregiver Connection

Students may enjoy creating their own puzzles by creating an addition table and cutting it up in different ways. Encourage students to describe the patterns they notice.

Summary | Lesson 2

Recognizing patterns in expressions can help you build fluency when adding and subtracting within 10.

8	
8 + 0	10 − 2
7 + 1	9 − 1
6 + 2	
5 + 3	
4 + 4	

Try This

For Problems 1 and 2, write a new addition expression for the value.

1

9
5 + 4
7 + 2
8 + 1

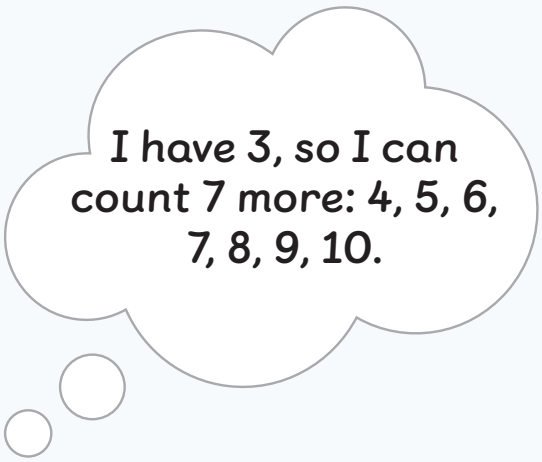
2

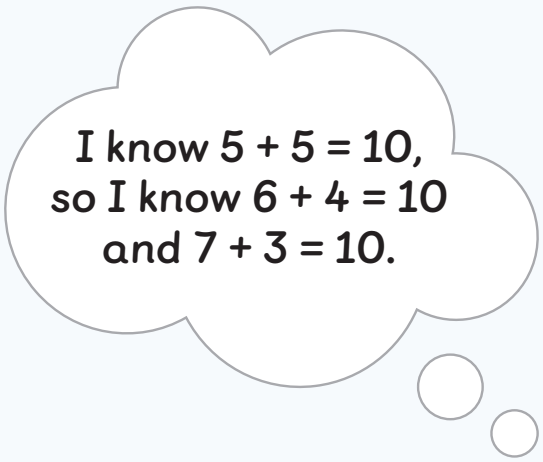
6
4 + 2
6 + 0

Summary | Lesson 3

You can use patterns or strategies, such as counting on, counting back, or using known sums, to find pairs that make 10.

$$\underline{7} + 3 = 10$$





Try This

1 Circle **3** equations that are true.

10 = 7 + 3

6 + 1 = 10

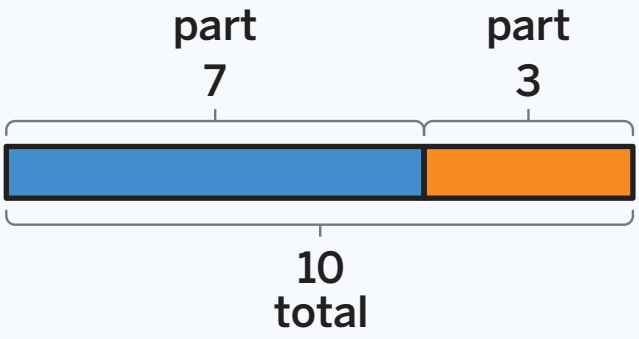
8 + 2 = 10

9 + 2 = 10

10 = 5 + 5

Summary | Lesson 4

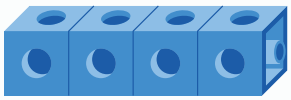
You can use a **tape diagram** to represent the relationship between the parts and a total.



$3 + 7 = 10$ $10 - 3 = 7$
$7 + 3 = 10$ $10 - 7 = 3$

Practice

Jada is playing *What's Behind My Back?* with Han. Han has 10 cubes, but he only shows the cubes in the picture to Jada. Use the information for Problems 1–3.



1 How many cubes are behind Han's back?

_____

2 Write an addition equation that matches the game.

_____

3 Write a subtraction equation that matches the game.

_____

Summary | Lesson 5

You can use different strategies to find the missing number in addition and subtraction equations.

$$20 - \_\_\_\_ = 15$$

I can start at 15 and count up 5 until I get to 20: 16, 17, 18, 19, 20.

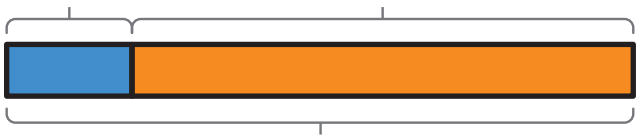
15 + 5 = 20, so 20 − 5 = 15.

Try This

For Problems 1 and 2, find the number that makes the equation true. You can use the tape diagram if it is helpful.

Show or explain your thinking.

1 16 + _____ = 20



2 4 = 18 − _____

Summary | Lesson 6

There are different strategies you can use to add. You can use what you notice about the numbers to choose a strategy.

5 + 9	8 + 7
9 + 1 = 10 10 + 4 = 14	7 + 7 = 14 14 + 1 = 15

Try This

1 A list of numbers is shown.

1	2	3	5	6	7	9

Choose **3** numbers to add to get as close as you can to 20.

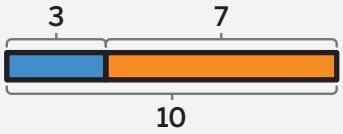
Write **2** different equations that show how you added.

Show your thinking.

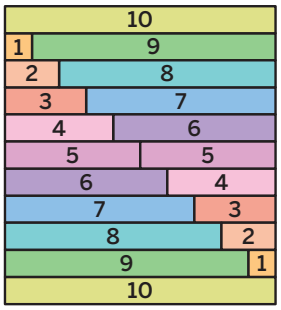
Equation 1: _____ **Equation 2:** _____

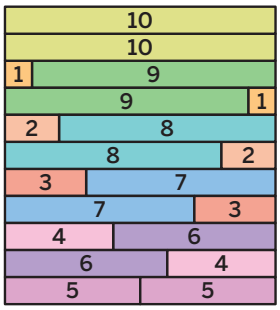
In this sub-unit . . .

- We represented the relationship between the parts and a total in different ways.

cube towers	tape diagrams	equations
		3 + 7 = 10 10 − 7 = 3

- We looked for patterns to help us find all the pairs that make 10.





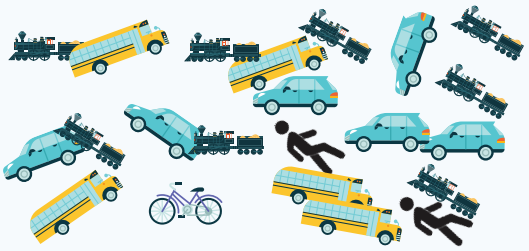
Math tip: Knowing pairs that make 10 can help you add and subtract greater numbers.

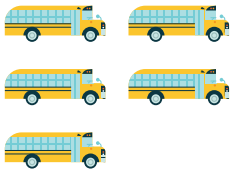
- We used the relationship between numbers to help us choose different strategies to add and subtract.

make a ten	use known sums	count up
12 + 8 = <u>20</u>	8 + 7 = <u>15</u>	15 − <u>3</u> = 12
2 + 8 = 10 10 + 10 = 20	*I know 8 + 8 = 16, so 8 + 7 = 15.*	*13, 14, 15*

Summary | Lesson 7

When you group together related data and label it, you can read and understand the data more clearly.



bus	train
	
car	**another way**
	

Try This

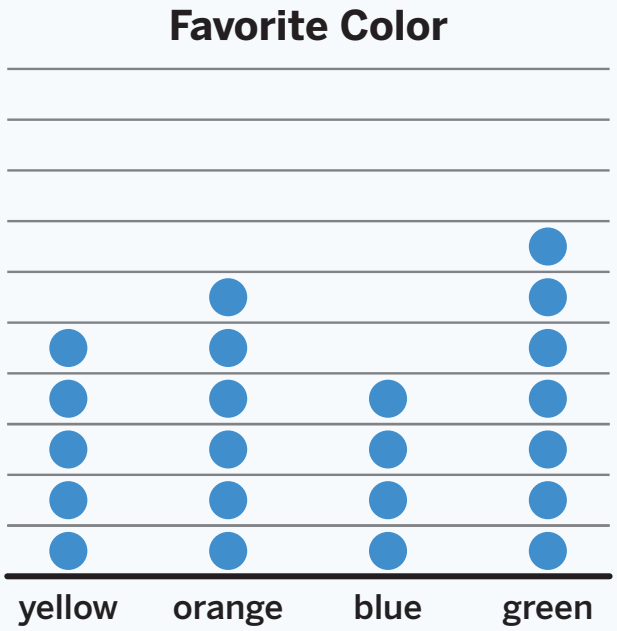
Jada drew pictures of what she saw in a park. Use her pictures for Problem 1.

1 Create a different representation of Jada's data.

Draw

Summary | Lesson 8

Picture graphs are a way to organize and represent data. You can use picture graphs to answer questions about data.



Try This

The picture graph in the Summary shows the favorite colors of some students. Use the picture graph for Problems 1 and 2.

1 Circle **2** statements that are *true* about the data.

More students like green than any other color.

5 students chose blue as their favorite color.

2 more students chose blue than orange.

3 fewer students chose blue than green.

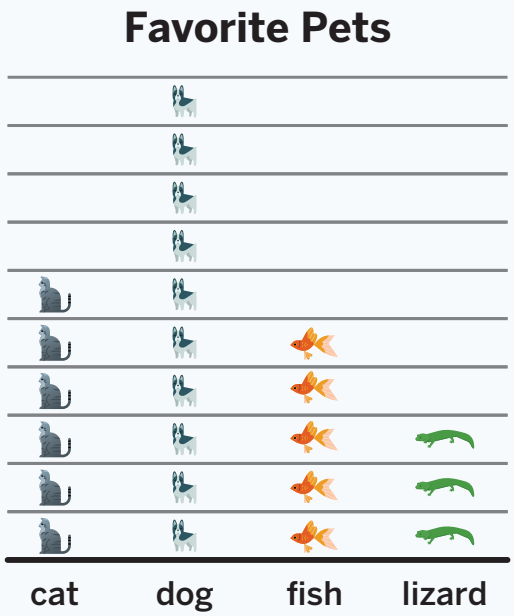
2 How many students voted?

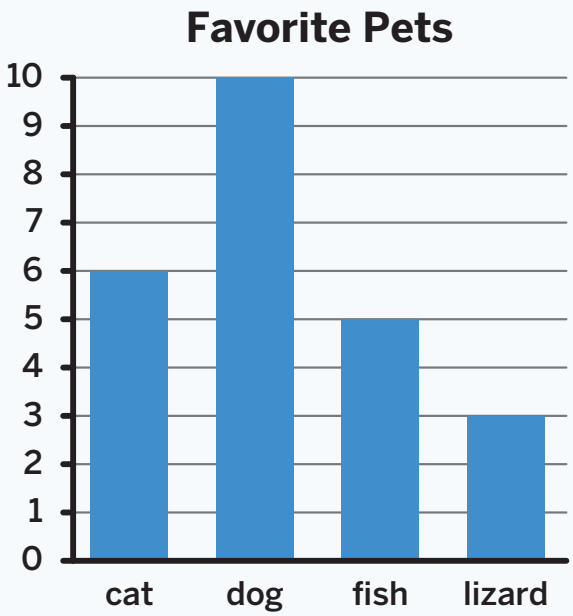
answer: _____

equation: _____

Summary | Lesson 9

Bar graphs and picture graphs are ways to represent data. They can show the same data, but the number labels on a bar graph help you know how many without having to count.





Try This

The graphs in the Summary show the favorite pets of some students. Use the graphs for Problems 1 and 2.

1 How many *more* votes for dogs are there than lizards? Write an equation and underline the answer.

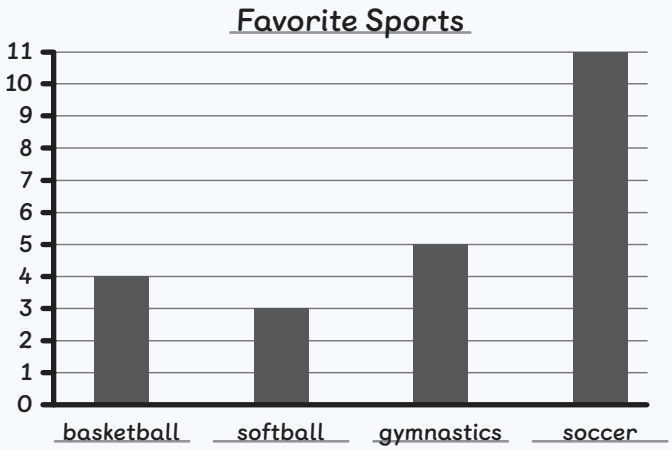
answer: _____ **equation:** _____

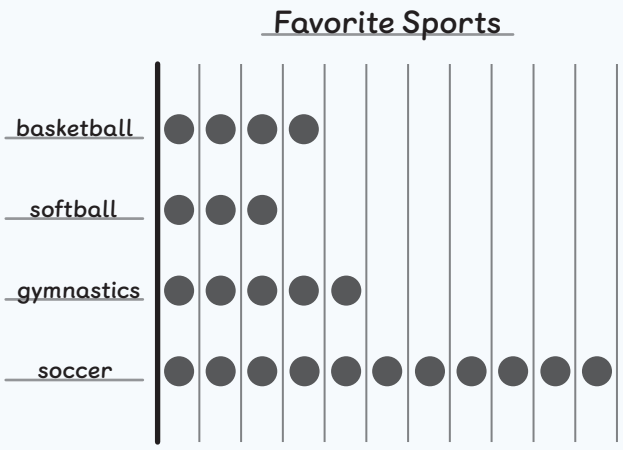
2 How many votes are there altogether? Write an equation and underline the answer.

answer: _____ **equation:** _____

Summary | Lesson 10

Picture graphs and bar graphs can show the same data. The number labels on a bar graph can help you interpret the data because you do not have to count each picture or symbol.

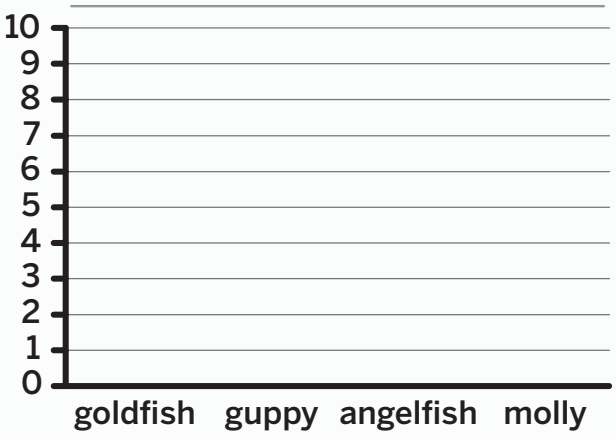




Try This

1 The table shows the types of fish in a tank. Use the data to complete the bar graph.

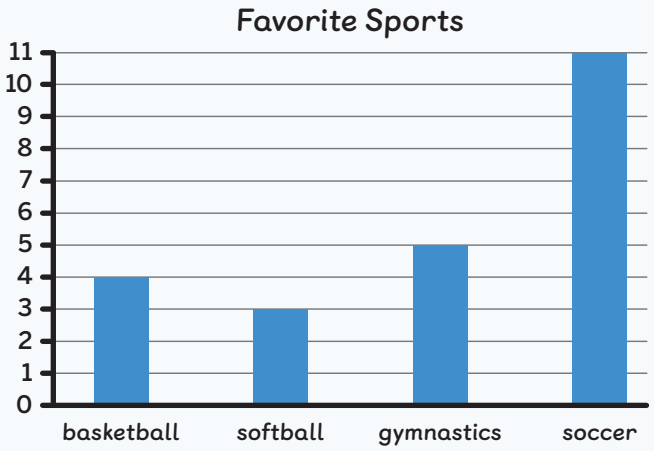
Fish	Number
goldfish	3
guppy	9
angelfish	4
molly	5



Summary | Lesson 11

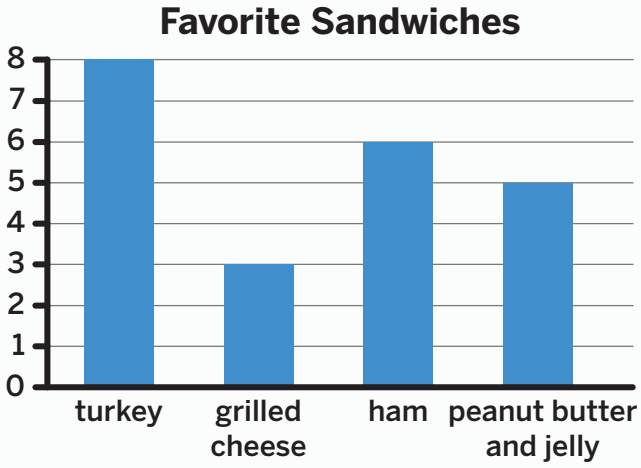
You can use graphs to ask and answer questions about how many are in each category by combining or comparing categories.

- How many students chose gymnastics?
- How many *fewer* students chose softball than gymnastics?
- How many students were surveyed?



Try This

1 The bar graph shows the favorite sandwiches of some students. Circle the **3** questions that can be answered by looking at the graph.



How many students chose turkey?

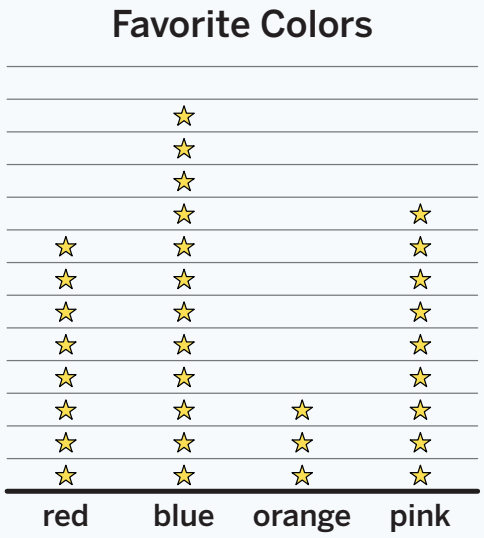
How many students did *not* vote?

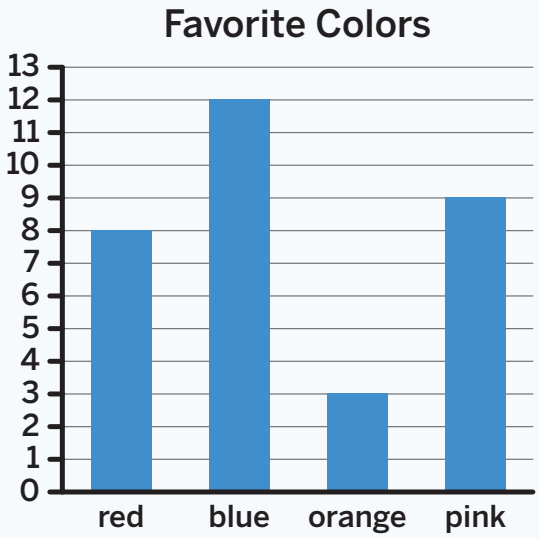
Did *more* students choose ham or grilled cheese?

How many students chose a sandwich other than peanut butter and jelly?

Summary | Lesson 12

When you collect data and create graphs, there are different choices you can make. It can be helpful to think about how you can organize and use features of a graph to represent the data clearly.

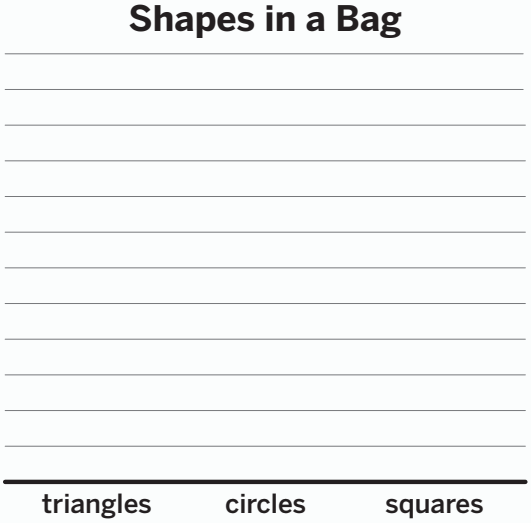




Try This

1 Draw a bar graph with data that represents *all* of the following statements.

- There are *more* than 15 shapes altogether, but *fewer* than 25.
- There are 6 *more* squares than circles.
- There are 7 *fewer* circles than triangles.

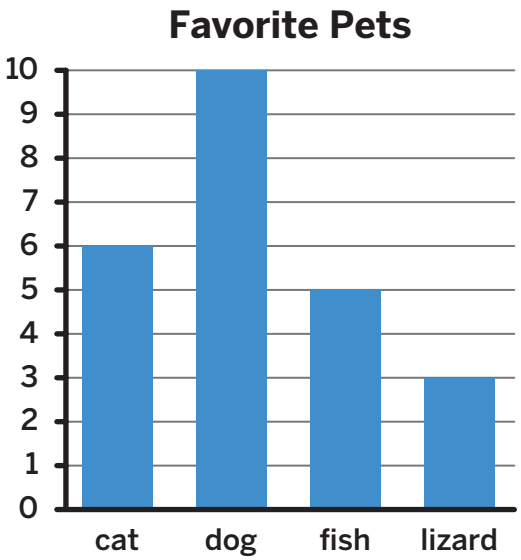


In this sub-unit . . .

- We represented data in picture graphs and bar graphs.

A **picture graph** is an organized way to share data using pictures of objects or symbols. It has a title and category labels.

A **bar graph** is an organized way to share data using the height or length of bars. It has a title, category labels, and number labels.

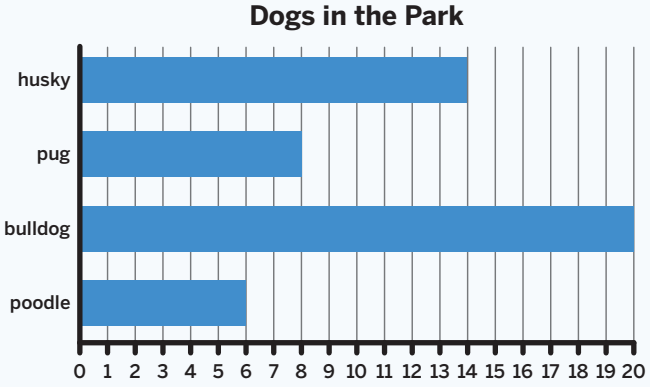


- We used data represented in these graphs to ask and answer questions.
  - How many students chose a dog?
  - How many more students chose a cat than a lizard?
  - How many students voted for their favorite pet?

Math tip: You can use what you know about addition and subtraction to help you answer questions about data in graphs that combine or compare categories.

Summary | Lesson 13

You can use addition and subtraction equations and a bar graph to represent relationships between amounts in story problems.



$20 - 14 = \underline{6}$

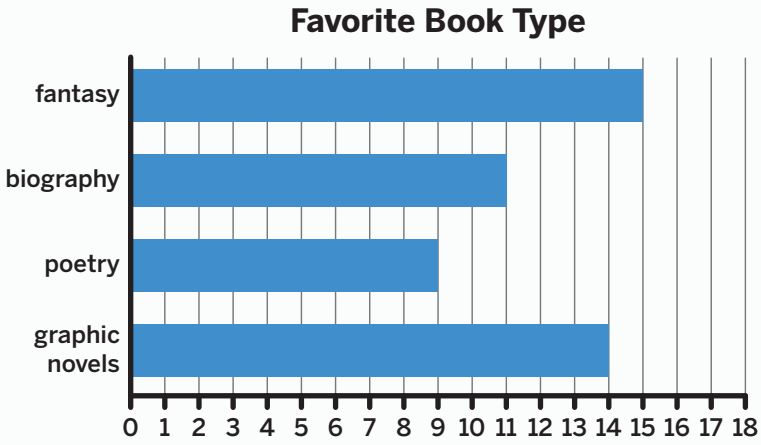
$14 + \underline{6} = 20$

There are 6 fewer huskies than bulldogs.

There are 6 more bulldogs than huskies.

Try This

1 Mr. Roy's class collected data about books students like to read and the data is shown in the bar graph.



How many *fewer* students chose poetry than fantasy? Write an addition equation and a subtraction equation and underline the answer.

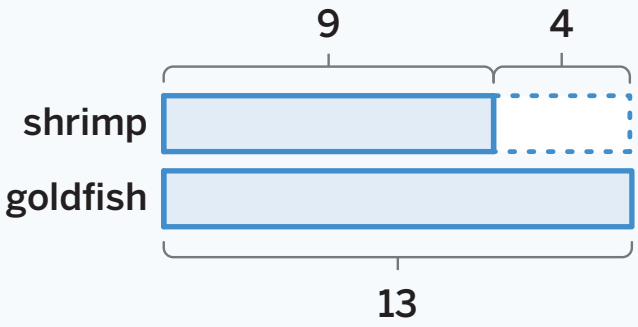
addition equation: _____

subtraction equation: _____

Summary | Lesson 14

You can use bars to create a tape diagram that represents the relationship between 2 amounts being compared.

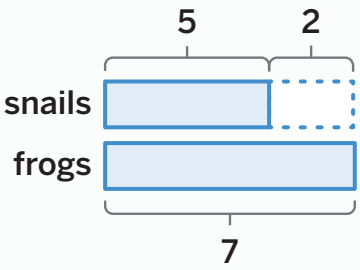
There are 4 fewer shrimp than goldfish.

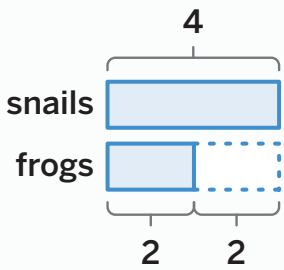


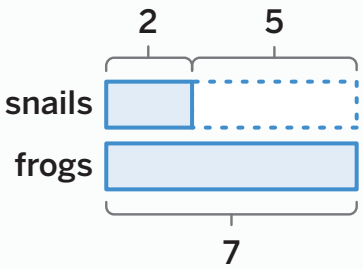
Try This

Circle the tape diagram that represents the comparison statement.

1 There are 2 fewer snails than frogs.

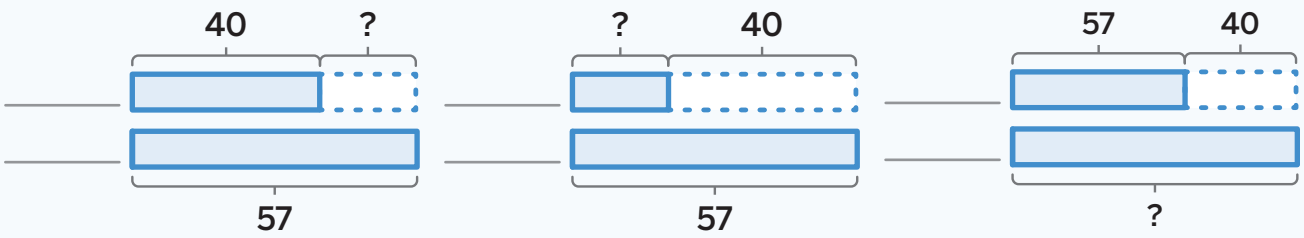






Summary | Lesson 15

Tape diagrams can show what is happening in a story problem and help you find which part is the unknown.



Try This

Use the story problem for Problems 1 and 2.

There are 25 crickets chirping in the front yard. There are 16 *more* crickets chirping in the backyard than in the front yard.

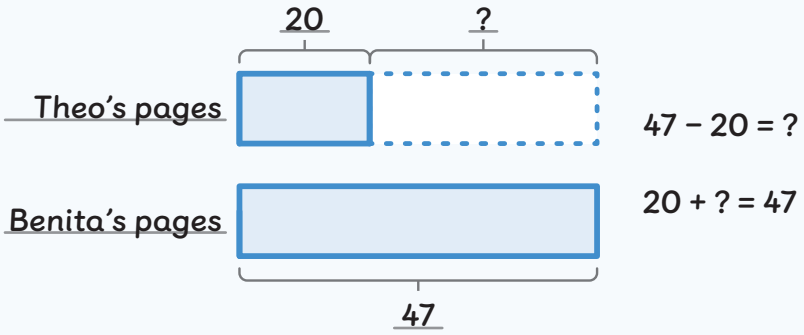
1 Label the tape diagram to match the story.

2 Write an equation that matches the story problem and tape diagram. Write a blank line to represent the unknown number of crickets.

_____

Summary | Lesson 16

You can use different representations to help make sense of a story problem before trying to solve it.



Try This

Solve the story problem. Write an equation that represents the story problem and underline the answer. You can represent your thinking using the tape diagram if it is helpful.

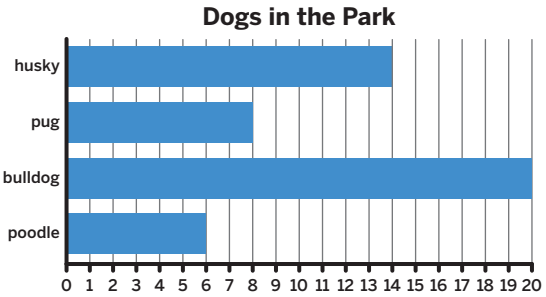
Show your thinking.

1 There are 35 cherries in a bowl. There are 17 *fewer* cherries on a plate than there are in the bowl. How many cherries are on the plate?

answer: _____ **equation:** _____

In this sub-unit . . .

- We used bar graphs to find the difference between 2 categories.

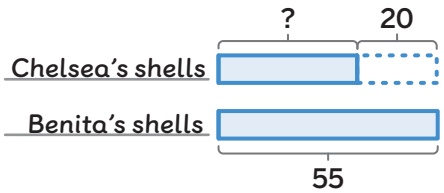


$14 + \underline{6} = 20$

$20 - 14 = \underline{6}$

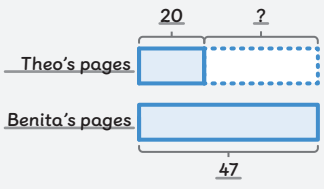
Math tip: You can use related addition and subtraction equations to answer questions about bar graphs.

- We used comparison **tape diagrams** to represent story problems that compare amounts.



Math tip: Tape diagrams can help you make sense of the known and unknown amounts in story problems.

- We noticed that there are different ways to represent story problems, including equations, tape diagrams, and drawings.

equation	tape diagram	drawing
$20 + \_\_ = 47$		

Lesson 2

1. Sample response: 6 + 3 or 9 + 0
2. Sample response: 3 + 3 or 5 + 1

Lesson 3

1. 10 = 7 + 3, 8 + 2 = 10, and 10 = 5 + 5

Lesson 4

1. 6
2. Sample response: 4 + 6 = 10
3. Sample response: 10 − 4 = 6

Lesson 5

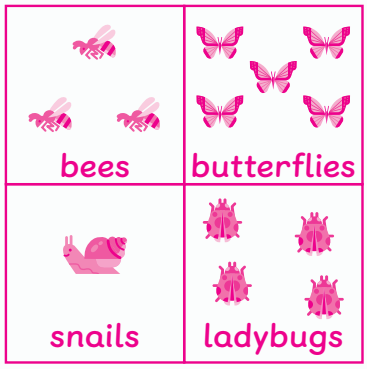
1. 4
2. 14

Lesson 6

1. Sample response: 5 + 6 = 11 and 11 + 9 = 20

Lesson 7

1. Sample response:



Lesson 8

1. More students like green than any other color.
   3 fewer students chose blue than green.
2. answer: 22 students
   equation: Sample response: 5 + 6 + 4 + 7 = 22

Try This | Answer Key

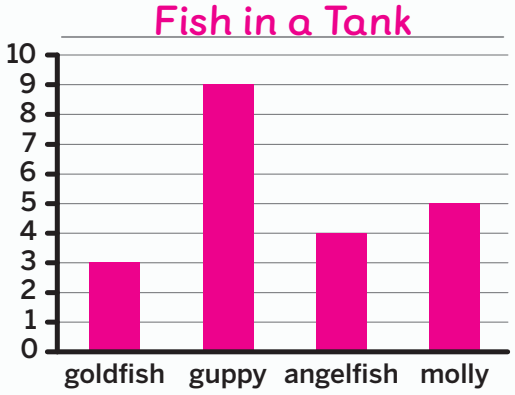
Lesson 9

1 answer: 7 votes
equation: Sample response: 3 + 7 = 10

2 answer: 24 votes
equation: Sample response: 6 + 10 + 5 + 3 = 24

Lesson 10

1



Lesson 11

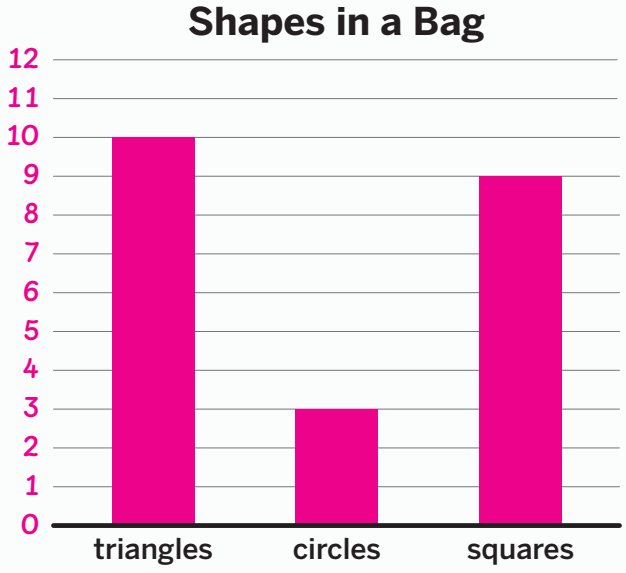
1 How many students chose turkey?

Did more students choose ham or grilled cheese?

How many students chose a sandwich other than peanut butter and jelly?

Lesson 12

1

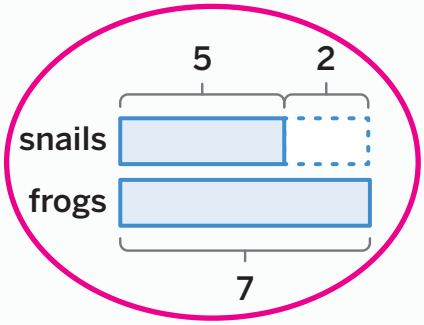


Lesson 13

1 addition equation: Sample response: 6 + 9 = 15
subtraction equation: Sample response: 15 − 9 = 6

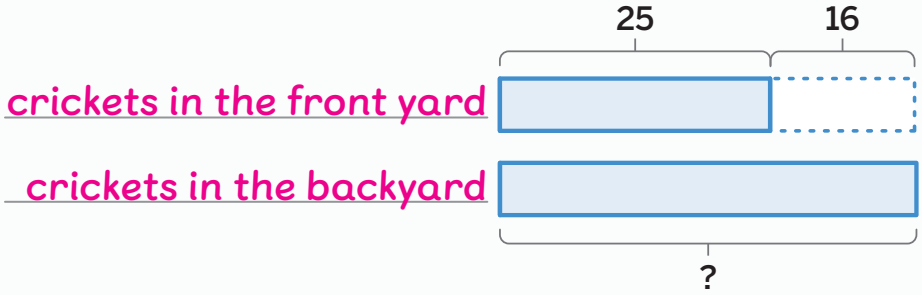
Lesson 14

1



Lesson 15

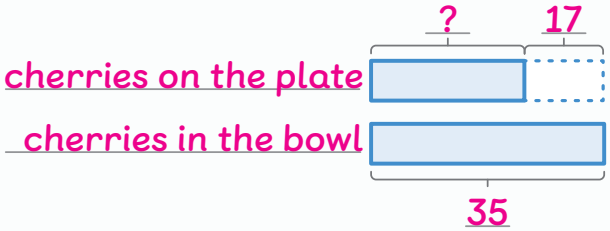
1



2 equation: Sample response: 25 + 16 = ____

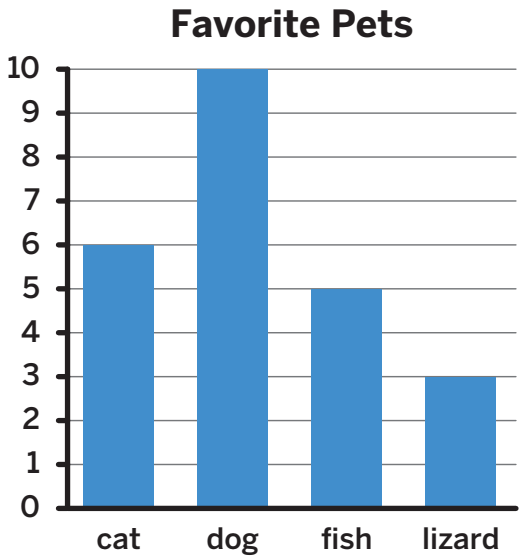
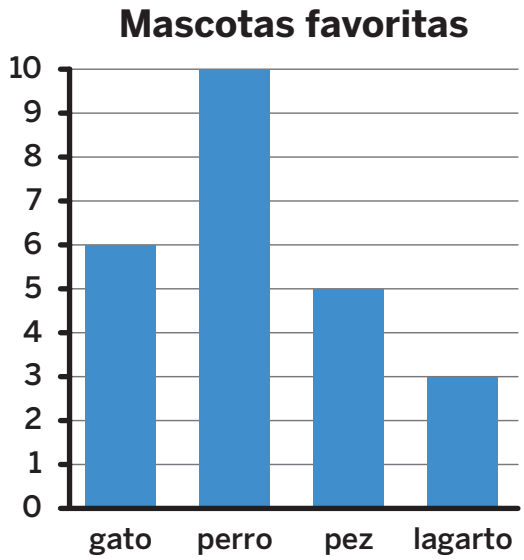
Lesson 16

1



Sample work: 35 − 10 = 25
25 − 5 = 20
20 − 2 = 18
answer: 18 cherries
equation: Sample response: 35 − 17 = 18

Grade 2 Unit 1 Glossary/2.º grado Unidad 1 Glosario

English	Español
A	
addend One of the numbers added together to find the sum.	**sumando** Uno de los números que se suman para hallar la suma.
$5 + \textcircled{6} = 11$	$5 + \textcircled{6} = 11$
B	
bar graph A way to show how many in each group or category using the length of the rectangles.	**diagrama de barras** Una forma de mostrar qué cantidad hay en cada grupo o categoría usando la longitud de los rectángulos.
	
D	
data Information about the things or people in a group Example: If you have a box of colored pencils, then the lengths and colors of each of the pencils are data about the pencils in the box	**datos** Información sobre cosas o personas que componen un grupo. Ejemplo: Si tienes una caja de lápices de colores, entonces las longitudes y los colores de cada uno de los lápices son datos sobre los lápices de la caja.

English	Español
difference The amount you get when you subtract one number from another. $10 - 6 = ④$	**diferencia** La cantidad que obtienes cuando restas un número a otro. $10 - 6 = ④$
digit The symbols used to write numbers – 0, 1, 2, 3, 4, 5, 6, 7, 8, 9.	**dígito** Los símbolos que se usan para escribir números: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9.
E	
equation A statement that includes an equal sign (=). It tells us that what is on one side of the sign is equal to what is on the other side. $6 = 4 + 2$	**ecuación** Enunciado que incluye un signo igual (=). Nos indica que lo que está a un lado del signo es igual a lo que está al otro lado. $6 = 4 + 2$
expression A statement with at least 2 numbers and at least 1 math operation (such as addition or subtraction). $6 + 4$ $3 - 3$	**expresión** Un enunciado con al menos 2 números y al menos 1 operación matemática (como suma o resta). $6 + 4$ $3 - 3$

Grade 2 Unit 1 Glossary/2.º grado Unidad 1 Glosario

English	Español

F

fewer

fewer

menor cantidad

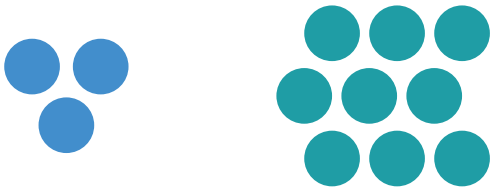
menor cantidad

M

more

more

mayor cantidad



mayor cantidad

P

picture graph A way to show the number of items in a group or category using pictures to represent the objects.

Class Pet Votes

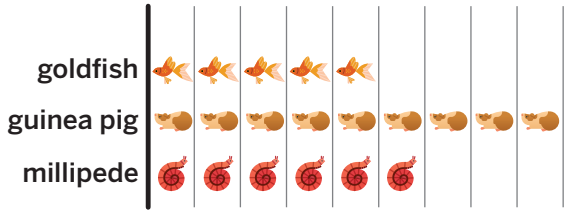
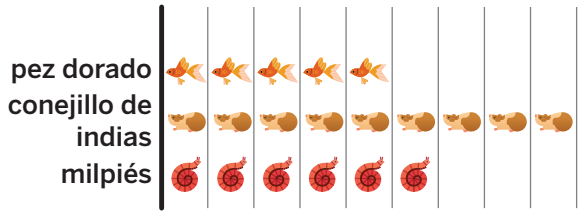
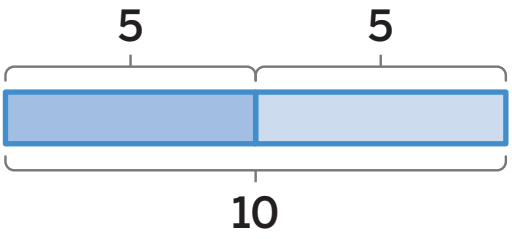


gráfico de imágenes Una forma de mostrar qué cantidad de objetos hay en un grupo o una categoría usando imágenes para representar los objetos.

Votos para mascota de la clase



English	Español
S	
sum The total when 2 or more numbers are added. $8 + 6 = 14$	**suma** El total cuando se suman 2 o más números. $8 + 6 = 14$
T	
tape diagram A tape diagram is a group of rectangles put together to represent a relationship between quantities. 	**diagrama de cinta** Un diagrama de cinta es un grupo de rectángulos unidos para representar una relación entre cantidades.