

 Amplify Desmos Math CALIFORNIA

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# Grade 2

Volume 2: Units 5–8

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**Student Edition**

## About Amplify

Amplify is dedicated to collaborating with educators to create learning experiences that are rigorous and riveting for all students. Amplify creates K–12 core and supplemental curriculum, assessment, and intervention programs for today’s students.

A pioneer in K–12 education since 2000, Amplify is leading the way in next-generation curriculum and assessment. All of our programs provide teachers with powerful tools that help them understand and respond to the needs of every student.

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Amplify gratefully acknowledges the work of distinguished program advisors from English Learners Success Forum (ELSF), who have been integral in the development of Amplify Desmos Math. ELSF is a 501(c)(3) nonprofit organization whose mission is to expand educational equity for multilingual learners by increasing the supply of high-quality instructional materials that center their cultural and linguistic assets.

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# Hello Curious Mind,

Welcome to Grade 2!

Get ready to dig deeper into the math you already know and explore new ways to grow as a mathematician!

This year, you'll get to explore math ideas with new friends.

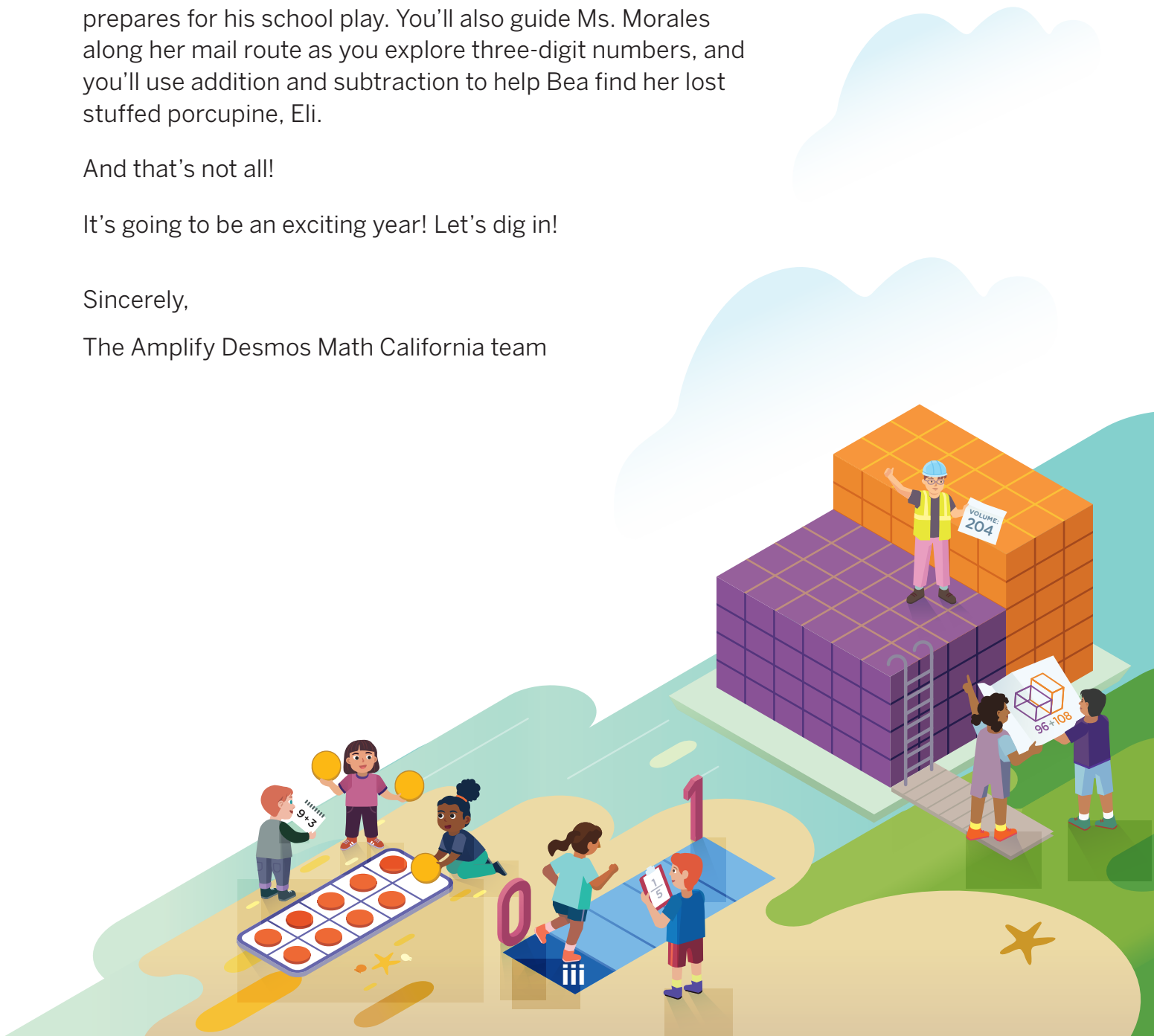
You'll meet Benita — a second grader just like you — and you'll help her add and represent votes to see if her class pet can be a millipede. You'll compose boxes of honey cakes alongside Val the baker, and you'll help Orson figure out how to use measuring tools as he prepares for his school play. You'll also guide Ms. Morales along her mail route as you explore three-digit numbers, and you'll use addition and subtraction to help Bea find her lost stuffed porcupine, Eli.

And that's not all!

It's going to be an exciting year! Let's dig in!

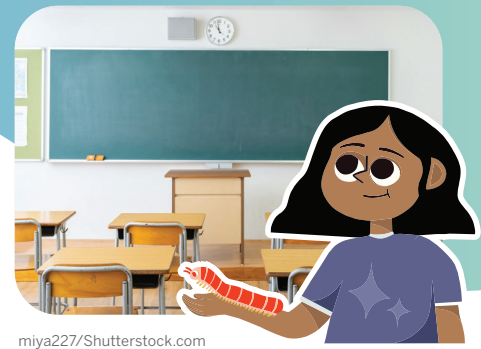
Sincerely,

The Amplify Desmos Math California team



# Unit 1 Working With Data and Solving Comparison Problems

Let's solve problems using addition and subtraction.  
Let's collect and represent data.



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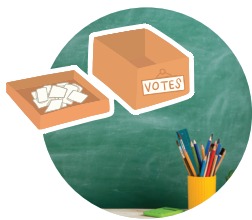
**Unit Story: A New Class Pet** In this story, Mr. Roy's class votes for a class pet. As votes are tallied, an unusual choice is discovered and second-grader Benita finds her voice.



Che Media/Shutterstock.com

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Sensay/Shutterstock.com

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# Unit 2 Adding and Subtracting Within 100

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**\* Unit Story: The Heroes of Pineapple Street** In this story, Kyle learns about the importance of cooperation as his community works together to raise money for the local library.



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snapvision/Shutterstock.com

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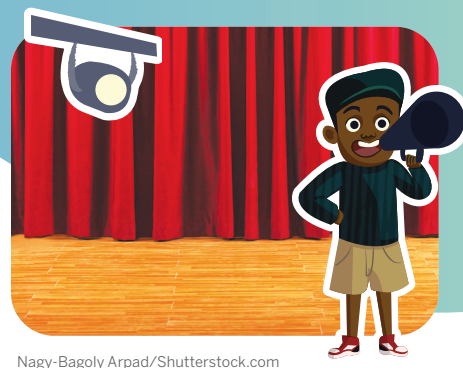
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# Unit 3 Measuring Length

Let's measure lengths in different units. Let's make sense of data in line plots.

**Unit Story: What Orson Imagined** In this story, Orson becomes frustrated when others' ideas do not align with his vision for the school play.



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# Unit 4 Addition and Subtraction on the Number Line

Let's represent numbers to 100 and adding and subtracting on the number line.




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**\* Unit Story: A Seed's Journey** In this story, Sid the seed goes on a journey before it begins to grow.



Shaplov Evgeny/Shutterstock.com

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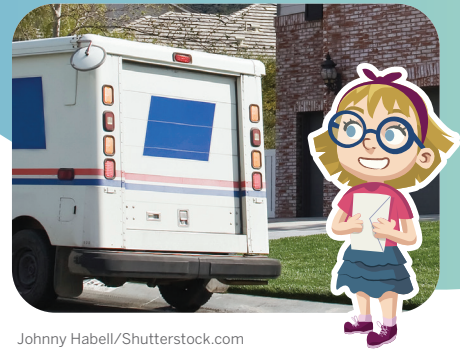
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# Unit 5 Numbers to 1,000

Let's show and compare numbers greater than 100.

**Unit Story: 302 Ricotta Drive** In this story, Josey writes a letter to her mail carrier, Ms. Morales, to thank her for the important work she does in the community.



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**Unit Story: Arjun the Artist** In this story, Arjun goes on a field trip to an art museum where he sees artwork that helps him believe in his own artistic potential.



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# Unit 7 Adding and Subtracting Within 1,000

Let's use what we know about addition and subtraction to find sums and differences of three-digit numbers.



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**Unit Story: Where Eli Went** In this story, Bea goes on an unexpected adventure through a magical forest to find her stuffed porcupine, Eli.



Aastels/Shutterstock.com

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# Unit 8 Equal Groups

Let's explore why the number of objects in a group is even or odd. Let's describe and create arrays.

**Unit Story: On Clementine Court** In this story, the kids who live on Clementine Court figure out what games they can play to include all of their neighbors.



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## Unit 5

# Numbers to 1,000

### Big Ideas in This Unit

CC.3 Skip Counting to 100

### Questions for Investigation

- How can we represent and compare the values of numbers greater than 100?



#### Explore: A Mistake in Mom's Office

How can you count a large amount of objects?



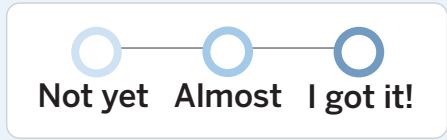
#### Unit Story: 302 Ricotta Drive

In this story, Josey writes a letter to her mail carrier, Ms. Morales, to thank her for the important work she does in the community.



# Watch Your Knowledge Grow

This is the math you'll explore in this unit. Rate your understanding to see how your knowledge grows!



I can . . .	Before	After
Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones.		
Understand that 100 can be thought of as a bundle of ten tens — called a “hundred.”		
Skip-count by 2s, 5s, 10s, and 100s.		
Read and write numbers to 1,000 numbers in standard form.		
Read and write numbers to 1,000 in expanded form.		
Read and write numbers to 1,000 in base-ten numerals.		
Read and write numbers to 1,000 in number names.		
Compare two three-digit numbers based on the meaning of the hundreds, tens, and ones digits.		
Use $>$ , $=$ , and $<$ symbols to compare three-digit numbers.		
Fluently add and subtract within 100 using strategies based on place value.		

# The Value of Three Digits

✦ Unit Story: 302 Ricotta Drive



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Ms. Morales sorts and counts the letters before she delivers them each day.

How could she represent the amount of letters she delivers?

# Explore: A Mistake in Mom's Office

How can you count a large amount of objects?



## Warm-Up



🎯 eyes on teacher



**We are a math community.**  
What does it look like and sound like to be engaged in math class?

Discuss 🗨️ What do you notice? What do you wonder?

302 Ricotta Drive



Unit Story



## Work with your group to count a large amount of objects.

- Find the total amount of paper clips.
- Create a poster to show how you counted.

### Ways to be a mathematician

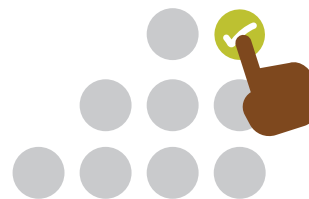
- 1** I can take my time to think about a challenging problem before trying to solve it.

○ — ○ — ○  
Not yet Almost I got it!



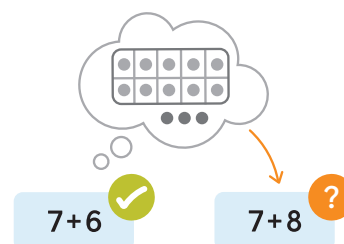
- 2** I can see how ideas are connected and use patterns to help solve problems.

○ — ○ — ○  
Not yet Almost I got it!



- 3** I look for strategies that I can apply to new problems.

○ — ○ — ○  
Not yet Almost I got it!



# What Makes a Hundred?

Let's compose a hundred.



## Warm-Up



eyes on teacher



### We are a math community.

What are some important roles in your math community? Why are they important?

## Activity

### 1

# Organizing Paper Clips

## Hands-On

For Problems 1–3, use tens and ones to compose a hundred in 3 different ways. Record your thinking using drawings, numbers, or words.

Show or explain your thinking.

1

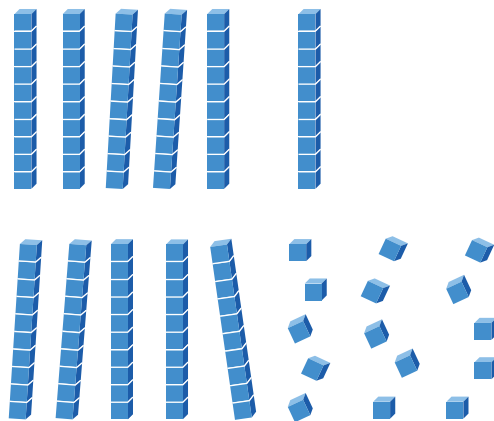
2

3

# What Is the Value?

Hands-On 

Base-ten blocks are shown.



4

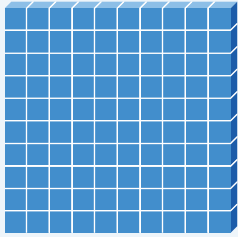
Discuss 

- What is the value of the blocks? How do you know?
- How could you represent that value in a different way?

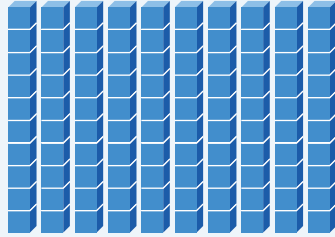
## Summary 5.02

There are many ways to count and compose numbers.

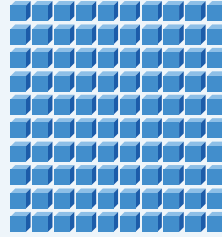
**A hundred** can be composed with 10 tens, 100 ones, or tens and ones put together.



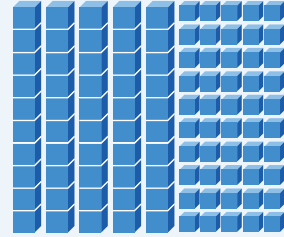
a hundred



10 tens



100 ones

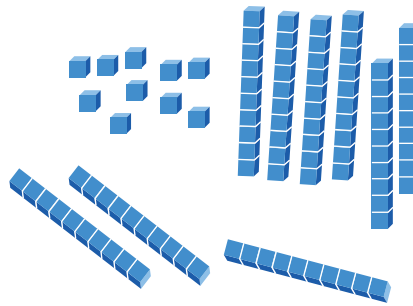
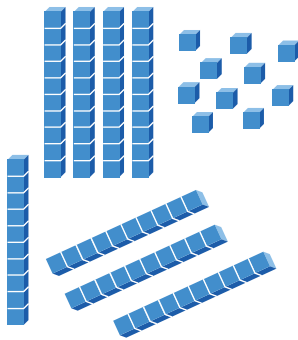


5 tens 50 ones

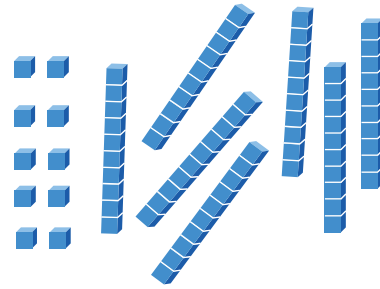
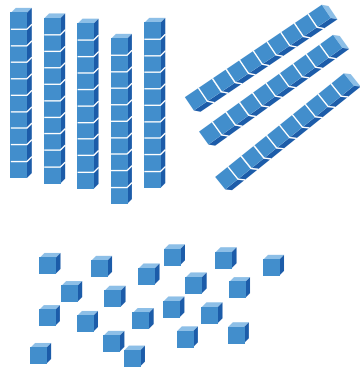
**hundred** A group of 10 tens or 100 ones.

## Practice 5.02

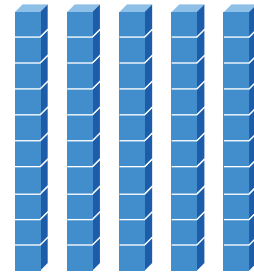
1 Circle the representation that shows a hundred.



**2** Circle the representation that shows a hundred.



For Problems 3 and 4, use the image of base-ten blocks.



Priya is building a hundred with base-ten blocks. Show 2 different ways in which she can finish her work.

**i** Show your thinking.

**3**

**4**

## Spiral Review

For Problems 5–8, find the number that makes the equation true.

5  $2 + 13 = \underline{\hspace{2cm}}$

6  $17 - 6 = \underline{\hspace{2cm}}$

7  $14 + 5 = \underline{\hspace{2cm}}$

8  $19 - 7 = \underline{\hspace{2cm}}$

- 9 Solve the story problem. Write an equation that represents the story problem and underline the answer.

Diego and Shawn worked together to measure the length of a hallway at school. The part that Diego measured was 33 feet long, and the part that Shawn measured was 29 feet long. How long is the hallway?

 Show your thinking.

answer: \_\_\_\_\_

equation: \_\_\_\_\_

# Looking for Patterns

Let's compose numbers in different ways.



## Warm-Up



eyes on teacher

### We are a math community.

How can you show someone you value their ideas even when their ideas are different from yours?

## Activity

### 1

## Patterns With Tens

### Hands-On 🖐️

Build each number using only tens. Record how many tens you use.

1 Build 90.

\_\_\_\_\_ tens

2 Build 110.

\_\_\_\_\_ tens

3 Build 150.

\_\_\_\_\_ tens

4 Build 200.

\_\_\_\_\_ tens

### 5 Discuss 🗨️

What patterns do you notice? Why do you think they happen?

**1****Patterns With Tens (continued)**

**Find the number of tens without building the number.**

**6** How many tens would you need to build 300?

\_\_\_\_\_ tens

**7** How many tens would you need to build 300 if you used 1 hundred?

\_\_\_\_\_ tens

**8** How many tens would you need to build 300 if you used 2 hundreds?

\_\_\_\_\_ tens

**9** How many tens would you need to build 300 if you used 3 hundreds?

\_\_\_\_\_ tens

**10** **Discuss** 

How did you figure out the number of tens you would need?

## 2

## Hundreds and Tens

Hands-On 

Draw base-ten diagrams, using only hundreds and tens, to represent 700 in 3 or more different ways.

 Show your thinking.

11

12

13

**Hundreds and Tens (continued)**

You may use the extra boxes to show more ways to represent 700.



**Show your thinking.**

A large rectangular area with rounded corners and a light green border, intended for students to show their thinking. A horizontal dotted line is drawn across the middle of the area.

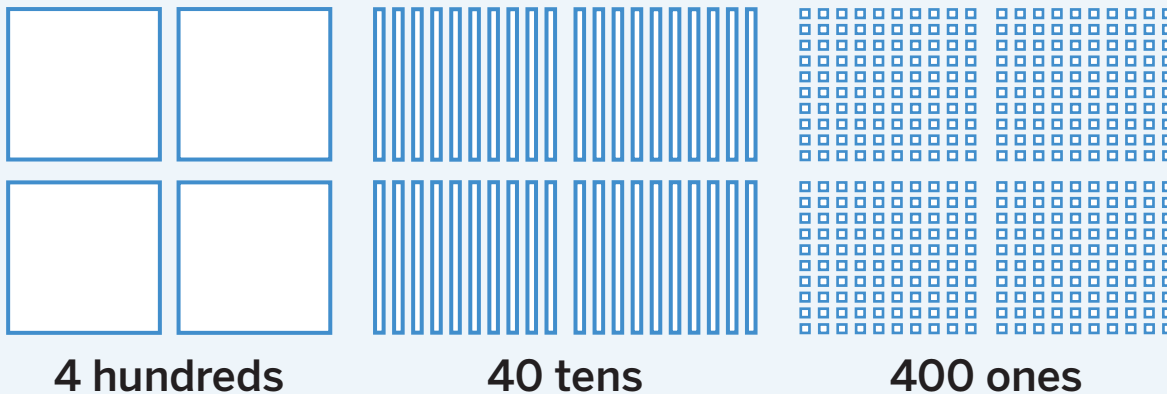
**14 Discuss** 

How did you find different ways to build 700?

## Summary 5.03

There are many ways to compose numbers greater than 100. Patterns in the numbers can help you figure out how many **hundreds**, tens, and ones you can use.

# 400



**hundreds** The plural of hundred.

## Practice 5.03

- 1 How many tens would you need to build 600?  
\_\_\_\_\_ tens
- 2 How many hundreds and tens could you use to build 600?  
\_\_\_\_\_ hundreds \_\_\_\_\_ tens
- 3 How many tens would you need to build 800?  
\_\_\_\_\_ tens

## Practice 5.03

Name \_\_\_\_\_ Date \_\_\_\_\_

For Problems 4 and 5, draw base-ten blocks, using only hundreds and tens, to represent 500 in 2 different ways.

 Show your thinking.

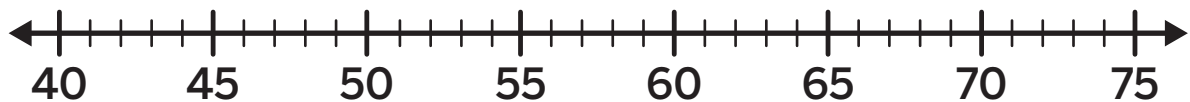
4

5

## Spiral Review

6 Use the number line to represent the equation.

$$42 + 26 = 68$$



For Problems 7–12, find the value of the expression.

 Show your thinking.

**7**  $19 + 25$

answer: \_\_\_\_\_

**8**  $58 - 32$

answer: \_\_\_\_\_

**9**  $90 - 43$

answer: \_\_\_\_\_

**10**  $66 + 33$

answer: \_\_\_\_\_

**11**  $82 - 15$

answer: \_\_\_\_\_

**12**  $27 + 23$

answer: \_\_\_\_\_

# What's the Value?

Let's find the value of base-ten blocks.



## Warm-Up



eyes on teacher



### We are a math community.

In the Unit Story, Josey supports Ms. Morales's work. How do you provide support to your math community?

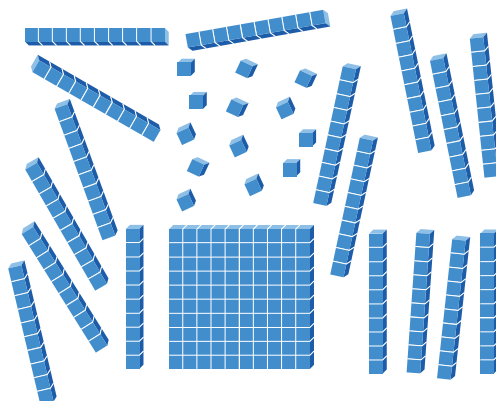
## Activity

# 1

## The Same, but Different

### Hands-On 🖐️

For Problems 1–3, use the base-ten blocks that are shown. Record the amounts of hundreds, tens, and ones that you see.



1 How many hundreds are there? \_\_\_\_\_

2 How many tens are there? \_\_\_\_\_

3 How many ones are there? \_\_\_\_\_

**1****The Same, but Different (continued)**

- 4 Represent the value of the base-ten blocks in another way.



Show your thinking.

A large, empty rectangular box with rounded corners and a light green border, intended for students to show their thinking.

- 5 Discuss 

How do you know the value of your representation is the same as the value of the representation for Problems 1–3?

## 2

## Sorting It Out

Hands-On 

Your group will be given a bag of base-ten blocks. For Problems 6–8, record the amount of hundreds, tens, and ones that you have in your bag.

6 How many hundreds are there? \_\_\_\_\_

7 How many tens are there? \_\_\_\_\_

8 How many ones are there? \_\_\_\_\_

For Problems 9–11, represent the same value that was in your bag with the *fewest* amount of each kind of block. Record your new amounts of hundreds, tens, and ones.

9 What is the *fewest* amount of hundreds? \_\_\_\_\_

10 What is the *fewest* amount of tens? \_\_\_\_\_

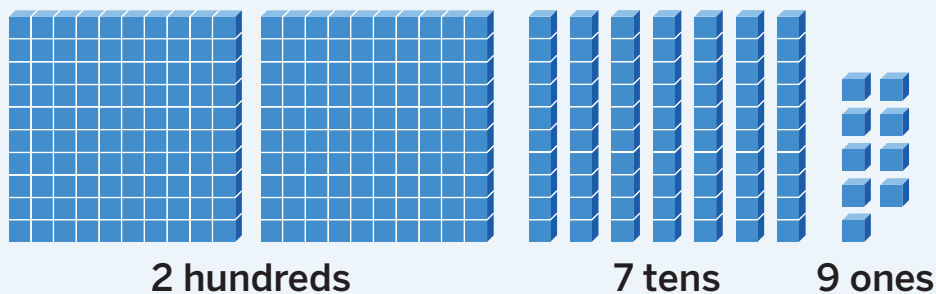
11 What is the *fewest* amount of ones? \_\_\_\_\_

12 **Discuss** 

What is the total value of your new representation? How do you know?

## Summary 5.04

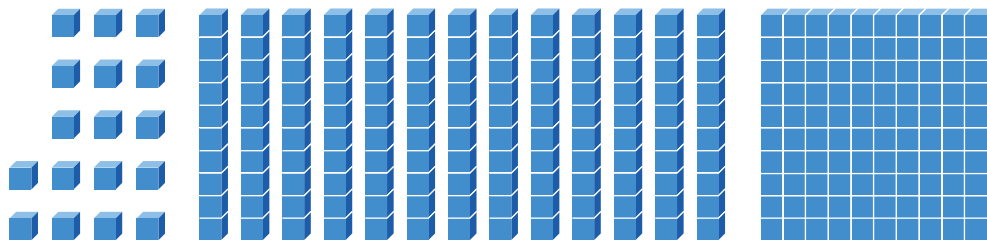
The digits in a three-digit number written in **standard form** represent the amounts of hundreds, tens, and ones. Sometimes, you can compose hundreds or tens to help you find the value.



**standard form** A representation of a number using only digits to represent place values.

## Practice 5.04

Use the base-ten block representation for Problems 1–6.



For Problems 1–3, record the amounts of hundreds, tens, and ones.

1 How many hundreds are there? \_\_\_\_\_

2 How many tens are there? \_\_\_\_\_

3 How many ones are there? \_\_\_\_\_

For Problems 4–6, represent the base-ten block representation with the *fewest* amount of each kind of block. Record the amounts of hundreds, tens, and ones.

4 How many hundreds are there? \_\_\_\_\_

5 How many tens are there? \_\_\_\_\_

6 How many ones are there? \_\_\_\_\_

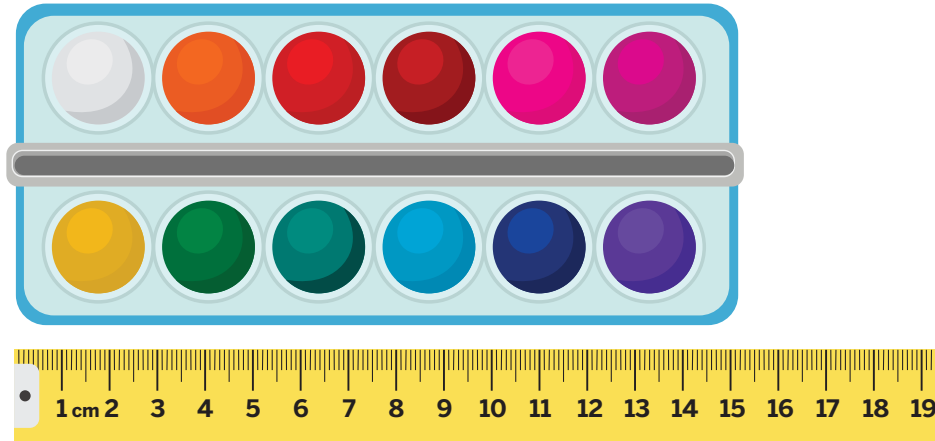
### Spiral Review

7 Measure the length of the highlighter in centimeters.



\_\_\_\_\_

**8** Measure the length of the paint tray in centimeters.



\_\_\_\_\_

**9** How much *longer* is the paint tray than the highlighter? Write an equation to show your thinking and underline the answer.

answer: \_\_\_\_\_

equation: \_\_\_\_\_

For Problems 10–13, find the value of the expression.

**10**  $9 - 2$  \_\_\_\_\_

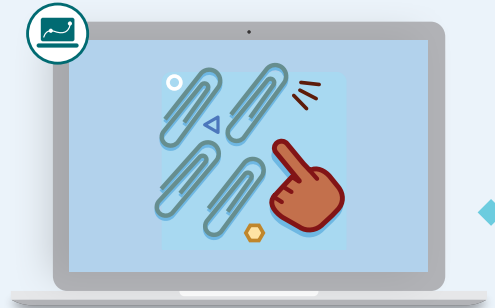
**11**  $4 + 6$  \_\_\_\_\_

**12**  $8 - 3$  \_\_\_\_\_

**13**  $2 + 8$  \_\_\_\_\_

# Mail Call!

Let's explore three-digit numbers in standard form.



## Warm-Up

**1**

eyes on teacher

**We are a math community.**

Why might it be helpful to use math vocabulary when sharing ideas with your math community?

## Activity

**1**

# Mail Mix Up

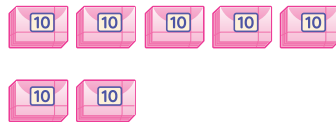
**2**

How many pieces of mail does Ms. Morales have?  
Write the number in standard form.

2 ones



7 tens



6 hundreds



## Discuss

How does the number you wrote match the representation?

## 1

## Mail Mix Up (continued)

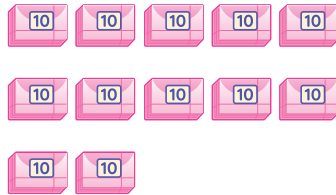
Use your Activity 1 PDF to complete Problem 3.

- 3** How many pieces of mail does Ms. Morales have?  
Write the number in standard form. Complete as many  
as you have time for.

4 hundreds



12 tens

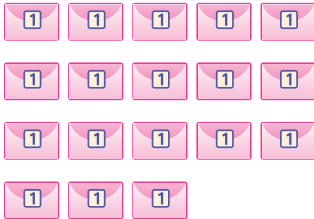


3 ones



\_\_\_\_\_

18 ones



5 tens



2 hundreds



\_\_\_\_\_

8 tens



1 hundred



\_\_\_\_\_

7 hundreds



15 ones



3 tens



\_\_\_\_\_

**4** Discuss 

Let's discuss how to write a number in standard form.

**2****Let's Get Organized**

For Screens 5–7, write amounts of hundreds, tens, and ones that could be used to represent the number written in standard form. You can show your work in the box if it is helpful.

**5** 427

\_\_\_\_\_ 4 \_\_\_\_\_ hundreds

\_\_\_\_\_ ten(s)

\_\_\_\_\_ one(s)

**6** 392

\_\_\_\_\_ hundred(s)

\_\_\_\_\_ ten(s)

\_\_\_\_\_ 12 \_\_\_\_\_ ones

**7** 856

\_\_\_\_\_ 7 \_\_\_\_\_ hundreds

\_\_\_\_\_ ten(s)

\_\_\_\_\_ 16 \_\_\_\_\_ ones

## Let's Get Organized (continued)

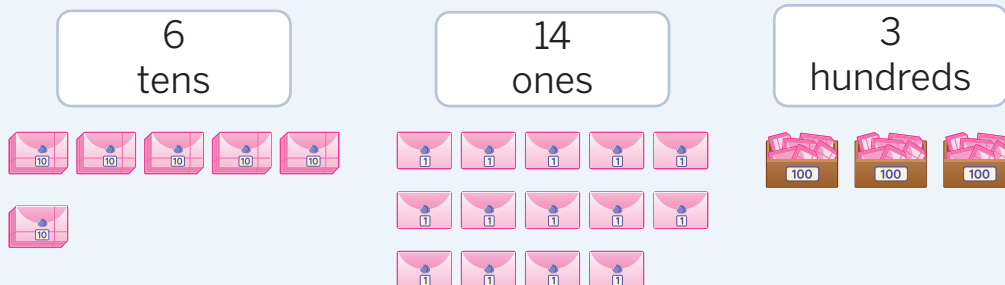
### **8** Discuss

Let's compare different representations of a number.



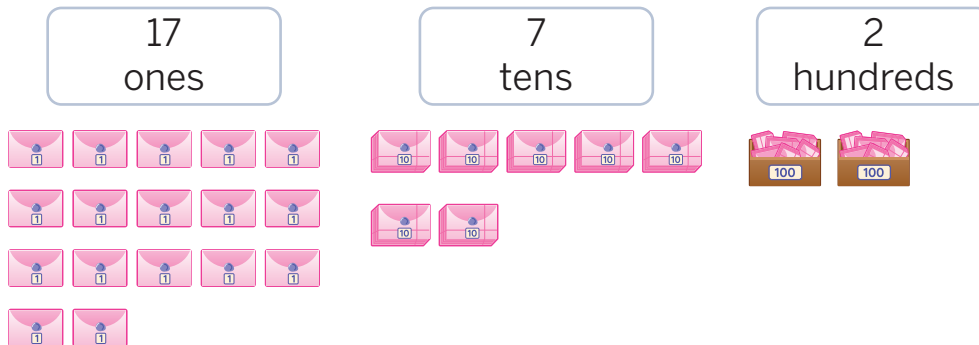
## Summary 5.05

Three-digit numbers have a hundreds place, a tens place, and a ones place that represent the amount of each unit. You can use the relationship between place values to represent a three-digit number in different ways.



## Practice 5.05

- 1 Write the number in standard form.



- 2 Write amounts of hundreds and tens that could be used to make 629. You can show your work in the box if it is helpful.

\_\_\_\_\_ hundred(s)

\_\_\_\_\_ ten(s)

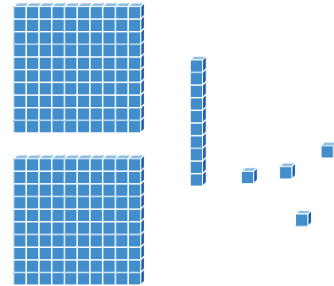
\_\_\_\_\_ 19 \_\_\_\_\_ ones

For Problems 3–5, draw lines to match each riddle with the base-ten blocks that show the same value.

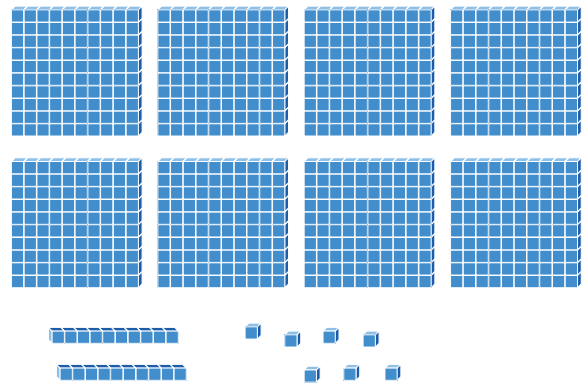
**Riddle**

**Base-Ten blocks**

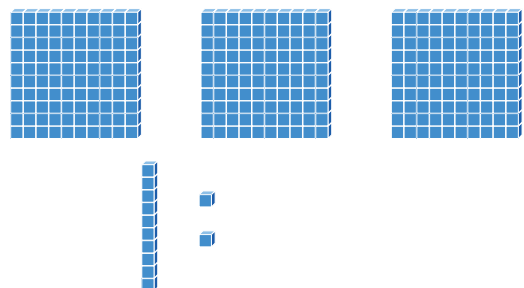
**3** There are 12 ones and 3 hundreds.



**4** There are 7 ones, 22 tens, and 6 hundreds.



**5** There are 1 hundred, 11 tens, and 4 ones.



## Spiral Review

- 6 Clare measured the height of her hydrangea plant. In May, the plant was 23 inches tall. Then it grew 18 inches. How tall is Clare's hydrangea plant now? Write an equation that represents the story problem and underline the answer.

 Show your thinking.

answer: \_\_\_\_\_ equation: \_\_\_\_\_

For Problems 7 and 8, find the value of the expression.

 Show your thinking.

7  $93 - 46$

answer: \_\_\_\_\_

8  $38 + 45$

answer: \_\_\_\_\_

# A New Representation

Let's represent three-digit numbers as the sum of hundreds, tens, and ones.



**We are a math community.**  
In the Unit Story, Josey learns from watching Ms. Morales. How can you learn from your math community?

## Warm-Up



eyes on teacher




## Activity

# 1

## Same Value, Different Ways

Hands-On 

In each row of the table, the representations have the same value.

Base-Ten diagram	Amount of each unit	Standard form	Addition expression
		192	$2 + 90 + 100$
	2 hundreds 8 ones 3 tens		$30 + 8 + 200$
	3 hundreds 6 ones	306	$300 + 6$
	2 tens 1 one 4 hundreds	421	

**1****Same Value, Different Ways (continued)****2****Discuss** 

Explain how you used the given representations to fill in the missing ones.

# Making It and Expanding It

## Hands-On

You and your partner will be given number cards.

- 3 Draw **3** number cards. Make as many three-digit numbers as you can with the numbers you drew. In the table, record your numbers in standard form and expanded form.

Standard form	Expanded form

## Making It and Expanding It (continued)

### 4 Discuss

Choose **1** of the three-digit numbers you made. Explain how to represent this three-digit number in expanded form. You can show your thinking in the space if it is helpful.



## Summary 5.06

Three-digit numbers can be represented in **expanded form** by writing an addition expression that represents the sum of the values of each digit. Numbers can have the same digits, but the value of a digit depends on its place in a number.



$$300 + 60 + 7$$

$$60 + 300 + 7$$

$$7 + 60 + 300$$



$$700 + 6 + 30$$

$$30 + 6 + 700$$

$$6 + 700 + 30$$

**expanded form** A representation of a number as an addition expression that shows the value of each digit.

## Practice 5.06

For Problems 1 and 2, use the digits 1, 8, and 6.

- 1 Write the *greatest* three-digit number you can make in standard form.

---

- 2 Write the *greatest* three-digit number you can make in expanded form.

---

**For Problems 3 and 4, use the digits 3, 2, and 7.**

- 3** Write the *greatest* three-digit number you can make in standard form.

\_\_\_\_\_

- 4** Write the *greatest* three-digit number you can make in expanded form.

\_\_\_\_\_

### Spiral Review

**For Problems 5 and 6, fill in each missing number.**

- 5** Shawn counts by 5.

75, \_\_\_\_\_, 85, 90, \_\_\_\_\_, \_\_\_\_\_, 105, \_\_\_\_\_, \_\_\_\_\_

- 6** Diego counts by 100.

100, 200, \_\_\_\_\_, \_\_\_\_\_, 500, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

For Problems 7–9, find the value of the expression.  
Represent your thinking on the number line.

**i** Show your thinking.

**7**  $68 - 33$



answer: \_\_\_\_\_

**8**  $13 + 42$



answer: \_\_\_\_\_

**9**  $73 - 27$



answer: \_\_\_\_\_

# What's Your Name?

Let's read three-digit numbers and write them in words.



## Warm-Up



eyes on teacher



**We are a math community.**

What words and phrases are helpful to hear when you are working on a challenging problem?

## Activity

### 1

# Mix and Mingle: Reading Numbers

## Hands-On

You and your partner will each be given a card with a representation of a three-digit number.

### 1 Discuss

- What number is represented on your partner's card? How can you use place value to identify the number?
- Do you agree or disagree with your partner? Explain your thinking.

# Numbers as Words

Write a three-digit number that represents the value in words.

2 nine hundred ten

\_\_\_\_\_

3 two hundred fifty-seven

\_\_\_\_\_

4 six hundred eight

\_\_\_\_\_

Write the value in words.

5  $4 + 800$

\_\_\_\_\_

6 390

\_\_\_\_\_

7  $70 + 500 + 2$

\_\_\_\_\_

## Summary 5.07

When reading and writing the name of a three-digit number, it is helpful to think of the value of each digit. When the value of a digit is 0, no words are used to describe that part of the number.

**242**

$200 + 40 + 2$

I see 2 hundreds, 4 tens, and 2 ones. This number is two hundred forty-two in words.

## Practice 5.07

**1** Write the number 982 in words.

---

**2** Write the number *four hundred thirty* in standard form.

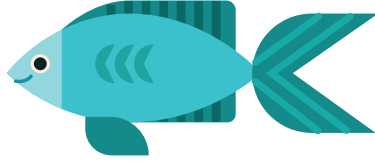
---

**3** Write the value of the expression  $60 + 200 + 7$  in words.

---

## Spiral Review

- 4 Measure the length of the fish in inches.



\_\_\_\_\_

- 5 Measure the length of the fish in inches.



\_\_\_\_\_

- 6 How much *longer* is the fish in Problem 5 than the fish in Problem 4? Write an equation to show your thinking.

answer: \_\_\_\_\_ equation: \_\_\_\_\_

**Practice 5.07**

Name \_\_\_\_\_ Date \_\_\_\_\_

**For Problems 7–10, find the value of the expression.**

**7**  $8 - 2$  \_\_\_\_\_

**8**  $4 + 3$  \_\_\_\_\_

**9**  $7 - 5$  \_\_\_\_\_

**10**  $5 + 3$  \_\_\_\_\_

**For Problems 11–14, find the value of the expression.** **Show your thinking.**

**11**  $52 + 45$

answer: \_\_\_\_\_

**12**  $78 - 22$

answer: \_\_\_\_\_

**13**  $85 - 23$

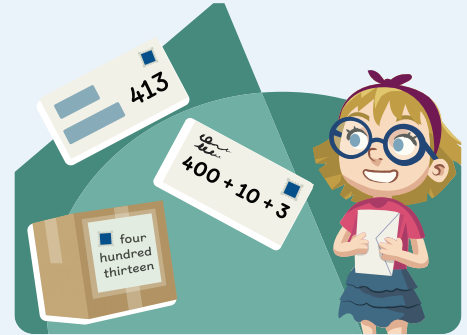
answer: \_\_\_\_\_

**14**  $35 + 35$

answer: \_\_\_\_\_

# All the Ways!

Let's represent numbers in different ways.



## Warm-Up



eyes on teacher



**We are a math community.**

How can you ask another mathematician questions about their work in a respectful way?

## Activity

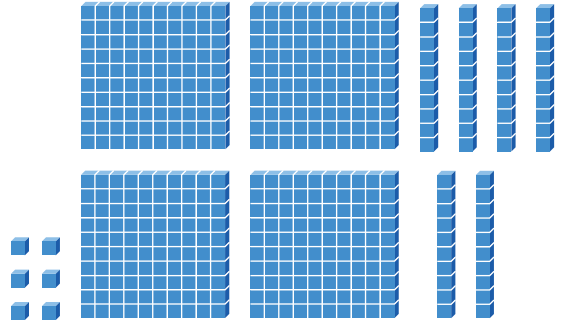
# 1

## Are You My Match?

Draw lines to match each representation on the left with a representation on the right that has the same value.

## Are You My Match? (continued)

1 303

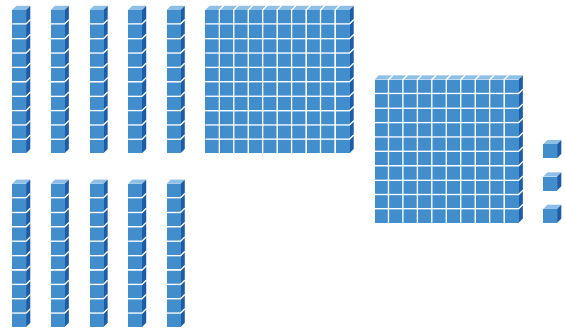
2  $6 + 60 + 400$ 

679

3 6 hundreds 9 ones 7 tens

 $30 + 300$ 

4 6 ones 79 tens



5 3 hundreds 3 tens

seven hundred ninety-six

6 **Discuss**

Choose a pair of matched representations. Explain to a partner how you know the representations have the same value.

# The Representation Rumba

For Problem 7, represent your number in **1** of the following ways:

- writing the amount of each unit
- drawing a base-ten diagram
- writing in expanded form
- writing in words

For Problems 8–10, trade books with your group members. Each group member will represent the mystery number in a way that has not already been used.

7

8

11

9

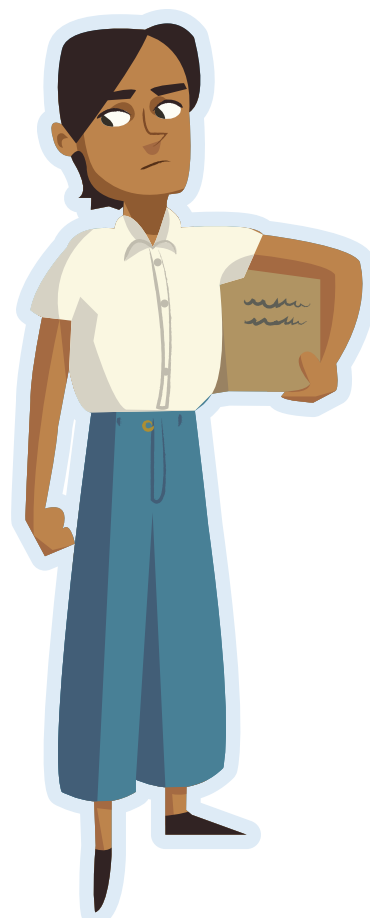
10

## The Representation Rumba (continued)

**11** Record the number in standard form in the table.

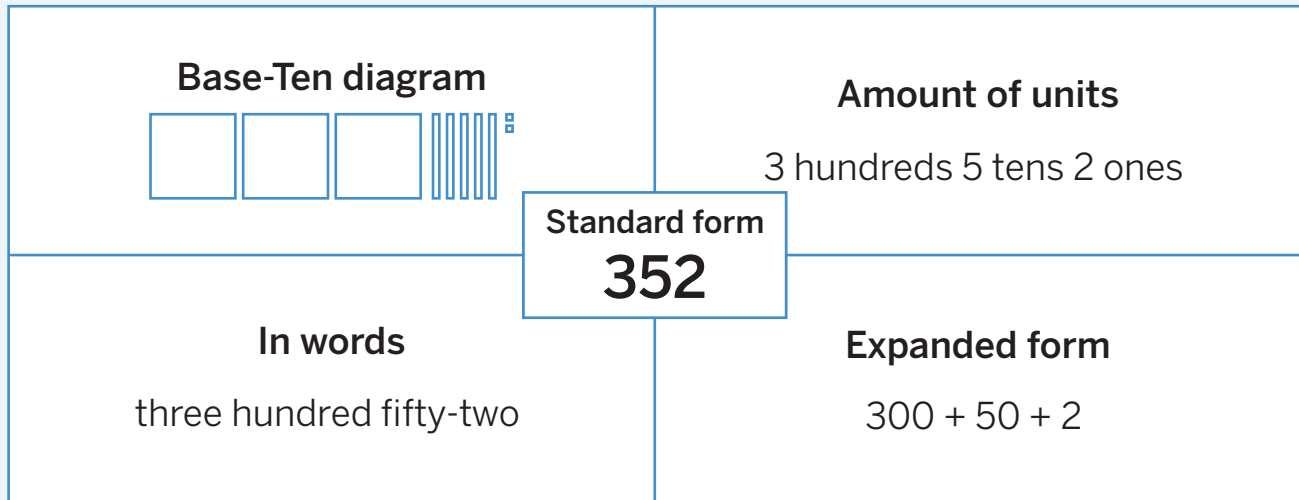
**12** **Discuss** 

Explain to your group if all the representations show the same value and how you know.



## Summary 5.08

The digits in a three-digit number represent the amounts of hundreds, tens, and ones. A three-digit number can be represented in different ways to help you make sense of its value.



## Practice 5.08

For Problems 1 and 2, represent the number 279 in 2 different ways.

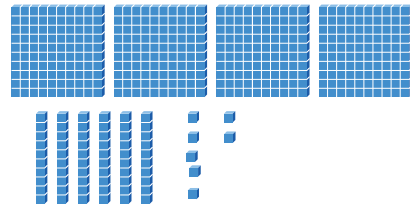
1

2

For Problems 3 and 4, circle **3** representations that match the number.

**3** 467

$400 + 60 + 7$

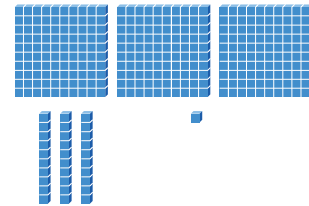


four hundred  
sixty-seven

four hundred seventy-six

**4** 331

$300 + 10 + 3$



three hundred  
thirty-one

$300 + 30 + 1$

## Spiral Review

For Problems 5 and 6, solve the story problem. Write an equation that represents the story problem and underline the answer.

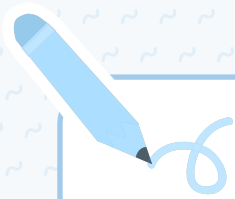
 Show your thinking.

- 5 Priya needs 34 feet of string for her art project. She already has 18 feet of string. How much *more* string does Priya need for her project?

answer: \_\_\_\_\_ equation: \_\_\_\_\_

- 6 Diego measured the rainfall in the spring. In April, there was 8 inches of rain. In May, there was 6 inches of rain. In June, there was 13 inches of rain. What was the total rainfall?

answer: \_\_\_\_\_ equation: \_\_\_\_\_



Notes:

# Comparing and Ordering Numbers Within 1,000

✦ Unit Story: 302 Ricotta Drive



Gorodenkoff/Shutterstock.com

Ms. Morales was thinking about the amount of mail in 2 different crates.

How could she compare the amounts?

# Helping in the Mailroom

Let's compare three-digit numbers.



## Warm-Up



eyes on teacher



**We are a math community.**

Mail carriers work together to sort and deliver mail. How can you work together with your partner today?

## Activity

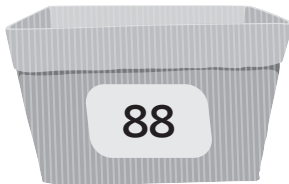
### 1

## Crates of Mail

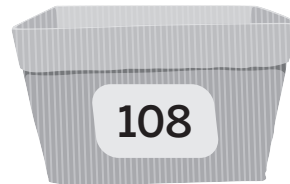
Help Ms. Morales find which crates of mail have the *greatest* value so she can help deliver the mail.

Compare the values. Write  $<$ ,  $>$ , or  $=$  to make the comparison statement true.

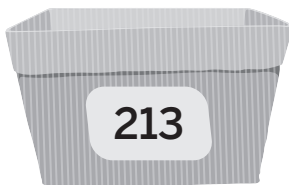
1



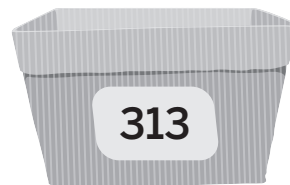
\_\_\_\_\_

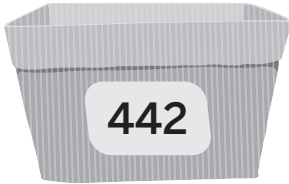


2

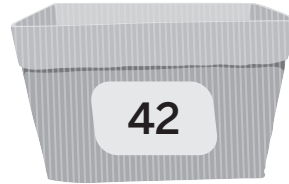
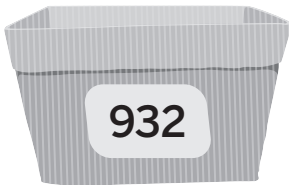


\_\_\_\_\_

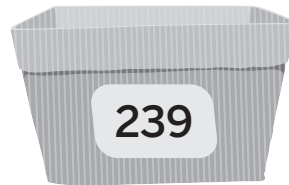


**1****Crates of Mail (continued)****3**

\_\_\_\_\_

**4**

\_\_\_\_\_

**5****Discuss** 

Compare your comparison statements with your partner's. Discuss how you know each comparison statement is true.

**6**

Think about what you discussed with your partner. What conjectures can you make about comparing 2 three-digit numbers?

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## 2

## A Closer Look at Comparing

Compare the values. Write  $<$ ,  $>$ , or  $=$  to make the comparison statement true.

7 283 \_\_\_\_\_ 262

10 838 \_\_\_\_\_ 838

8 305 \_\_\_\_\_ 304

11 997 \_\_\_\_\_ 998

9 411 \_\_\_\_\_ 339

12 250 \_\_\_\_\_ 550

- 13 Think about the conjectures you made about comparing 2 three-digit numbers in Activity 1. What new ideas do you have about comparing three-digit numbers?

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## Summary 5.09

You can compare three-digit numbers by first comparing hundreds to hundreds, then tens to tens, and then ones to ones.

$$\begin{array}{ccc} 154 < 211 \\ \uparrow & & \uparrow \\ \text{hundreds} & & \text{hundreds} \end{array}$$

154 has one hundred and 211 has two hundreds,  
so 154 is less than 211.

## Practice 5.09

For Problems 1–3, write  $<$ ,  $>$ , or  $=$  to make the comparison statement true.

1 241 \_\_\_\_\_ 141

2 765 \_\_\_\_\_ 766

3 809 \_\_\_\_\_ 809

## Practice 5.09

Name \_\_\_\_\_ Date \_\_\_\_\_

For Problems 4 and 5, circle the number that is *greater* than the given number.

4 439

403

443

399

435

5 812

803

788

820

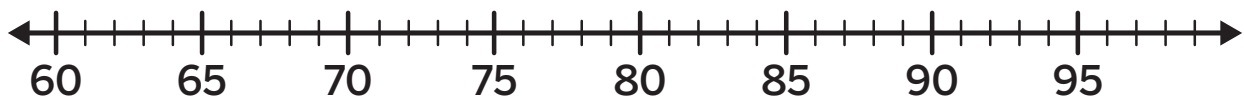
690

## Spiral Review

6 Find the value of the expression. Represent your thinking on the number line.

$$92 - 26$$

 Show your thinking.



answer: \_\_\_\_\_

For Problems 7–9, fill in each missing number.

**7** Clare counts by 5.

15, \_\_\_\_\_, 25, 30, \_\_\_\_\_, \_\_\_\_\_, 45, \_\_\_\_\_, \_\_\_\_\_

**8** Shawn counts by 10.

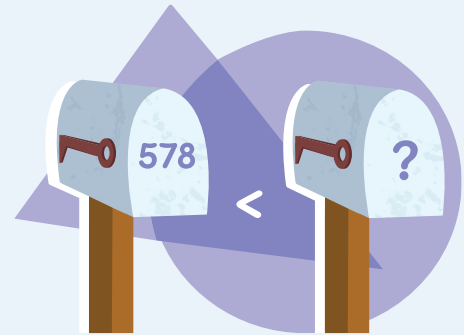
10, 20, \_\_\_\_\_, \_\_\_\_\_, 50, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, 90

**9** Priya counts by 100.

200, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, 900


# Down to the Digit

Let's make comparison statements true.



## Warm-Up



 eyes on teacher



**We are a math community.**

How could discussing different strategies to solve a math problem be helpful?

## Activity

### 1

## Place Value Comparisons

Use the numbers from the number bank to make each comparison statement true. Use each number only once.

810

529

752

495

1 \_\_\_\_\_ > 519

3 \_\_\_\_\_ < 497

2 687 < \_\_\_\_\_

4 \_\_\_\_\_ > 793

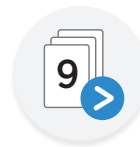
### 5 Discuss

Share your comparison statements with your partner.

- How did you make all the comparison statements true?
- Were there any three-digit numbers that could make more than 1 comparison statement true?

# Introducing the Center, Greatest of Them All

Stage 2



**Pairs**  Let's make and compare three-digit numbers.

**You'll need:** Number Cards, 0–9, Recording Sheet, one per pair



## Set Up

- Decide who will be Player A and who will be Player B.
- Shuffle the Number Cards and put them in a stack facedown.



## How to Play

- 1 Each player draws a Number Card and records it in one of the boxes. Once a number is placed, it cannot be moved.
- 2 Repeat until each player has a three-digit number.
- 3 Write a comparison using  $<$ ,  $>$ , or  $=$ . The player with the greater number earns 1 point.



**How to Win** When the Recording Sheet is full, the player who earns more points wins.

## Greatest of Them All (continued)

Player A	Compare using <, >, or =	Player B	Winner?
			
			
			
			
			
			

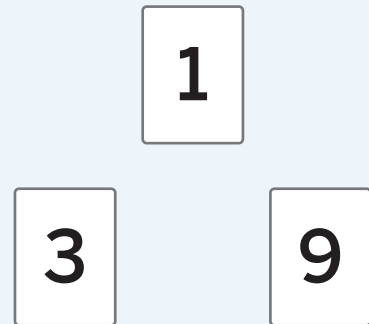
## Summary 5.10

When finding numbers that are greater than or less than other numbers, it is important to consider the value of a digit and the place in the number where the digit is located.

The *greatest* three-digit number you can make with these digits is 931.

The *smallest* three-digit number you can make with these digits is 139.

$$931 > 139 \text{ and } 139 < 931$$



## Practice 5.10

For Problems 1–3, use the numbers from the number bank to make the comparison statement true. Use each number only once.

602

327

459

1  < 513

2 936 >

3  < 444

For Problems 4 and 5, use the number cards to create a three-digit number.



4 What is the *greatest* possible number? \_\_\_\_\_

5 What is the *smallest* possible number? \_\_\_\_\_

### Spiral Review

6 Priya needs 56 inches of string lighting to decorate for her family's Diwali celebration. She got a 25-inch string of lights from her grandmother. How much *more* string lighting does she need? Write an equation that represents the story problem.

 Show your thinking. \_\_\_\_\_

answer: \_\_\_\_\_ equation: \_\_\_\_\_

For Problems 7–11, find the value of the expression.

**7**  $4 + 3$  \_\_\_\_\_

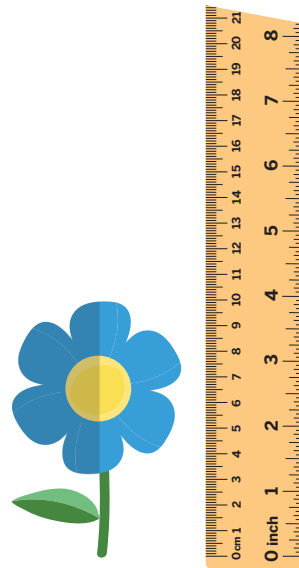
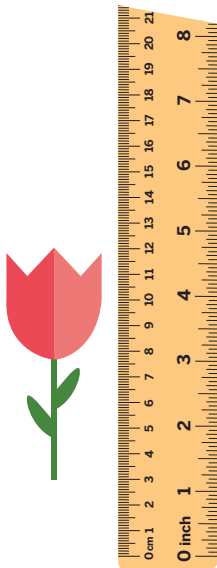
**8**  $6 + 13$  \_\_\_\_\_

**9**  $6 + 7$  \_\_\_\_\_

**10**  $8 - 4$  \_\_\_\_\_

**11**  $15 - 9$  \_\_\_\_\_

**12** Measure the height of each flower in centimeters and write the measurement on the line. Circle the *taller* flower.



\_\_\_\_\_

\_\_\_\_\_

# Where Should Ms. Morales Go?

Let's justify comparisons on a number line.



## Warm-Up



eyes on teacher



**We are a math community.**

It is important to listen to others' ideas in math class. How can you show someone you are listening?

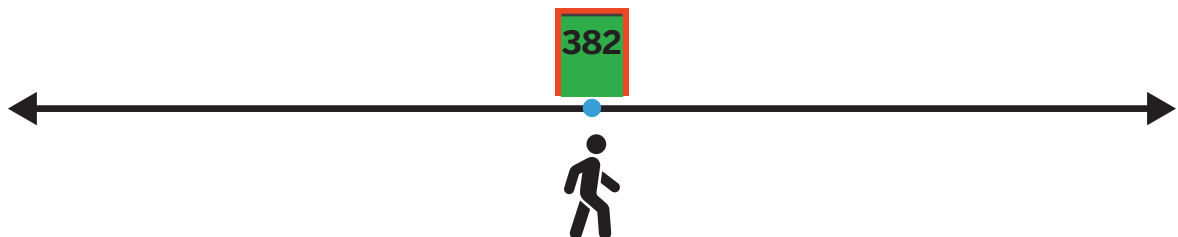
## Activity

### 1

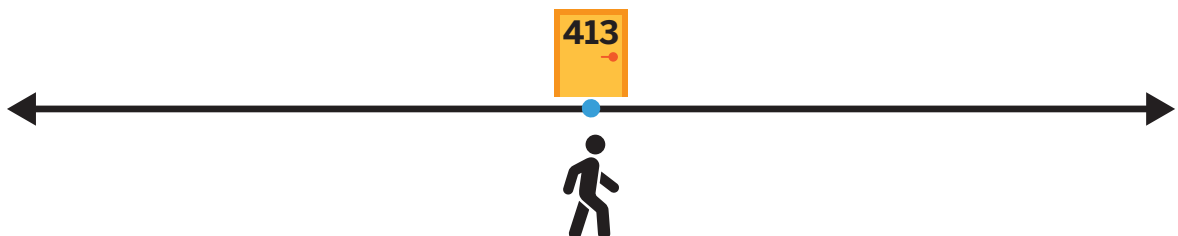
## Delivering Packages

The open number lines represent Ms. Morales's delivery route. For Problems 1 and 2, help her figure out which direction to walk.

- Ms. Morales is at apartment number 382. She needs to deliver a package to apartment number 328. Draw an arrow to show which direction she should walk.



- Ms. Morales is at apartment number 413. She needs to deliver a package to apartment number 417. Draw an arrow to show which direction she should walk.



**1****Delivering Packages (continued)**

- 3** Choose Problem 1 or Problem 2. Explain how you know which direction Ms. Morales should walk.

---

---

---

**For Problems 4–7, locate and label the number on the number line.**

- 4** Label the point that could represent 700.



- 5** Label the point that could represent 812.



- 6** Mark and label a point that could represent 28.



- 7** Mark and label a point that could represent 912.



## 2

## Houses Without Numbers

The points on the open number lines represent the locations of houses on Ms. Morales's delivery route. Label each unlabeled point with a possible number based on its location on the number line.

8

456



9

350



10

400



11

730

750



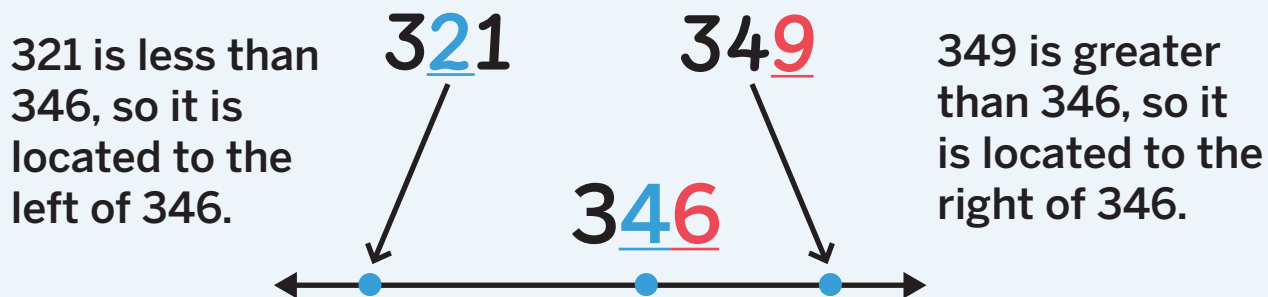
12

Discuss 

Justify how you know the numbers you wrote could represent the location of each point.

## Summary 5.11

A number line can be used to represent three-digit numbers. You can compare the numbers to figure out their locations on a number line.



## Practice 5.11

- 1 Mark and label a point that could represent 711.



- 2 Label the unlabeled point with a possible number based on its location on the number line.



## Practice 5.11

Name \_\_\_\_\_ Date \_\_\_\_\_

- 3 Mark and label a point that could represent 295.



- 4 Label the unlabeled point with a possible number based on its location on the number line.



## Spiral Review

- 5 Find the value of the expression. Represent your thinking on the number line.

$$71 - 38$$

 Show your thinking. \_\_\_\_\_



answer: \_\_\_\_\_

- 6 Find the value of the expression. Represent your thinking on the number line.

$$39 + 12$$

 Show your thinking. \_\_\_\_\_



answer: \_\_\_\_\_

For Problems 7–9, circle the value of the expression.

 Show your thinking.

**7**  $75 - 44$

31

30

41

40

**8**  $16 + 34$

52

50

42

40

**9**  $98 - 19$

71

80

79

91


# First Day Mail Delivery

Let's put numbers in order.



## Warm-Up

**1**

 eyes on teacher

**We are a math community.**

Ms. Morales shares her talents with her community. What talents can you bring to your math community?

## Activity

**1**

# Let's Sort This Out!

Help Scott order the mail to be delivered along the routes.

**2**

Record the numbers in order from *least* to *greatest*.



\_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_  
least

greatest

## Let's Sort This Out! (continued)

**3** Record the numbers in order from *greatest* to *least*.

787	839	764	818
-----	-----	-----	-----

\_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_  
 greatest least

**4** Record the numbers in order from *least* to *greatest*.

202	159	232	322	140
-----	-----	-----	-----	-----

\_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_  
 least greatest



# The Case of The Missing Address

**5** Scott ordered mail from *least* to *greatest*.

Record a three-digit number that could belong in the list.



least

greatest

**6** Design a Challenge

- Create and record **5** three-digit numbers in order from *least* to *greatest* or *greatest* to *least* on the first set of envelopes.



- Circle **1** number to be your mystery number.
- Use the *Design a Challenge* sheet to write your ordered list of numbers. Replace the number you circled with a ?.



## The Case of The Missing Address (continued)

### 6 Design a Challenge

- Trade your *Design a Challenge* sheet with a partner.
- Complete your partner's challenge by recording your partner's ordered list, along with a possible mystery number, on the envelopes.
- For each challenge, circle the mystery number you created.
- Repeat the challenge with 2 other partners.

#### Challenge 1:



#### Challenge 2:



#### Challenge 3:

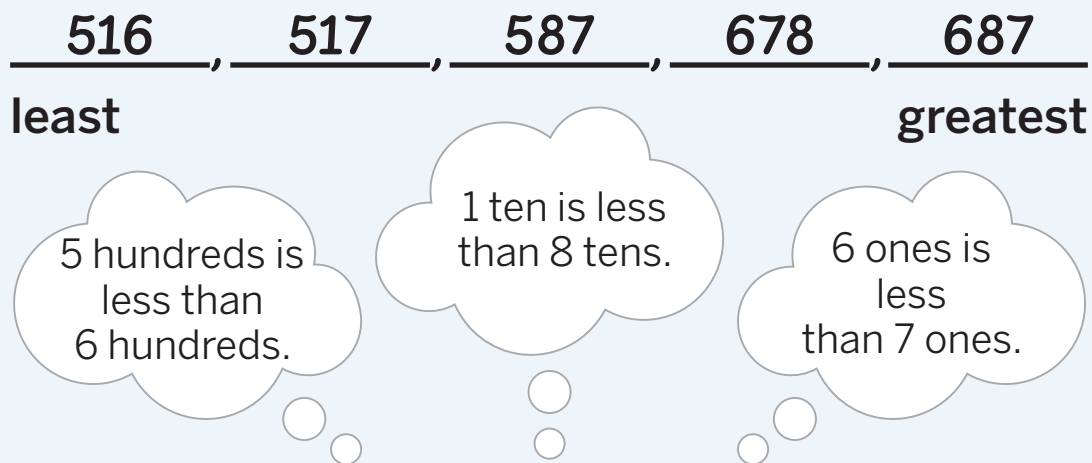


### 7 Discuss

Let's find a number that could make the list of ordered numbers true.

## Summary 5.12

You can order a set of numbers by comparing 2 numbers at a time or by comparing the hundreds places first, then the tens places, and then the ones places.



## Practice 5.12

For Problems 1 and 2, use the numbers from the number bank.

396

277

369

727

772

- 1 Order and record the numbers from *greatest* to *least*.

\_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

greatest least

- 2 Order and record the numbers from *least* to *greatest*.

\_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

least greatest

## Practice 5.12

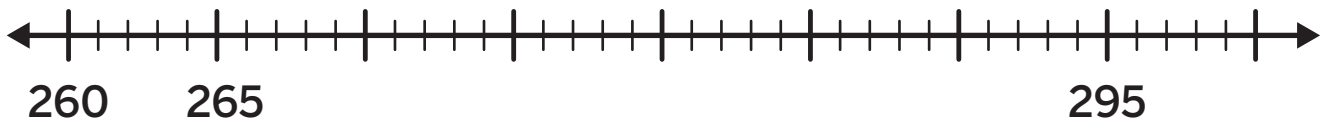
Name \_\_\_\_\_ Date \_\_\_\_\_

- 3 Label the unlabeled point with a possible number based on its location on the number line.

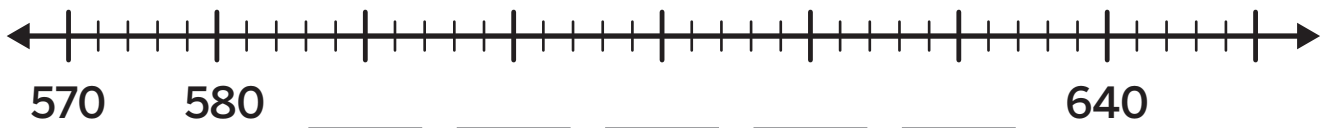


## Spiral Review

- 4 Fill in the missing numbers on the number line.



- 5 Fill in the missing numbers on the number line.



For Problems 6–9, find the number that makes the equation true.

6  $6 + 8 = \underline{\hspace{2cm}}$

7  $7 - 5 = \underline{\hspace{2cm}}$

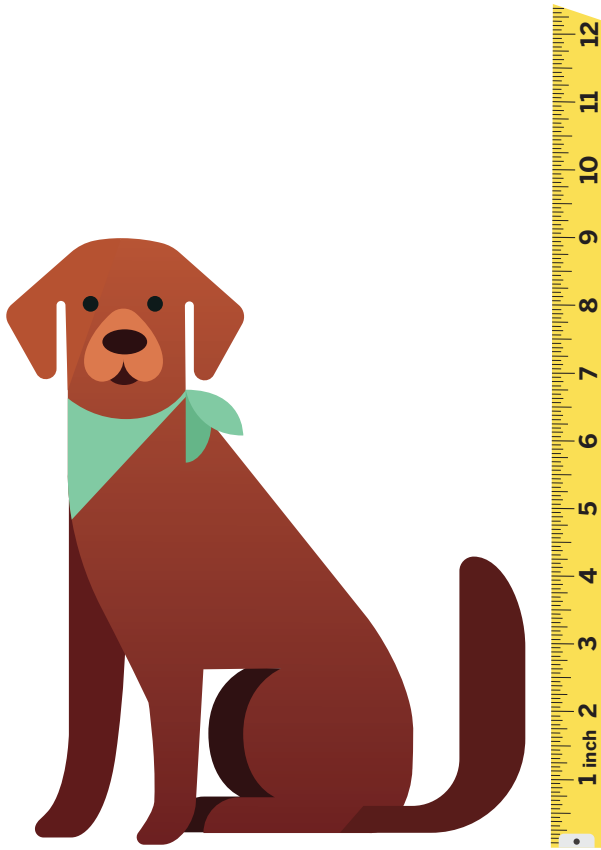
8  $8 + \underline{\hspace{2cm}} = 19$

9  $20 - 13 = \underline{\hspace{2cm}}$

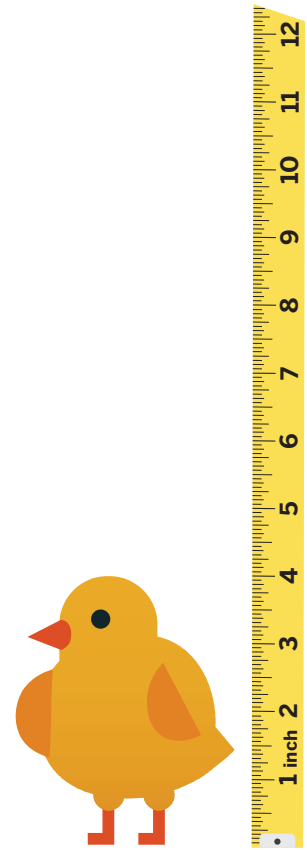
# Practice 5.12

Name \_\_\_\_\_ Date \_\_\_\_\_

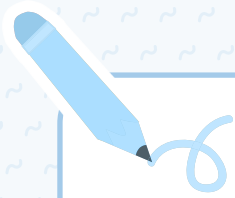
- 10 Measure the height of each animal in inches. Circle the shorter animal.



\_\_\_\_\_



\_\_\_\_\_



Notes:

## Math at Work

Do you know your ZIP code? These 5 digits tell mail carriers where to deliver your mail. The first 3 digits were invented by Robert Moon who worked for the United States Postal Service. He divided the country into different parts, about 900 of them! The last 2 digits were added later to give even more information about addresses.

**Mail carriers** collect and deliver mail to businesses and homes. Mail carriers use ZIP codes to also sort the mail that they collect to make sure it will be delivered to the right address.



Ground Picture/Shutterstock.com. Olya Helms/Shutterstock.com.

## Math at Home

Find 2 three-digit numbers in your home or community. Compare the numbers you chose by completing this statement.

\_\_\_\_\_ (<, >, =) \_\_\_\_\_  
(number) (number)

## Math Mindset

Describe 2 different ways you can represent a three-digit number.

## Unit 6

# Geometry and Time

### Big Ideas in This Unit

CC1 Measure and Compare Objects Represent Data

CC3 Skip Counting to 100 CC4 Seeing Fractions in Shapes

### Questions for Investigation

- What are the attributes of shapes?
- How can we partition shapes into equal parts?
- How do we tell time to the nearest 5 minutes?



#### Explore: We're Going on a Shape Hunt!

How can we describe and categorize shapes?



#### Unit Story: Arjun the Artist

In this story, Arjun goes on a field trip to an art museum where he sees artwork that helps him believe in his own artistic potential.



# Watch Your Knowledge Grow

This is the math you'll explore in this unit. Rate your understanding to see how your knowledge grows!

Not yet   
  Almost   
  I got it!

I can . . .	Before	After
Recognize and draw shapes using their specified attributes such as number of angles or faces.	<input type="radio"/> <input type="radio"/> <input checked="" type="radio"/>	<input type="radio"/> <input type="radio"/> <input checked="" type="radio"/>
Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.	<input type="radio"/> <input type="radio"/> <input checked="" type="radio"/>	<input type="radio"/> <input type="radio"/> <input checked="" type="radio"/>
Compare shapes that are in the same category, but look different.	<input type="radio"/> <input type="radio"/> <input checked="" type="radio"/>	<input type="radio"/> <input type="radio"/> <input checked="" type="radio"/>
Measure the length of an object using appropriate tools such as a ruler.	<input type="radio"/> <input type="radio"/> <input checked="" type="radio"/>	<input type="radio"/> <input type="radio"/> <input checked="" type="radio"/>
Draw shapes with specific side lengths using a ruler.	<input type="radio"/> <input type="radio"/> <input checked="" type="radio"/>	<input type="radio"/> <input type="radio"/> <input checked="" type="radio"/>
Partition rectangles into two, three, or four equal shares and describe the shares using halves, thirds, and fourths.	<input type="radio"/> <input type="radio"/> <input checked="" type="radio"/>	<input type="radio"/> <input type="radio"/> <input checked="" type="radio"/>
Recognize that equal shares of identical wholes do not need to have the same shape.	<input type="radio"/> <input type="radio"/> <input checked="" type="radio"/>	<input type="radio"/> <input type="radio"/> <input checked="" type="radio"/>
Tell and write time from analog and digital clocks to the nearest 5 minutes.	<input type="radio"/> <input type="radio"/> <input checked="" type="radio"/>	<input type="radio"/> <input type="radio"/> <input checked="" type="radio"/>
Tell and write times using a.m. or p.m.	<input type="radio"/> <input type="radio"/> <input checked="" type="radio"/>	<input type="radio"/> <input type="radio"/> <input checked="" type="radio"/>
Know relationships of time including days in a month and weeks in a year.	<input type="radio"/> <input type="radio"/> <input checked="" type="radio"/>	<input type="radio"/> <input type="radio"/> <input checked="" type="radio"/>

# Attributes of Shapes

✦ Unit Story: Arjun the Artist



YKvisual/Shutterstock.com

During his field trip to the museum, Arjun sees a lot of unique shapes he has never seen before.

How can you describe the shapes he sees?


# Explore: We're Going on a Shape Hunt!

How can we describe and categorize shapes?



## Warm-Up



 eyes on teacher



**We are a math community.**  
How can you communicate your math ideas to others clearly?

**Discuss**  What do you notice? What do you wonder?

## Arjun the Artist



### Unit Story



## Search for shapes in the classroom.

- Find as many different shapes as you can that are not triangles, squares, or rectangles.
- Draw the objects and describe the shapes based on their attributes.

### Ways to be a mathematician

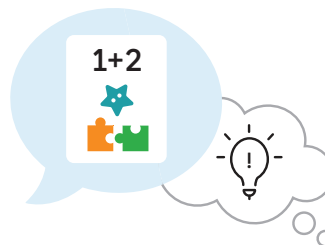
- 1** I can take my time to think about a challenging problem before trying to solve it.

○ ——— ○ ——— ○  
 Not yet Almost I got it!



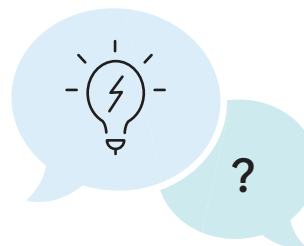
- 2** I can work carefully and try to be clear when I share my ideas.

○ ——— ○ ——— ○  
 Not yet Almost I got it!



- 3** I can explain why my thinking makes sense and ask questions to understand the thinking of others.

○ ——— ○ ——— ○  
 Not yet Almost I got it!



# What Shape Is This?

Let's sort and name shapes based on their sides and corners.



## Warm-Up



eyes on teacher



### I am a doer of math.

Think about the Unit Story. Are there times when you have not felt like a mathematician?

## Activity

### 1

## Introducing the Center, Mystery Shape

Stage 3



**Pairs** Let's find the mystery shape.

**You'll need:** Recording Sheet A or B, Shape Cards, Grade 2



### How to Play

- 1 Player A:** Choose a mystery shape. Do not tell your partner which one!
- 2 Player B:** Ask yes or no questions, and flip cards facedown as you find they are not the mystery shape. Record the number of questions you ask.
- 3 Player B:** When you are ready, you have one guess to identify the mystery shape. Draw the shape you guess on your Recording Sheet. If you are correct, you earn 1 point.
- 4** Switch roles and repeat. Play 4 rounds.

## Mystery Shape (continued)

Round	Number of questions	My guess	Mystery shape	Points
1		. .	. .	
2		. .	. .	
3		. .	. .	
4		. .	. .	

# Penta-What?

## Hands-On

You and your partner will use the Shape Cards from Activity 1.

### 1 Sort

Sort the cards by the number of sides and corners on each shape.

### 2 Discuss

After you sort the shapes with your partner, discuss what you could name each of the categories.

### 3 Sort

Choose 1 category that you made. Sort those shapes into **2** or more categories. Be prepared to share how you sorted the shapes.

## Summary 6.02

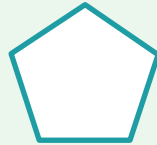
Quadrilaterals, pentagons, and hexagons are closed shapes with straight sides. You can identify and describe each shape with the number of sides and corners.

### quadrilateral



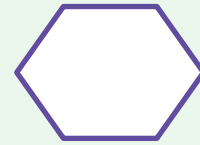
A shape with 4 sides and 4 corners.

### pentagon



A shape with 5 sides and 5 corners.

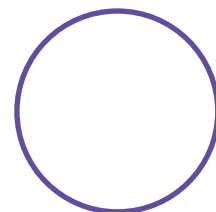
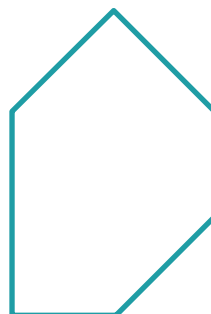
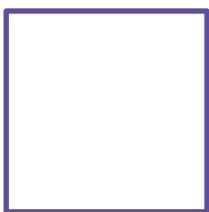
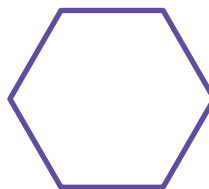
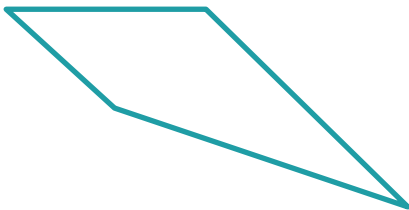
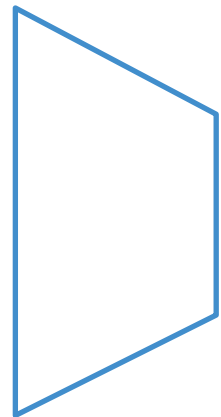
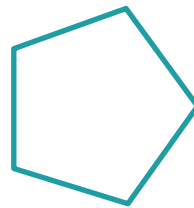
### hexagon



A shape with 6 sides and 6 corners.

## Practice 6.02

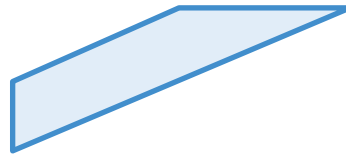
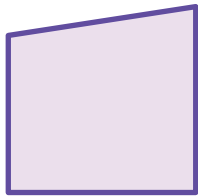
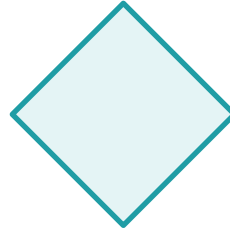
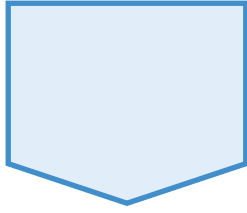
- 1 Find a pentagon and label it A.



## Practice 6.02

Name \_\_\_\_\_ Date \_\_\_\_\_

2 Circle 3 quadrilaterals.



## Spiral Review

For Problems 3–6, write the number that makes the equation true.

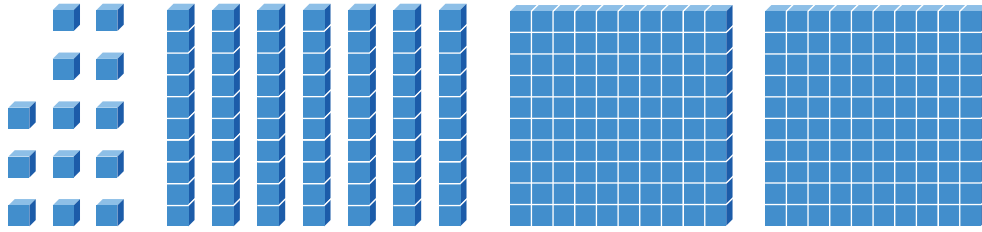
3  $3 + 12 =$  \_\_\_\_\_

4  $17 - 9 =$  \_\_\_\_\_

5  $13 + 5 =$  \_\_\_\_\_

6  $13 - 6 =$  \_\_\_\_\_

For Problems 7–10, use the base-ten block representation to record the amounts of hundreds, tens, and ones.



- 7 How many hundreds are there? \_\_\_\_\_
- 8 How many tens are there? \_\_\_\_\_
- 9 How many ones are there? \_\_\_\_\_
- 10 Write the number in standard form. \_\_\_\_\_

For Problems 11 and 12, find the value of the expression.

**i** Show your thinking.

11  $39 + 25$

12  $98 - 32$

answer: \_\_\_\_\_

answer: \_\_\_\_\_


# Artists Like Arjun

Let's recognize and draw triangles, quadrilaterals, pentagons, and hexagons.



## Warm-Up



 eyes on teacher



### We are a math community.

How can you support a classmate who does not feel like they are a mathematician?

## Activity

### 1

## Introducing the Center, Can You Draw It?

Stage 3



**Pairs**  Let's draw triangles, quadrilaterals, pentagons, and hexagons.

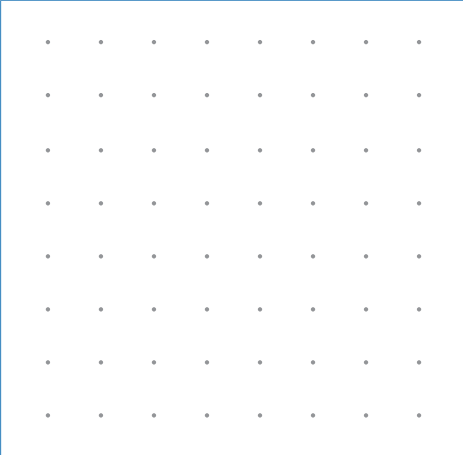
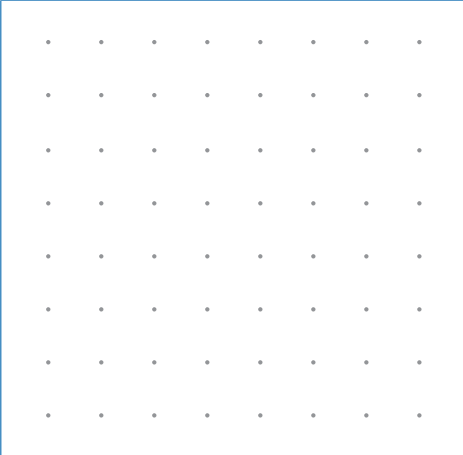




**You'll need:** straightedges, Recording Sheet, Shape Cards, Grade 2



### How to Play

- 1 Player A:** Choose a Shape Card. Do not show it to your partner! Describe the shape so your partner can draw it.
- 2 Player B:** Draw the shape you think is on the card.
- 3** Compare the shapes. If the shapes match, Player A keeps the card. If the shapes do not match, lay the card facedown at the bottom of the pile.
- 4** Take turns. The player who earns more cards after 6 rounds wins.

## Can You Draw It? (continued)

Round	Drawing	Round	Drawing
1		4	
2		5	
3		6	

## 2

## Drawing Shapes

- 1 Complete the shape to make a quadrilateral.  
Then draw a different 4-sided shape.

 Draw



- 2 Complete the shape to make a pentagon.  
Then draw a different 5-sided shape.

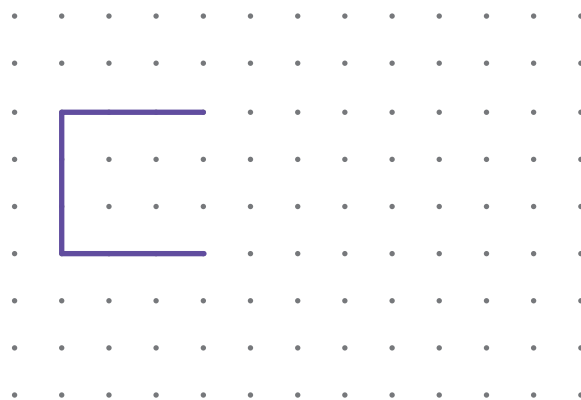
 Draw



**Drawing Shapes (continued)**

- 3 Complete the shape to make a hexagon.  
Then draw a different 6-sided shape.

 Draw

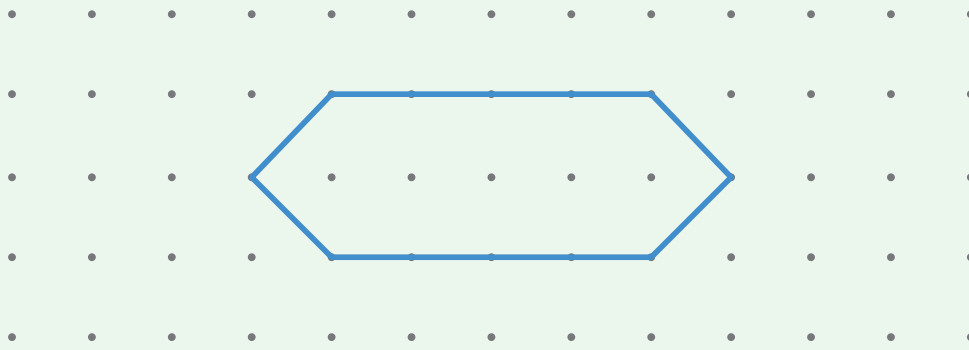


- 4 **Discuss** 

Compare your shapes with your partner's shapes. Discuss 1 way your shapes are the same and 1 way they are different.

## Summary 6.03

You can draw shapes based on their attributes.

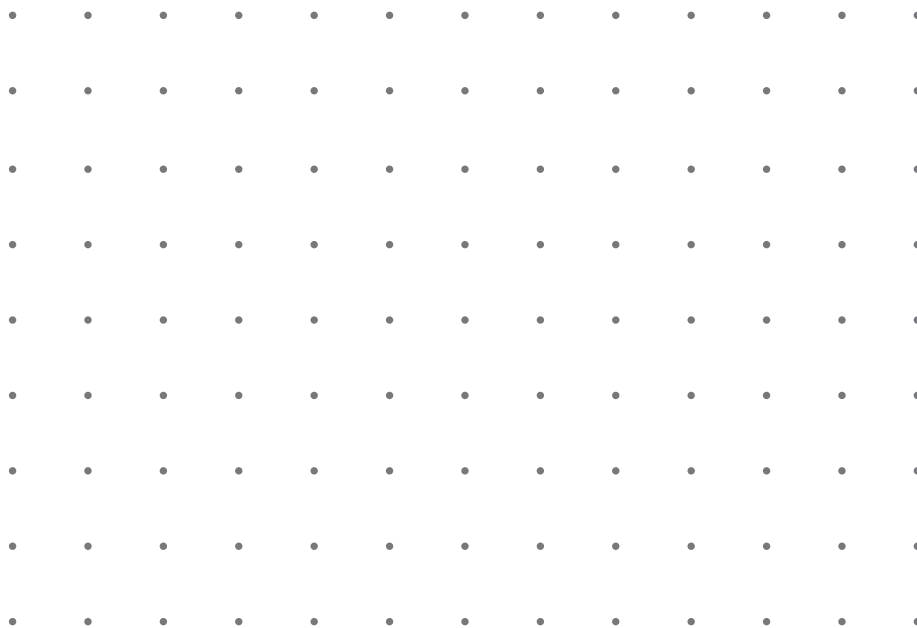


I drew  
a hexagon  
by drawing  
6 sides and  
6 corners.

## Practice 6.03

1 Draw a quadrilateral.

 Draw

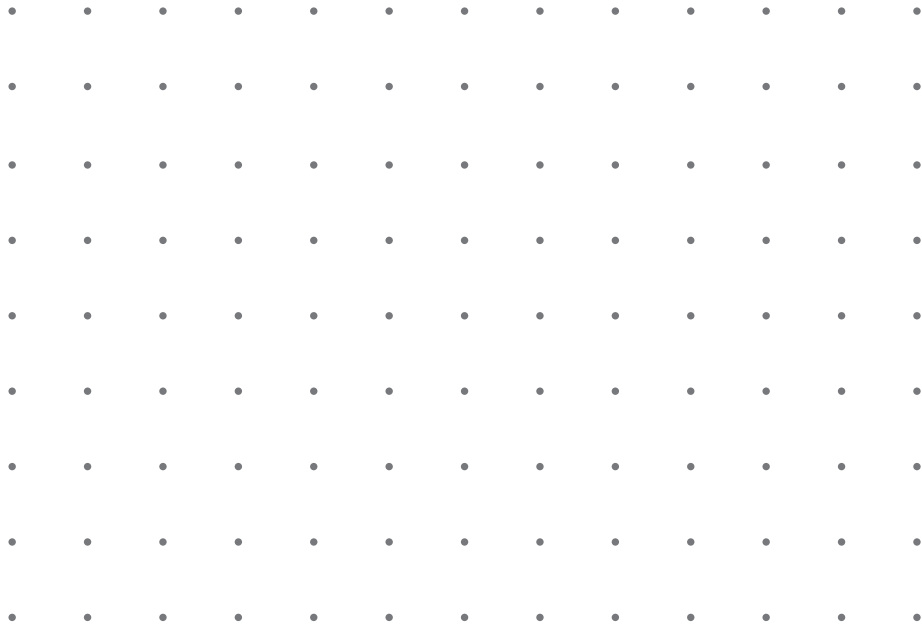


## Practice 6.03

Name \_\_\_\_\_ Date \_\_\_\_\_

2 Draw a pentagon.

 Draw



## Spiral Review

3 Find the value of the expression.  
 $12 + 35 + 15$

 Show your thinking.

answer: \_\_\_\_\_

For Problems 4 and 5, use the digits 2, 5, and 7.

- 4 Write the *greatest* three-digit number you can make with the digits in standard form.

\_\_\_\_\_

- 5 Write the *greatest* three-digit number you can make with the digits in expanded form.

\_\_\_\_\_

For Problems 6 and 7, use the digits 6, 4, and 3.

- 6 Write the *greatest* three-digit number you can make with the digits in standard form.

\_\_\_\_\_

- 7 Write the *greatest* three-digit number you can make with the digits in expanded form.

\_\_\_\_\_

For Problems 8–11, find the number that makes the equation true.

8  $8 + 7 =$  \_\_\_\_\_

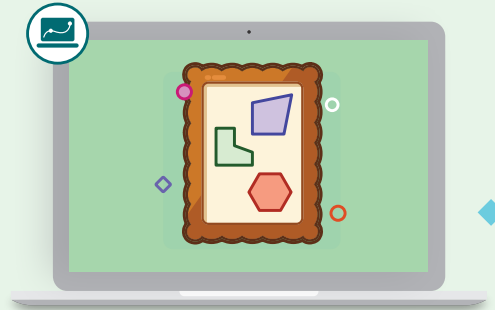
9  $6 + 3 =$  \_\_\_\_\_

10  $7 + 3 =$  \_\_\_\_\_

11  $8 + 4 =$  \_\_\_\_\_


# Frame It!

Let's explore shapes in the same category.



**I am a doer of math.**  
Shapes can be different. What are some ways that you think about math differently?

## Warm-Up

**1**  eyes on teacher

## Activity

# 1 Shapes at the Museum

## Hands-On

You and your partner will be given a set of cards with shapes.

### **2** Sort

Sort the shapes into categories that make sense to you. Explain to your partner how you sorted them.

### **3** Discuss

What categories did the artist sort their shapes into? How do you know?

**1****Shapes at the Museum (continued)**

- 4** Draw a quadrilateral with **2** square corners.

 Draw



- 5** Draw a hexagon with **1** or more square corners.

 Draw



# Frame-Worthy Shapes

**6** Draw **3** or more different quadrilaterals.

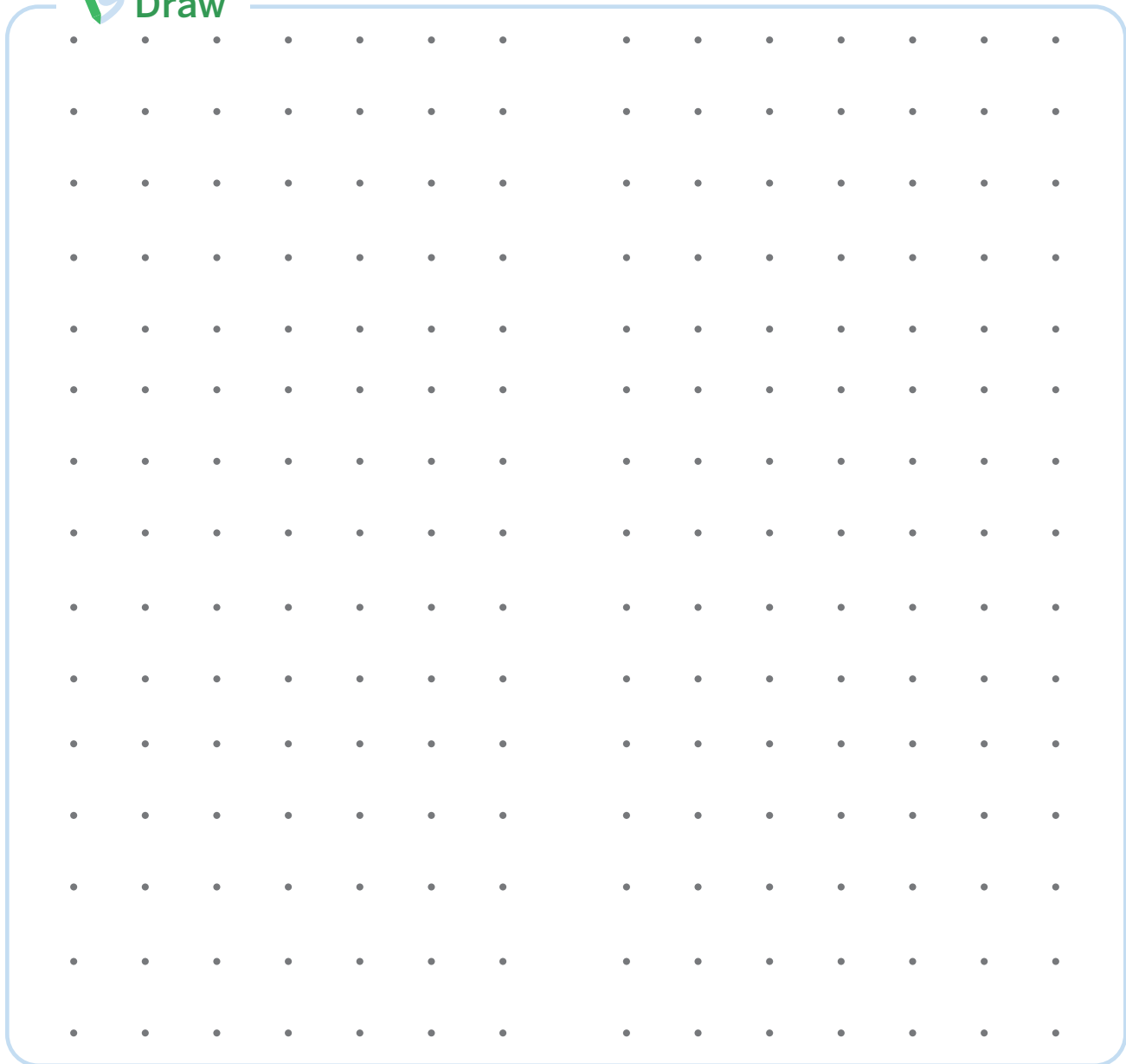


Draw

**Frame-Worthy Shapes (continued)**

**7** Draw **3** or more different pentagons.

 Draw

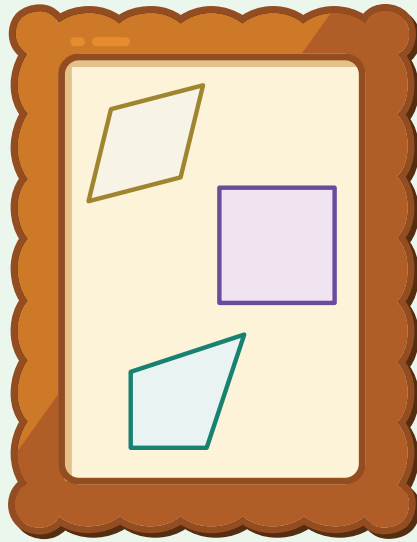


**8** Discuss 

What do you notice about your collection of pentagons?

## Summary 6.04

Shapes can have different side lengths and different types of corners but still belong in the same category.



These are all quadrilaterals because they all have 4 sides and 4 corners.

## Practice 6.04

- 1 Draw 2 different shapes with 5 sides each.

 Draw

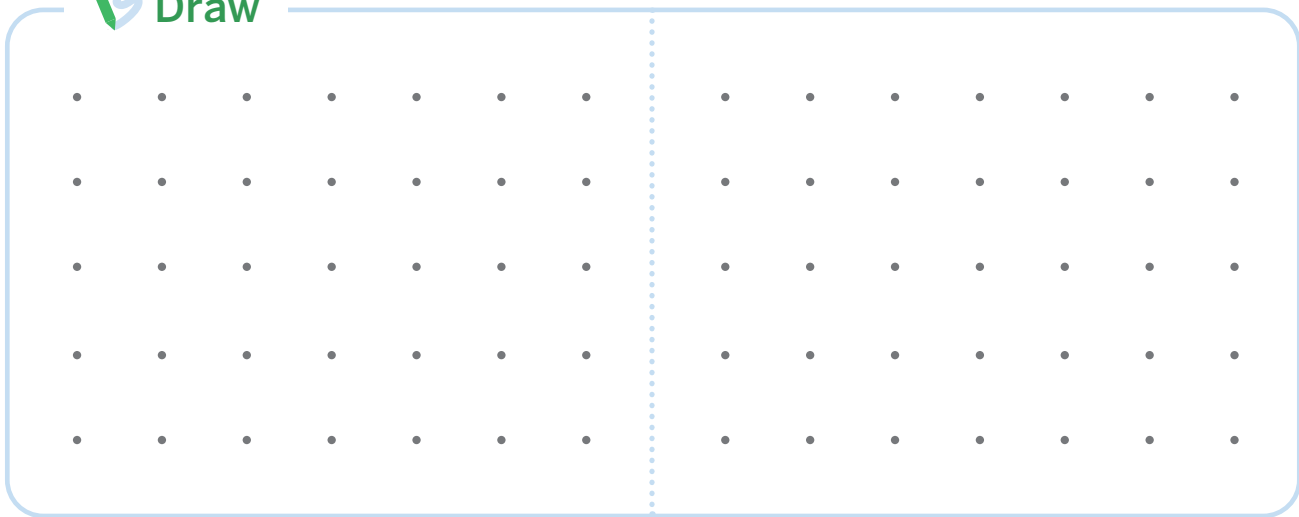
A large rectangular area with a light blue border, divided into two equal halves by a vertical dotted line. Each half contains a 5x7 grid of small black dots for drawing.

**2** What type of shape did you draw in Problem 1?

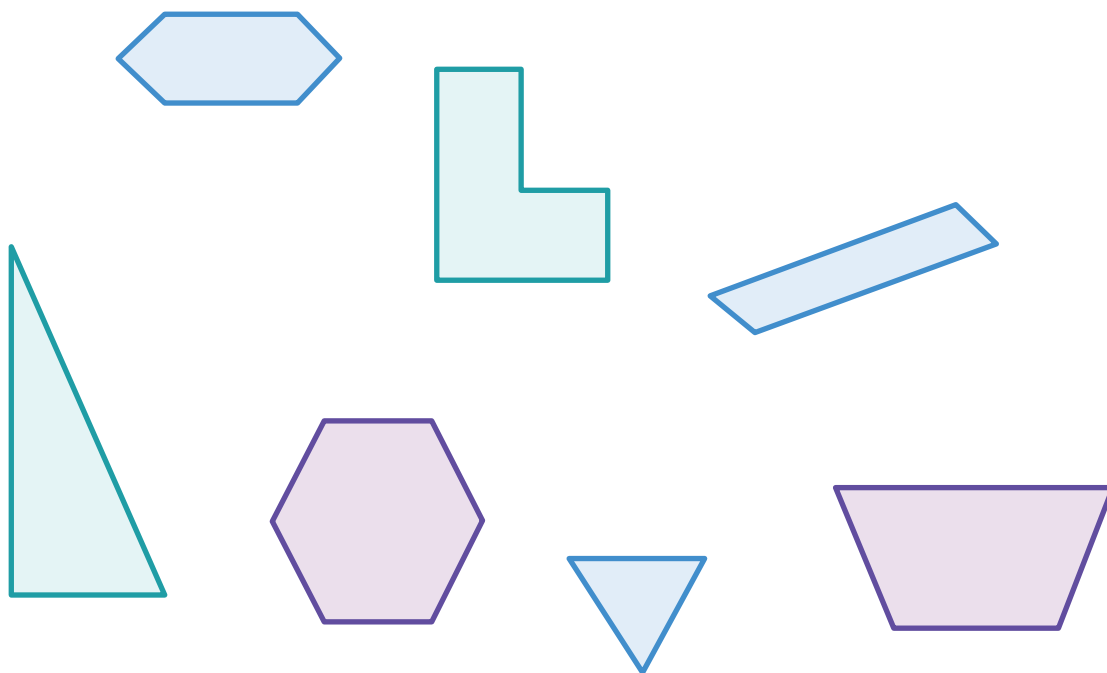
\_\_\_\_\_

**3** Draw **2** shapes that each have **3** or fewer square corners.

 Draw



**4** Circle **4** shapes with **4** or fewer sides.



**Spiral Review**

For Problems 5 and 6, fill in the missing numbers.

**5** Priya counts by 5.

205, \_\_\_\_\_, 215, 220, \_\_\_\_\_, \_\_\_\_\_, 235, \_\_\_\_\_

**6** Clare counts by 100.

150, 250, \_\_\_\_\_, \_\_\_\_\_, 550, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

**7** Write the number 367 in words.

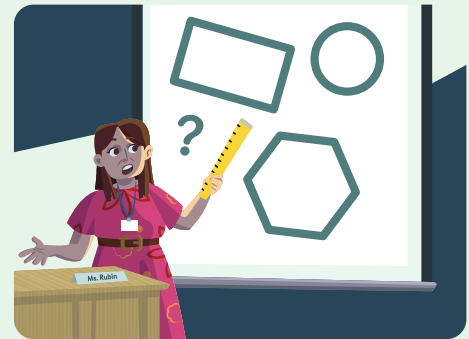
\_\_\_\_\_

**8** Write the number *eight hundred twelve* in standard form.

\_\_\_\_\_

# Measure It, Draw It

Let's find and draw shapes with specific side lengths.



## Warm-Up



eyes on teacher



### I am a doer of math.

Arjun feels very proud when he presents his art. When have you felt proud in math class?

## Activity

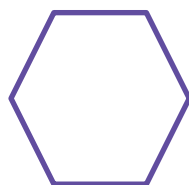
# 1

## Measuring Twice, Drawing Once

### Hands-On

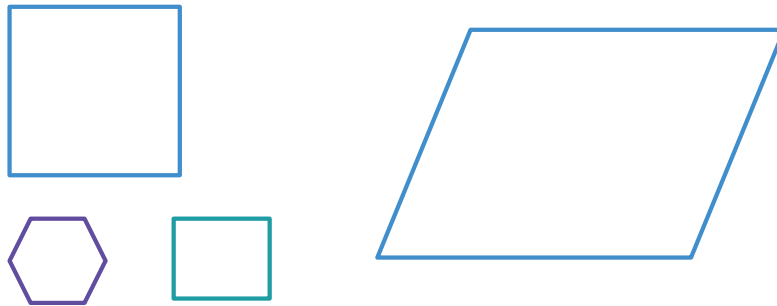
You will be given a ruler.

- Diego drew a shape with fewer than 5 sides. Two sides are 3 centimeters long. Circle **2** shapes that could be Diego's shape.



**1****Measuring Twice, Drawing Once (continued)**

- 2** Shawn drew a shape with 4 sides. Each side is 2 inches long. Circle a shape that could be Shawn's shape.



- 3** Priya drew a shape with more sides than Shawn's shape. Only 1 side of her shape is 2 inches long. Draw **2** shapes that could be Priya's shape.

 Draw

A large, empty rectangular box with rounded corners and a light blue border, intended for drawing two shapes.

# Choosing Your Own Attributes

## Hands-On

You and your partner will be given a ruler and a sheet with attributes.

- 4 Draw your shape based on the attributes you chose from Table 1.

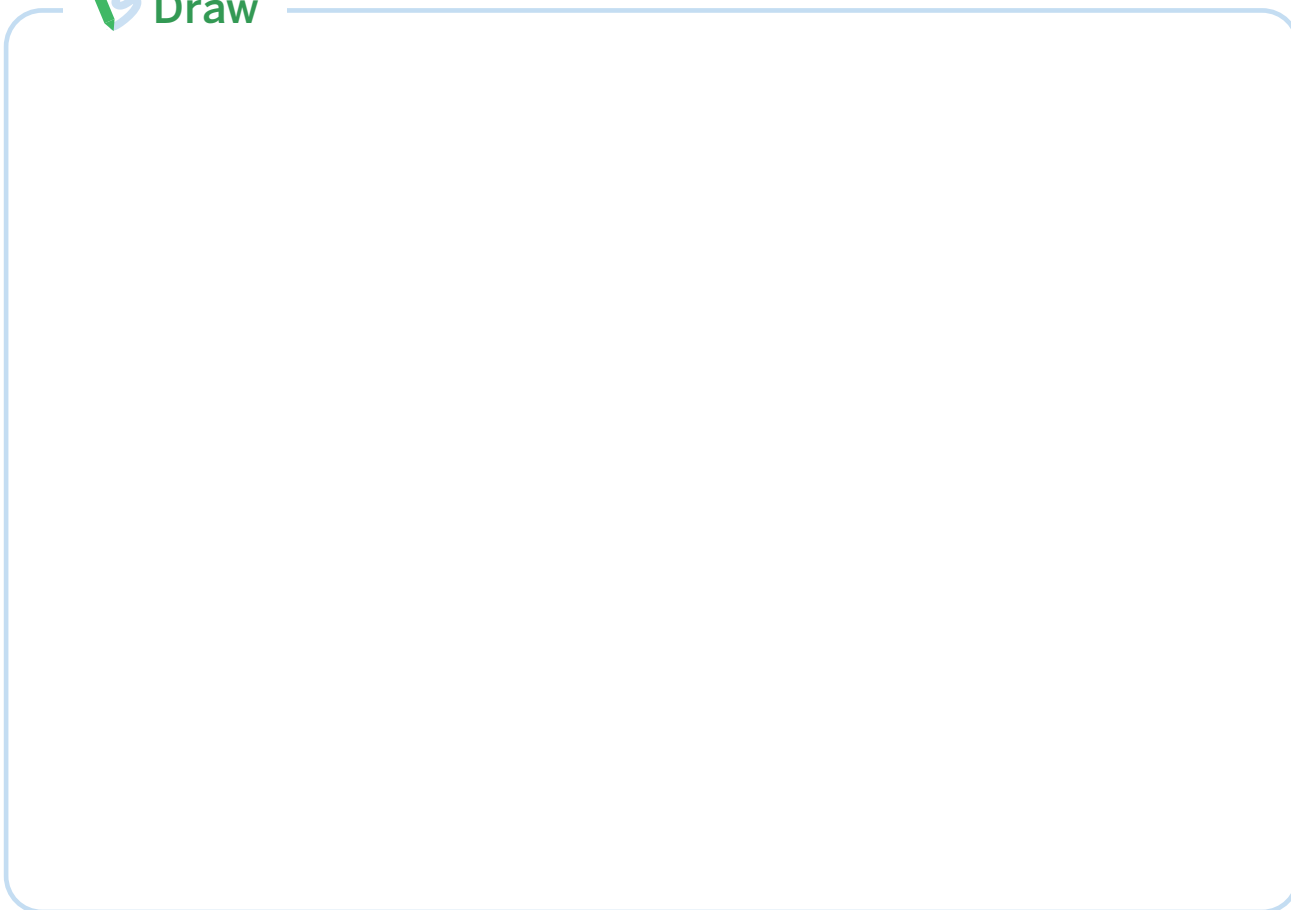
 Draw

What shape did you draw? \_\_\_\_\_

**Choosing Your Own Attributes (continued)**

- 5 Draw your shape based on the attributes you chose from Table 2.

 Draw



What shape did you draw? \_\_\_\_\_

- 6 **Discuss** 

Take turns showing each other the shapes you drew. Try to guess which attributes your partner used to draw each of their shapes.

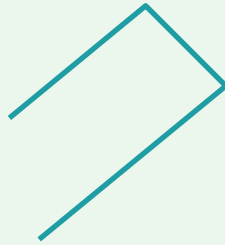
## Summary 6.05

You can measure side lengths to find shapes with specific attributes.



Both shapes have 4 sides. Two sides are 2 centimeters long.

There are some attributes that *cannot* be combined to make a shape.

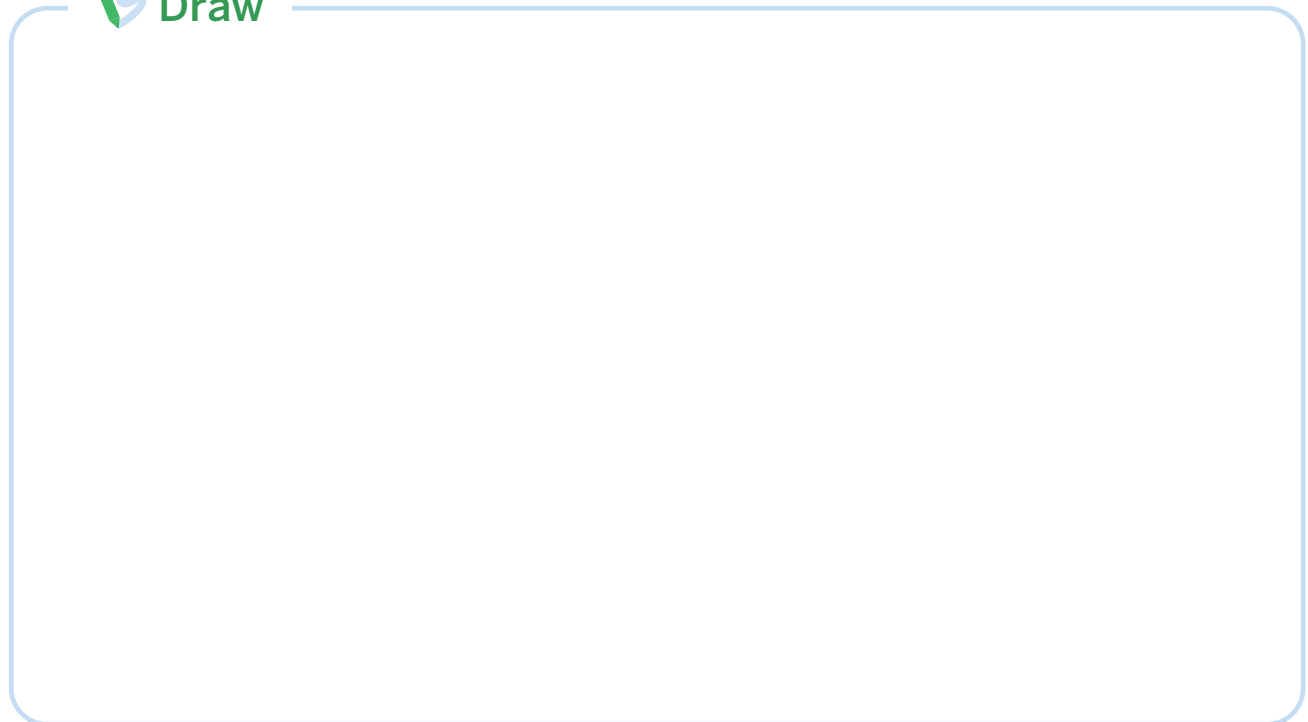


You cannot make a shape with 3 sides and 4 corners.

## Practice 6.05

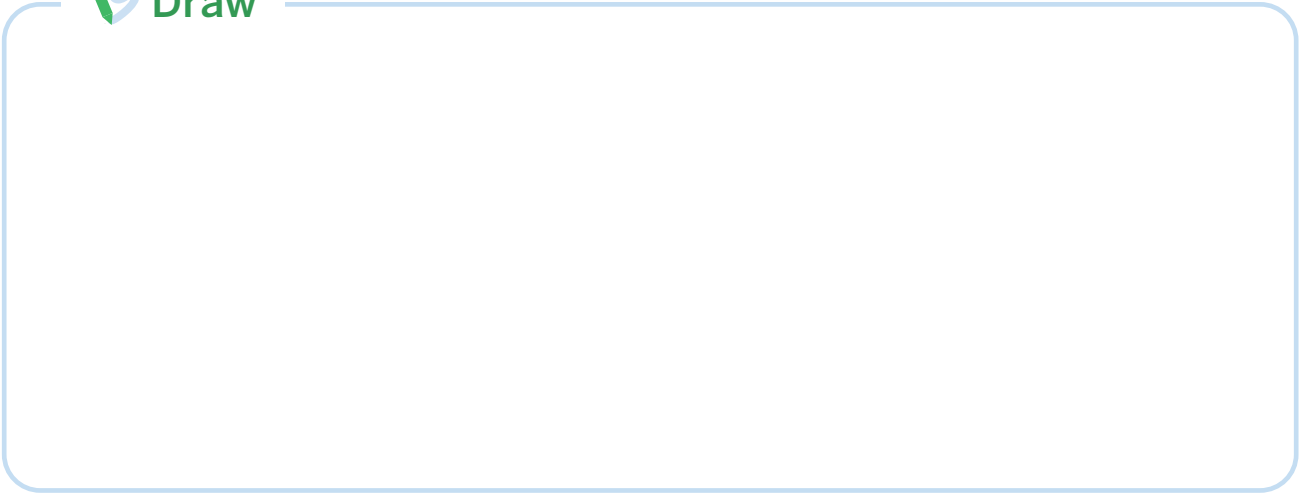
- 1 Draw a quadrilateral with exactly 3 sides that are each 2 inches long.

 Draw



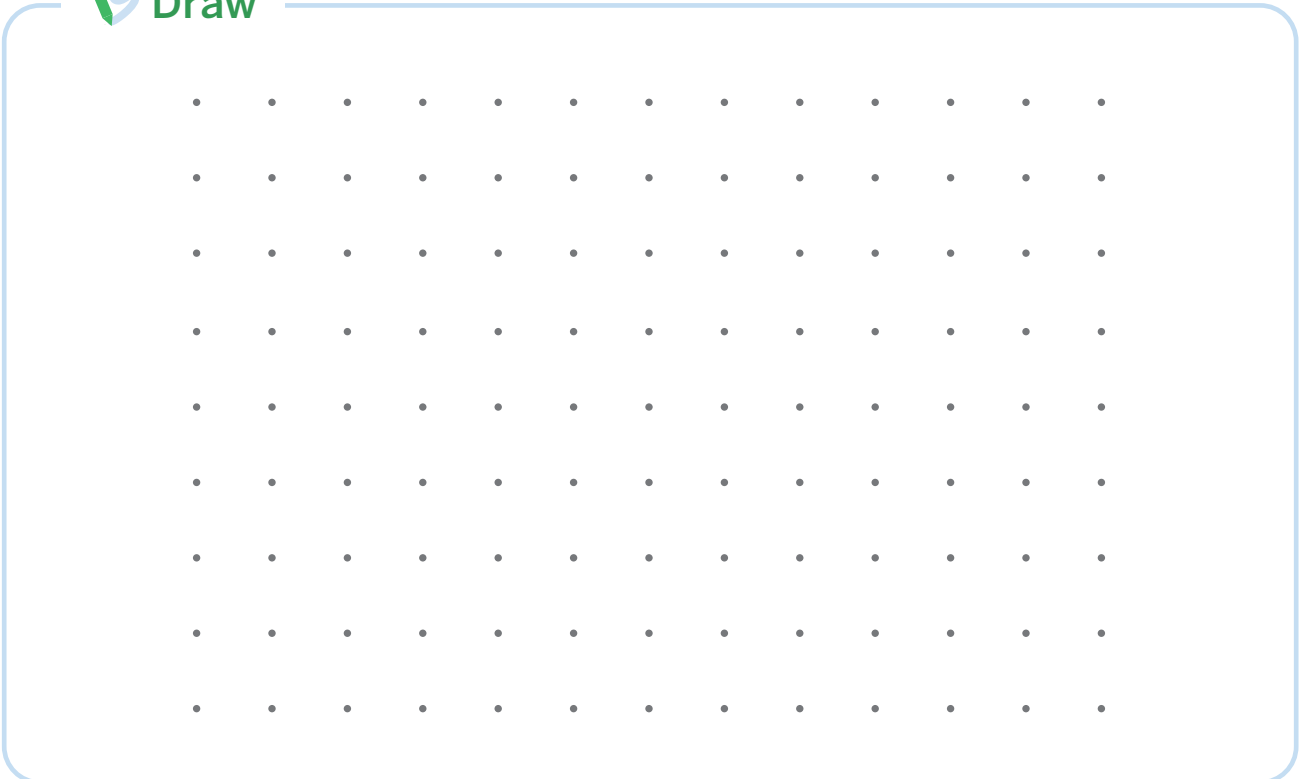
- 2** Draw a hexagon with 2 square corners and exactly 1 side that is 3 inches long.

 **Draw**



- 3** Diego is building a robot. He needs 1 more shape to complete his robot. This shape needs to have 5 sides with 3 square corners and 1 side that is 7 centimeters long. Draw a shape Diego could use.

 **Draw**



## Spiral Review

For Problems 4–7, find the value of the expression.

 Show your thinking.

4  $22 + 56$

answer: \_\_\_\_\_

5  $67 - 40$

answer: \_\_\_\_\_

6  $45 + 25$

answer: \_\_\_\_\_

7  $88 - 19$

answer: \_\_\_\_\_

For Problems 8–11, find the value of the expression.

8  $9 + 7$  \_\_\_\_\_

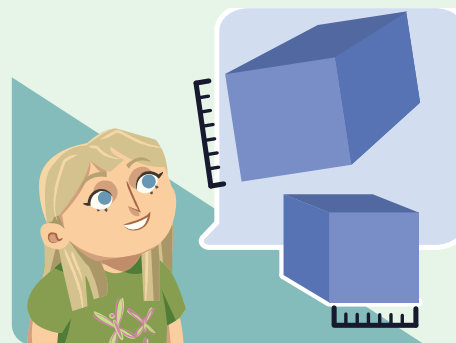
9  $6 + 8$  \_\_\_\_\_

10  $17 - 13$  \_\_\_\_\_

11  $11 - 4$  \_\_\_\_\_

# More to Measure

Let's measure solid shapes.



**I am a doer of math.**  
Artists often make mistakes creating a new work of art. How are mathematicians like artists?

## Warm-Up



eyes on teacher

## Activity

### 1

# Measuring Three-Dimensional Shapes

You and your partner will be given cubes or rectangular prisms and a ruler.

1 Describe the solid shape.

---

---

---

2 Use a ruler to measure the solid shape. Describe how you measured it.

---

---

# A Three-Dimensional Trade

## Hands-On

You and your partner will be given cubes or rectangular prisms and a ruler.

**3** What shape are you measuring?

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**4** Use a ruler to measure the edges of your new solid shape. Record your measurements by writing them or drawing and labeling your shape.

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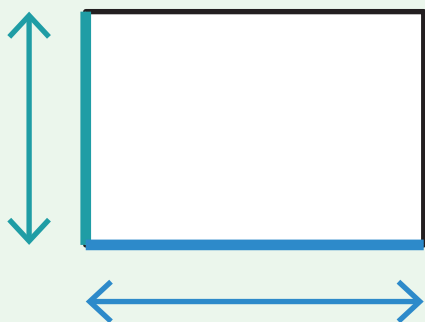
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 Draw

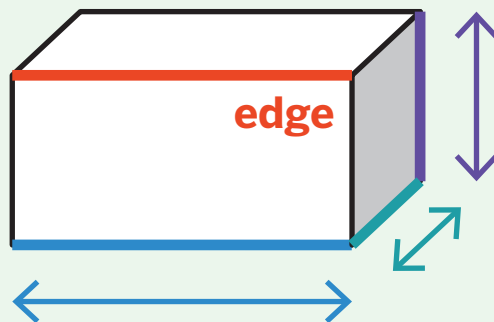
## Summary 6.06

Flat shapes are **two-dimensional** and solid shapes are **three-dimensional**. An **edge** is the line where two faces of a solid shape meet.

**two-dimensional shape (flat)**



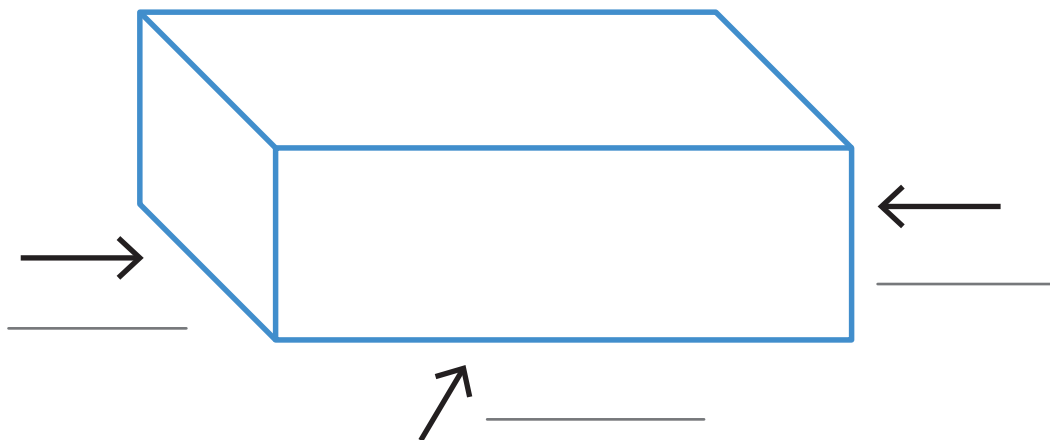
**three-dimensional shape (solid)**



**edge** A line segment representing where two faces meet on a three-dimensional shape.

## Practice 6.06

- 1 Use a ruler to measure the edges on the rectangular prism in inches. Label each edge with its measurement.



## Practice 6.06

Name \_\_\_\_\_ Date \_\_\_\_\_

- 2 Find a three-dimensional object around you that is a cube or a rectangular prism. Use a ruler to measure each edge in inches. Draw the object and label each edge with its measurement.

 Draw

object name: \_\_\_\_\_

## Spiral Review

- 3 Priya is using a calendar to find how many more days of school before summer break. There are 16 school days in April, 21 school days in May, and 19 school days in June. How many days of school does Priya have left?

 Show your thinking.

answer: \_\_\_\_\_

**Practice 6.06**

Name \_\_\_\_\_ Date \_\_\_\_\_

**For Problems 4–7, find the value of the expression.**

**4**  $13 - 6$  \_\_\_\_\_

**5**  $4 + 5$  \_\_\_\_\_

**6**  $17 - 2$  \_\_\_\_\_

**7**  $5 + 6$  \_\_\_\_\_

**For Problems 8 and 9, circle the number that makes the equation true.**

**8**  $73 +$  \_\_\_\_\_  $= 100$

37

27

17

28

**9**  $22 +$  \_\_\_\_\_  $= 62$

20

50

30

40

# Exploring a New Dimension

Let's describe and identify three-dimensional shapes.



## Warm-Up



eyes on teacher



### I am doer of math.

Arjun stopped comparing himself to other artists. How will that help him as an artist?

## Activity

### 1

## Introducing the Center, Mystery Shape

Stage 4



**Pairs** Let's find the mystery shape.

**You'll need:** 12 unique solid shapes, Recording Sheet



**Set Up** Arrange 12 different solid shapes on the table.



### How to Play

1

**Player A:** Choose a mystery shape. Do not tell your partner which one!

2

**Player B:** Ask yes or no questions, and remove shapes as you find they are not the mystery shape. Record the number of questions you ask.

3

**Player B:** When you are ready, you have one guess to identify the mystery shape. Draw or write the shape you guess on your Recording Sheet. If you are correct, you earn 1 point.

4

Switch roles and repeat Play 4 rounds.



**How to Win** The player who earns more points wins.

## Mystery Shape (continued)

Round	Number of questions	My guess (Draw or write the name.)	Mystery shape (Draw or write the name.)	Points
1				
2				
3				
4				

## 2

# All About Solid Shapes

## Hands-On

Arjun wants to build a sculpture using three-dimensional shapes, but he needs to learn more about the shapes' attributes.

- 1 Choose **1** three-dimensional shape. Make a poster to describe it using the information you know. Use words, numbers, and drawings that could help Arjun.

Use the space on the next page to make a plan for your poster.



# All About Solid Shapes (continued)



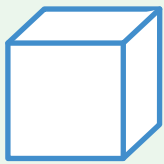
Draw

A large, empty rectangular box with rounded corners and a light blue border, intended for drawing.

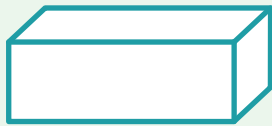
## Summary 6.07

You can describe three-dimensional shapes with their faces, edges, and corners.

Some three-dimensional shapes have flat faces, edges, and corners.

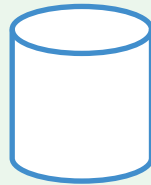


cube



prism

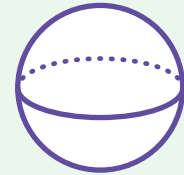
Some three-dimensional shapes have curved surfaces with few to no edges or corners.



cylinder



cone



sphere

## Practice 6.07

- 1 Choose a three-dimensional shape you have learned about and describe it. Use words from the word bank if they are helpful.

face

edge

corner

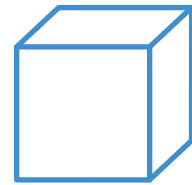
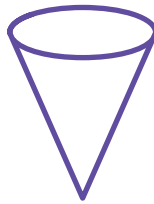
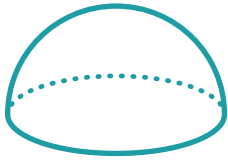
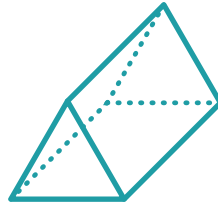
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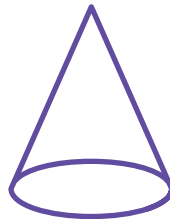
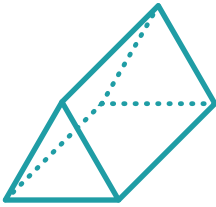
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- 2** Clare drew a three-dimensional shape with *at least 1* square face. Circle **2** shapes that could be Clare's shape.



- 3** Clare drew a three-dimensional shape with no corners. Circle **3** shapes that could be Clare's shape.



**Spiral Review**

- 4** How many tens would you need to build 500 if you were only using tens?

\_\_\_\_\_

## Practice 6.07

Name \_\_\_\_\_ Date \_\_\_\_\_

5 How many hundreds and tens could you use to build 500?

**hundreds:** \_\_\_\_\_

**tens:** \_\_\_\_\_

6 How many tens would you need to build 900 if you were only using tens?

\_\_\_\_\_

For Problems 7 and 8, draw base-ten blocks to represent 700 in 2 different ways. Use only hundreds and tens.

 Draw

7

8

# Halves, Thirds, and Fourths

✦ Unit Story: Arjun the Artist



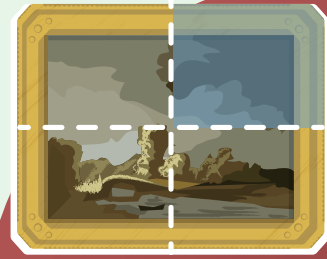
hxdbzxy/Shutterstock.com

As students sat down to eat their lunch, they began to trade snacks and split their sandwiches.

How could they share their sandwiches equally?


## Let's Share!

Let's cut rectangles into equal parts and then compare.



### Warm-Up



 eyes on teacher



#### I am a doer of math.

What helps you feel confident when learning something new in math class?

### Activity

## 1

## Creating Equal Parts

You and your partner will be given 3 rectangles. For each problem, fold them into equal parts and then cut them out.

Compare with your partner. Tell how you know the parts are equal.

**1** Fold the first rectangle into **2** equal parts and cut them out.

Each part is called \_\_\_\_\_.

**2** Fold the next rectangle into **4** equal parts and cut them out.

Each part is called \_\_\_\_\_.

**3** Fold the last rectangle into **3** equal parts and cut them out.

Each part is called \_\_\_\_\_.

# Comparing Equal Parts

Use the equal parts you cut out in Activity 1.

- 4 Put the equal parts in order from *largest* to *smallest*. Use the name of each part to make your list.

\_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_  
 largest  smallest

Complete each sentence using **1** phrase from the word bank. Some phrases may be used more than once and some phrases may not be used.

larger than

smaller than

the same size as

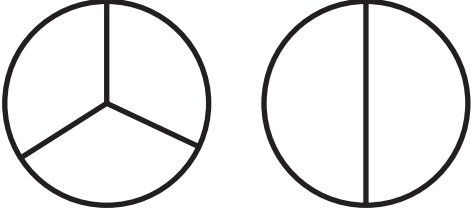
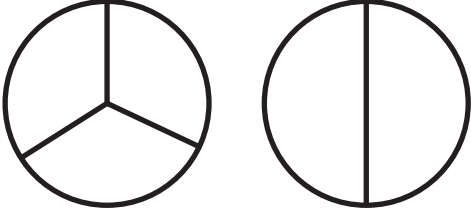
- 5 A fourth is \_\_\_\_\_ a half.

- 6 A third is \_\_\_\_\_ a quarter.

- 7 A half is \_\_\_\_\_ a third.

## Comparing Equal Parts (continued)

Clare and Han are comparing halves and thirds.

Clare says...	Han says...
<p>A third is larger than a half.</p>  <p>3 parts is more than 2 parts.</p>	<p>A third is smaller than a half.</p>  <p>The parts in the first circle are smaller than the parts in the second circle.</p>

8 Do you agree with Han or Clare? Explain your thinking.

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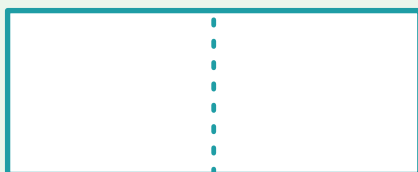


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## Summary 6.08

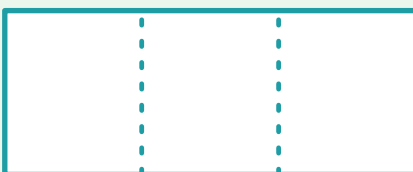
You can split shapes into equal parts and name the parts. Halves, **thirds**, and fourths are different sizes.

2 equal parts



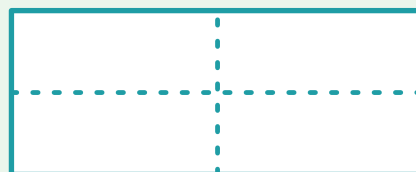
halves

3 equal parts



thirds

4 equal parts



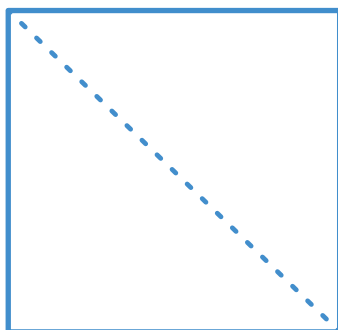
fourths or  
quarters

**a third/thirds** Each part of a shape that is partitioned into 3 equal parts (plural: **thirds**)

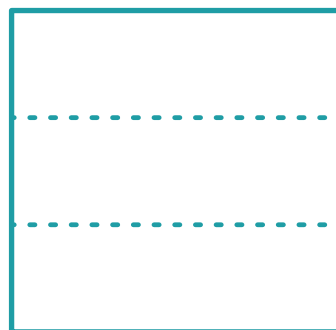
## Practice 6.08

For Problems 1 and 2, name the equal parts of the shape.

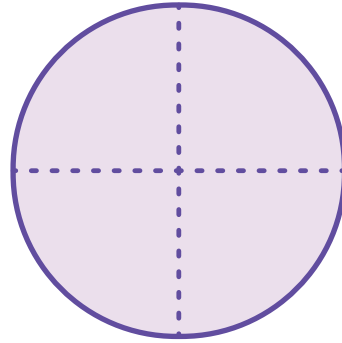
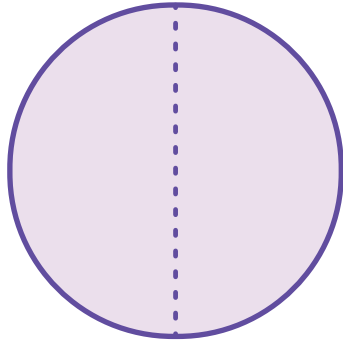
1



2



- 3** Circle the shape that is split into smaller equal parts.  
Explain your thinking.



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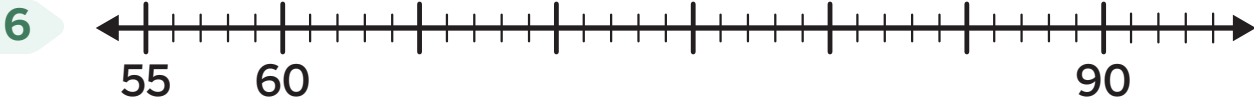
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**Spiral Review**

- 4** Circle the equation that could help you find the value of  $15 - 3$ .  
 $6 - 3 = 3$        $5 - 3 = 2$        $9 + 4 = 5$        $5 + 3 = 8$
- 5** Circle the equation that could help you find the value of  $20 - 6$ .  
 $10 - 6 = 4$        $10 + 6 = 16$        $9 - 6 = 3$        $6 + 6 = 12$

For Problems 6 and 7, fill in the missing numbers on the number line.



**8** Diego is collecting data about the birds living near his house. He saw 27 bluebirds and 36 sparrows. How many *more* sparrows did Diego see than bluebirds?

**i Show your thinking.**

answer: \_\_\_\_\_ equation: \_\_\_\_\_

# Plenty to Go Around

Let's draw to split circles into equal parts.



## Warm-Up



eyes on teacher



### I am a doer of math.

When was the last time you had to split something equally? How many parts did you make and why?

## Activity

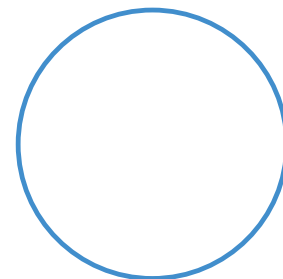
# 1

## Drawing Equal Parts

Help Arjun draw lines to split each plate into the given number of equal parts. Then fill in each sentence with the name of the equal parts.

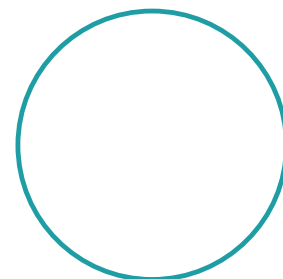
1 2 equal parts

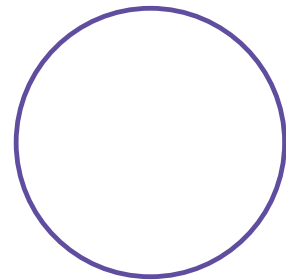
These parts are called \_\_\_\_\_.



2 3 equal parts

These parts are called \_\_\_\_\_.



**1****Drawing Equal Parts (continued)****3** 4 equal parts

These parts are called \_\_\_\_\_.

**4** **Discuss** 

Compare your drawings to your partner's drawings.

**5** What is similar about how you drew the lines to split each circle into equal parts?

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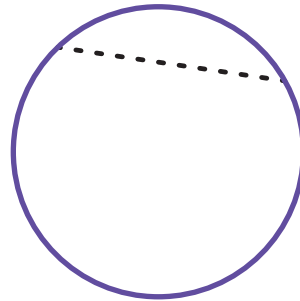
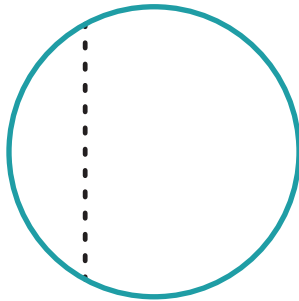
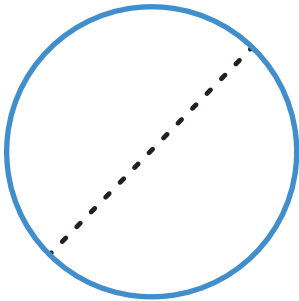
## 2

## Identifying Equal Parts

To help Arjun, Arjun's Nani started looking for examples of circles that have been split into halves, thirds, or fourths. Help her decide which circles she should show Arjun.

Draw an X on 2 circles in each row that are *not* examples. Explain your thinking.

6 halves



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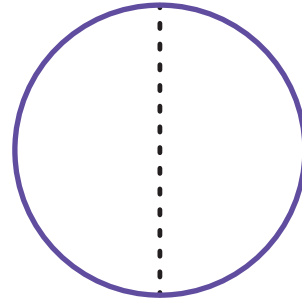
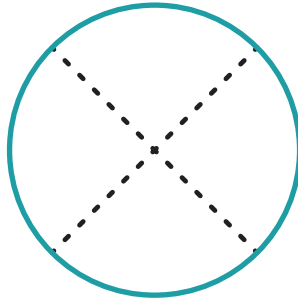
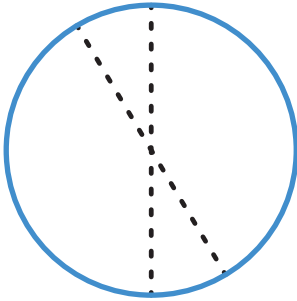
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# Identifying Equal Parts (continued)

7

quarters



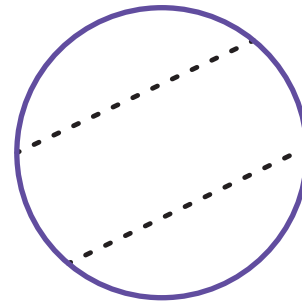
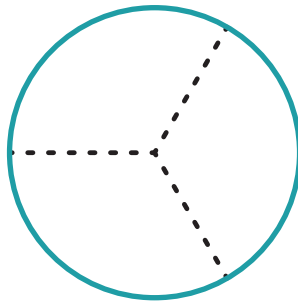
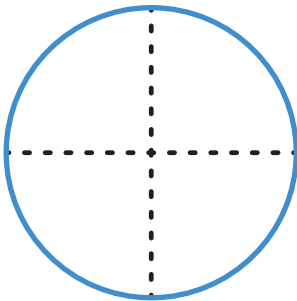
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8

thirds



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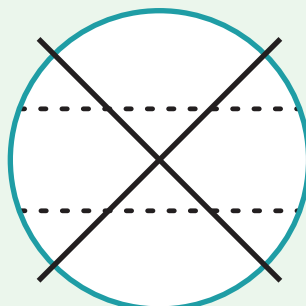
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## Summary 6.09

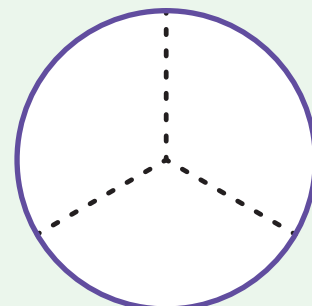
Different shapes can be split into equal parts in different ways. The way you draw to split a shape into equal parts depends on the shape.



thirds



not thirds

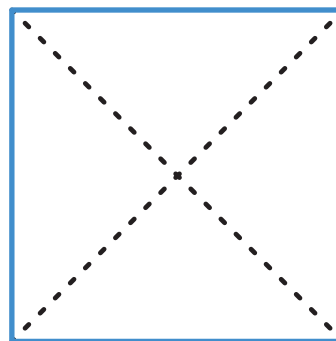


thirds

## Practice 6.09

Shawn said each part of the square is a fourth. Use the square for Problems 1 and 2.

- 1 Do you agree with Shawn? Explain your thinking.



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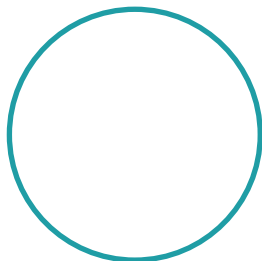
- 2 What is another name for each part of the square?

---

## Practice 6.09

Name \_\_\_\_\_ Date \_\_\_\_\_

- 3** Split each shape into **2** equal parts. Then write the name of the parts.



These parts are called \_\_\_\_\_.

## Spiral Review

For Problems 4 and 5, find the value of the expression.

 Show your thinking.

**4**  $34 + 46$

answer: \_\_\_\_\_

**5**  $97 - 43$

answer: \_\_\_\_\_

For Problems 6 and 7, find the value of the expression.

 Show your thinking.

6  $15 + 59$

answer: \_\_\_\_\_

7  $62 - 47$

answer: \_\_\_\_\_

For Problems 8–10, use the three-digit number shown on the number cards.

4

8

9

8 Write the number in expanded form. \_\_\_\_\_

9 Write the number in words. \_\_\_\_\_

10 Draw base-ten blocks to represent the number.

 Draw

# Arjun's Equal-Part Art!

Let's make halves, thirds, and fourths in different ways.



## Warm-Up

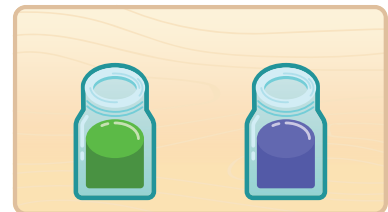
**1** eyes on teacher

**I am a doer of math.**  
When is a time when you had to share something and it was not split equally?

## Activity **1**

# We Don't Waste Paint Around These Parts

**2** Arjun wants to use an equal amount of green and blue paint on each canvas.



Circle **2** canvases Arjun should use.

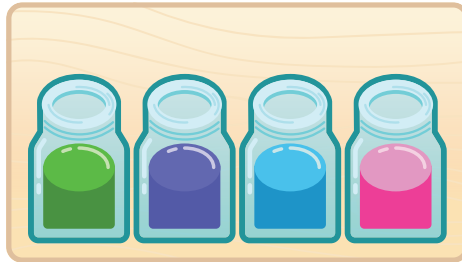


## Discuss

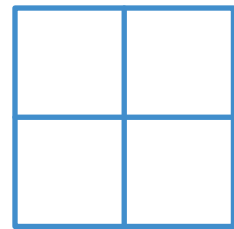
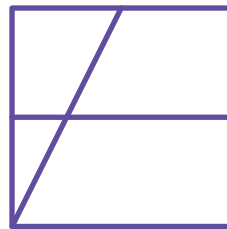
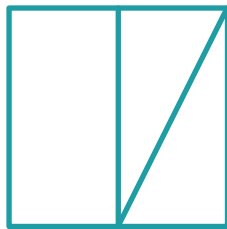
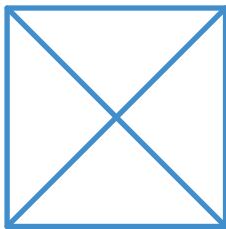
What do you notice about the parts on the canvases?

**1****We Don't Waste Paint  
Around These Parts (continued)****3**

Arjun wants to use an equal amount of each paint color on each canvas.



Circle **2** canvases Arjun should use.

**4****Discuss** 

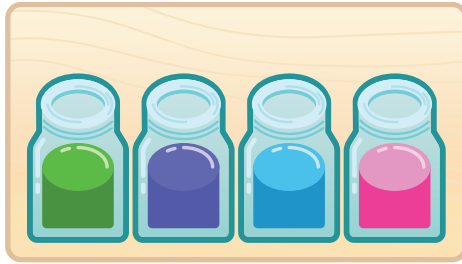
What do you notice about the canvases that used equal amounts of each color of paint? What is similar about the equal parts? What is different?

# Getting the Parts Right!

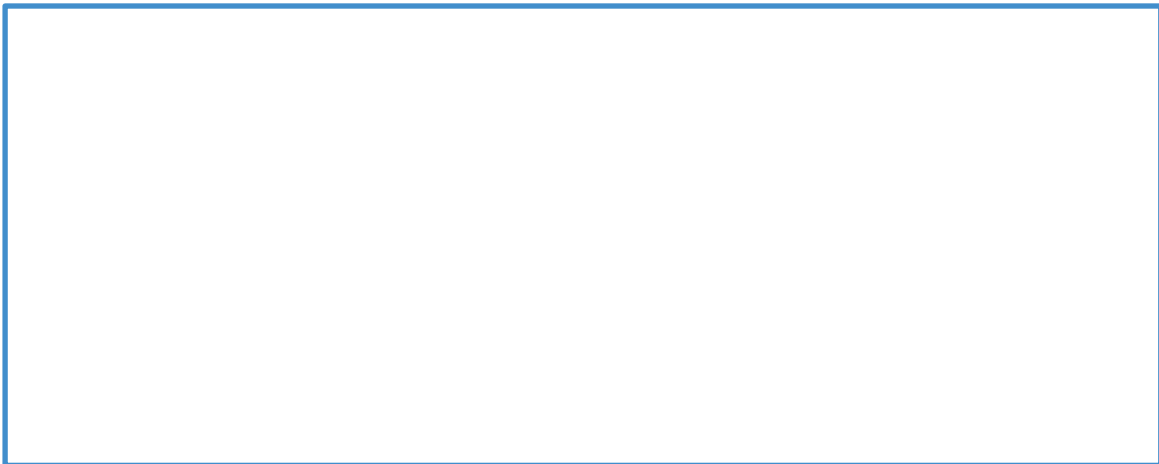
## Hands-On

You will be given 3 rectangles.

You will help Arjun make more equal-part art. Split the rectangle canvases into fourths to use an equal amount of each paint color. Use the rectangles you were given to plan how you will split the rectangles if it is helpful.

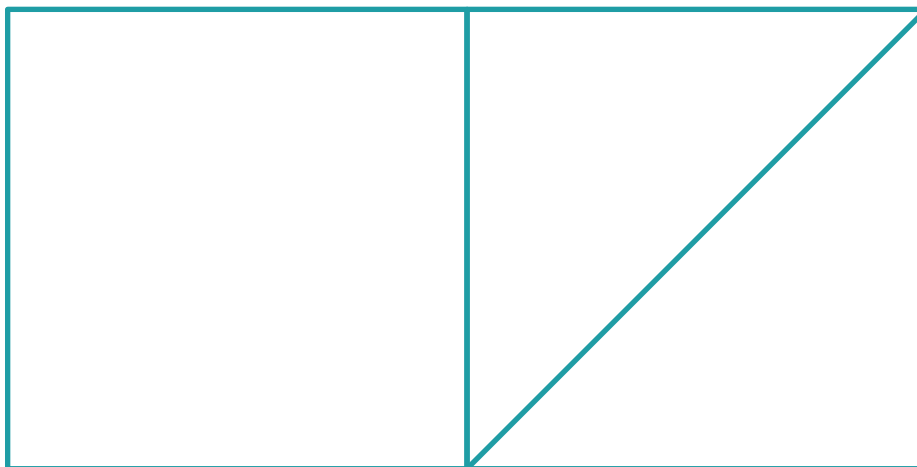


**5** Split the rectangle canvas into fourths.



**Getting the Parts Right! (continued)**

- 6** Help Arjun finish splitting the rectangle canvas into fourths.



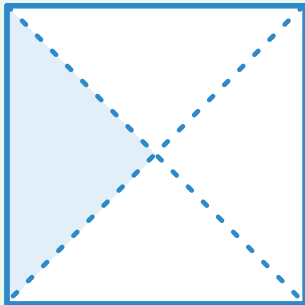
- 7** Split the rectangle canvas into fourths in a way you think no one else has!



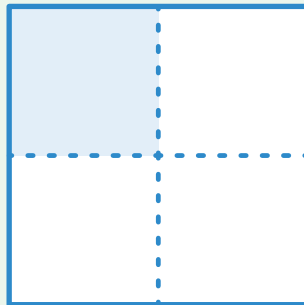
## Summary 6.10

Equal parts of same-sized shapes can look different but still be the same size and have the same name.

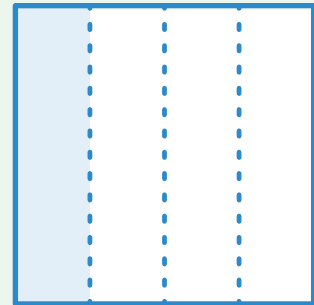
fourth



fourth

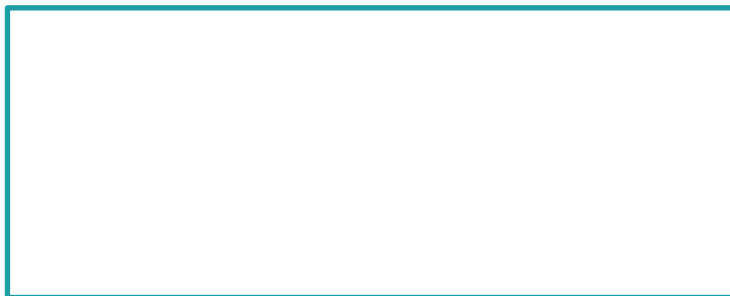


fourth

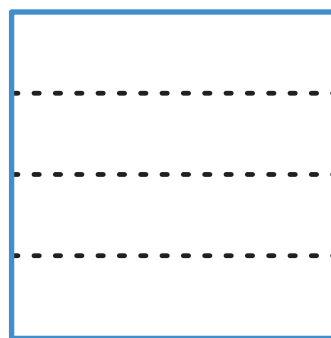
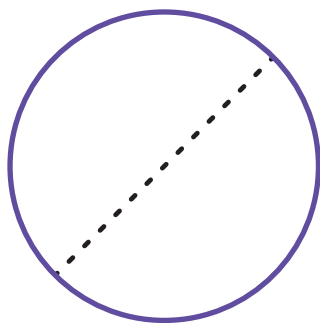
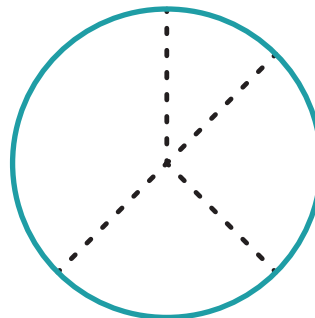
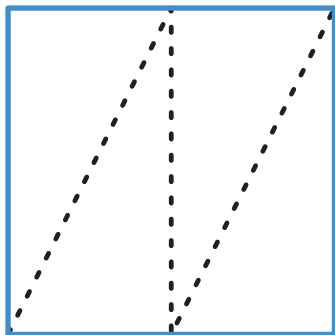


## Practice 6.10

- 1 Show 2 different ways to split the rectangles into thirds.



**2** Circle **2** shapes that are split into fourths.



**Spiral Review**

For Problems 3–8, write the number that makes the equation true.

**3**  $7 + 12 =$  \_\_\_\_\_

**4**  $17 - 9 =$  \_\_\_\_\_

**5**  $14 + 6 =$  \_\_\_\_\_

**6**  $16 - 7 =$  \_\_\_\_\_

**7**  $13 + 3 =$  \_\_\_\_\_

**8**  $11 - 5 =$  \_\_\_\_\_

## Practice 6.10

Name \_\_\_\_\_ Date \_\_\_\_\_

Priya counted the total number of countries in the world for her geography project. She discovered that there are 195 countries.

For Problems 9 and 10, represent Priya's three-digit number with 2 different base-ten drawings.

 Draw

9

10

# Sharing the Whole Thing

Let's make sense of parts and wholes.



## Warm-Up



eyes on teacher



### I am a doer of math.

Arjun perseveres even when he doubts himself. How can you persevere in math class?

## Activity

### 1

## Sharing Pupusas

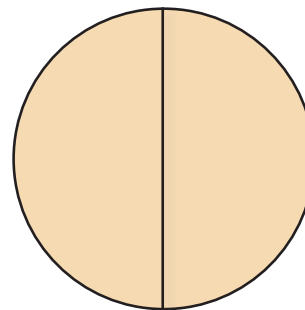
Jada and Han decided to share a pupusa. The image shows how they cut the pupusa. Fill in each sentence.

Group

Pupusa parts

Jada

Han



1 Each child will eat \_\_\_\_\_ of the pupusa.

2 Together, they will eat \_\_\_\_\_.

## Sharing Pupusas (continued)

Priya, Shawn, and Diego decided to share a pupusa. The image shows how they cut the pupusa. Fill in each sentence.

Group

Pupusa parts

Priya

Shawn

Diego



3 Priya will eat \_\_\_\_\_ of the pupusa.

4 Together, they will eat \_\_\_\_\_.

Han, Diego, Jada, and Clare decided to share a pupusa. The image shows how they cut the pupusa. Fill in each sentence.

Group

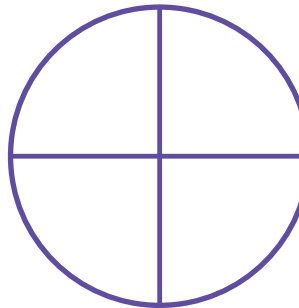
Pupusa parts

Han

Diego

Jada

Clare



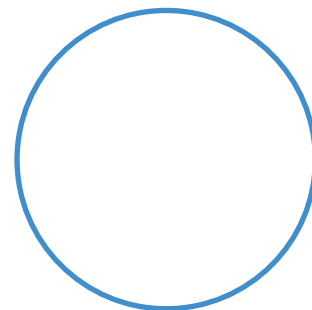
5 Each child will eat \_\_\_\_\_ of the pupusa.

6 Together, they will eat \_\_\_\_\_.

## 2

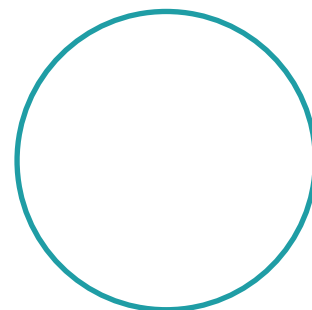
## Equal Shares of Pupusas

- 7 Split the circle into **4** equal parts.  
Shade a quarter of the circle red.  
Shade the rest of the circle blue.



How much of the circle is shaded? \_\_\_\_\_

- 8 Split the circle into **2** equal parts.  
Shade one half of the circle blue.  
Shade the other part yellow.



How much of the circle is yellow? \_\_\_\_\_

How much of the circle is shaded? \_\_\_\_\_

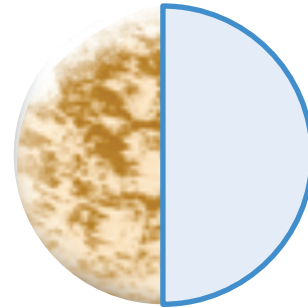
## Equal Shares of Pupusas (continued)

Draw lines to match each story with the image that represents it.

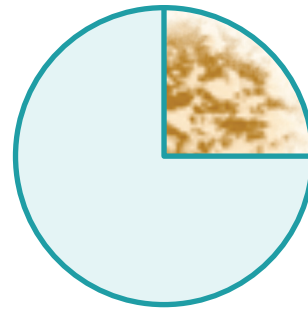
## Story

## Image

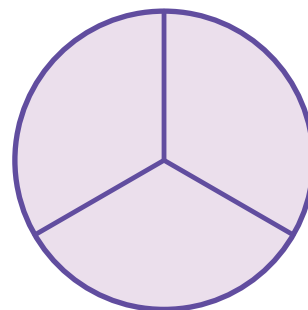
- 9 Diego ate most of the pupusa. He left a quarter of the pupusa for Shawn.



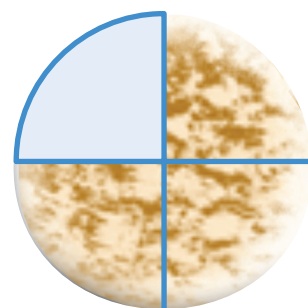
- 10 Clare gave away half of her pupusa. She kept half of the pupusa for herself.



- 11 Han cut the pupusa into 4 equal pieces. He ate a quarter of the pupusa.

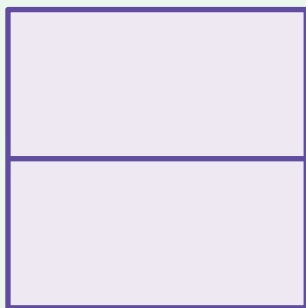


- 12 Priya cut the pupusa. She shared it equally with Clare and Diego.

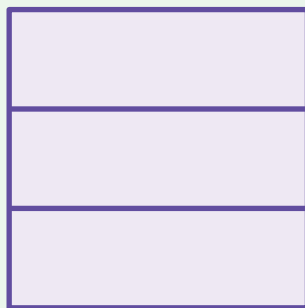


## Summary 6.11

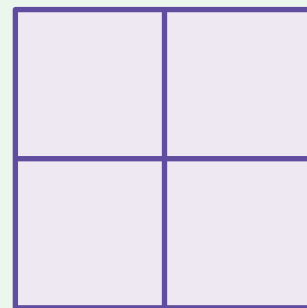
When a shape is split into 2, 3, or 4 equal parts and all the equal-sized parts are shaded, the *whole* shape is shaded.



2 halves



3 thirds



4 fourths

**1 whole**

## Practice 6.11

- 1 Clare and her brother are splitting a sandwich. Draw a line to show how she could cut the sandwich into **2** equal parts. Shade the part that Clare ate. Then write the name of the part.



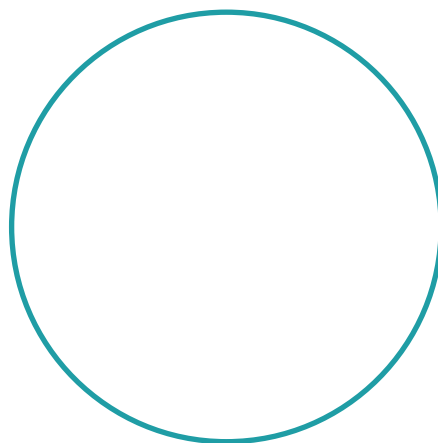
Clare ate \_\_\_\_\_.

## Practice 6.11

Name \_\_\_\_\_ Date \_\_\_\_\_

Use the circle for Problems 2 and 3.

- 2 Split the circle into **4** equal parts.  
Shade **3** parts blue.  
Shade **1** part red.



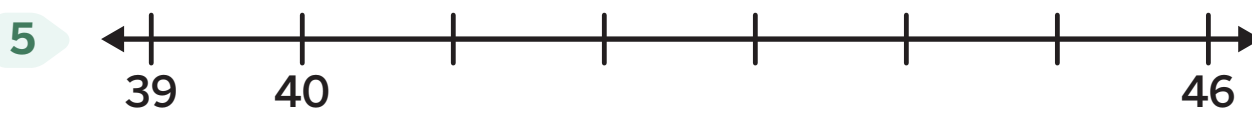
- 3 How much of the circle is shaded?

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## Spiral Review

For Problems 4 and 5, fill in the missing numbers on the number line.



For Problems 6–8, find the value of the expression.

 **Show your thinking.**

**6**  $22 + 18$

answer: \_\_\_\_\_

**7**  $18 + 13$

answer: \_\_\_\_\_

**8**  $85 - 36$

answer: \_\_\_\_\_

# Time on the Clock

✦ Unit Story: Arjun the Artist



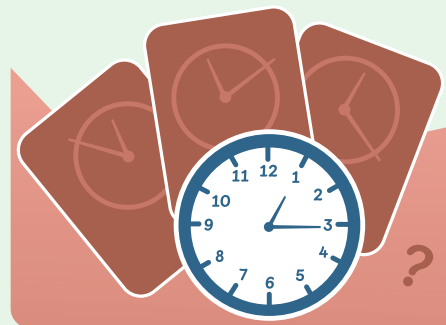
Leonid Andronov/Shutterstock.com

Throughout the day, Ms. Rubin relied on a schedule and her watch during the field trip.

Why is telling time important?

# What Time Is It?

Let's tell time with halves and quarters.



**I am a doer of math.**  
How does having time to think support you as a mathematician?

## Warm-Up



eyes on teacher

## Activity 1

# Card Sort: Halves, Quarters, and Time

## Sort

You and your partner will be given a set of cards with clocks, phrases, and circles split into equal parts. Use what you know about splitting circles into halves and quarters to match the cards. Each set should include a clock, a phrase, and a circle.

1 Record your matches in the table.

Clock card	Phrase card	Circle card

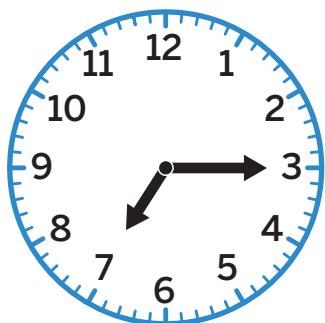
**1****Card Sort: Halves,  
Quarters, and Time (continued)**

Write the time shown on each clock using the phrases from the word bank.

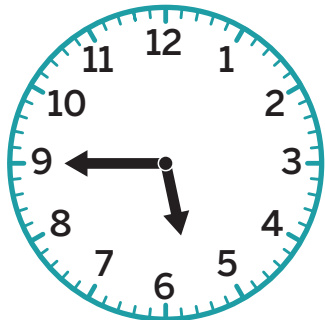
half past

quarter past

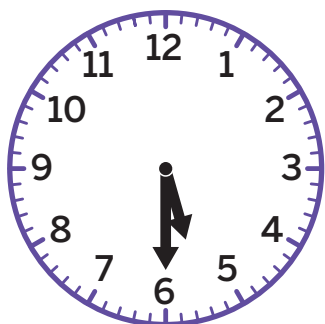
quarter to

**2**

\_\_\_\_\_

**3**

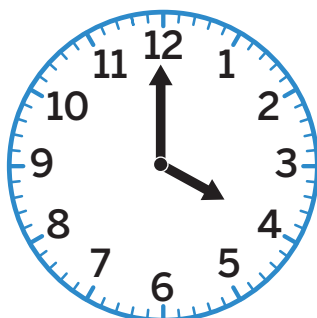
\_\_\_\_\_

**4**

\_\_\_\_\_

# Telling Time

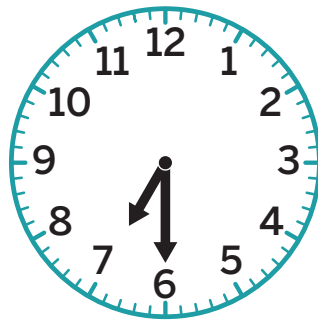
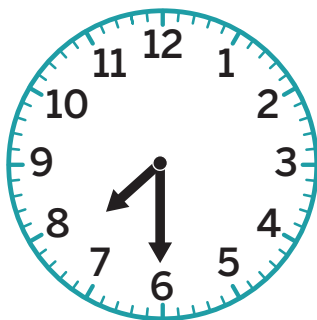
- 5 Circle the clock that shows 4 o'clock.



## Discuss

How do you know 4 o'clock is not shown on the other clock?

- 6 Circle the clock that shows half past 7.



## Discuss

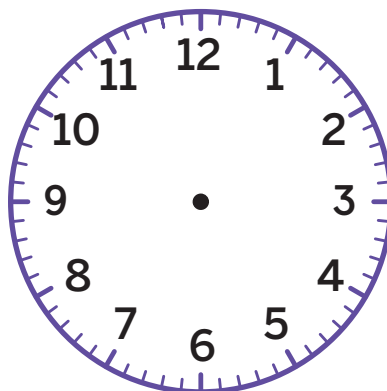
How do you know half past 7 is not shown on the other clock?

## Telling Time (continued)

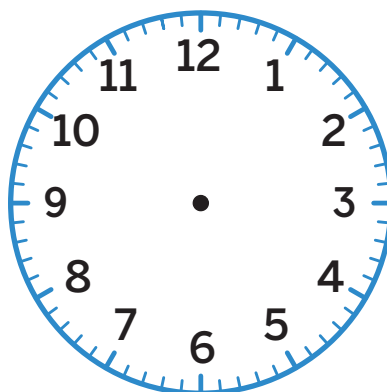
Draw hands on the clock to show each time.

 Draw

7 quarter to 10

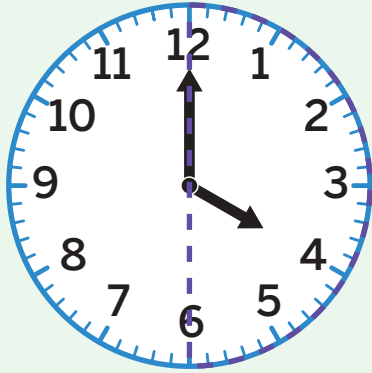


8 quarter past 4

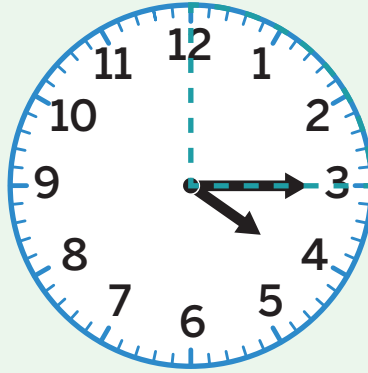


## Summary 6.12

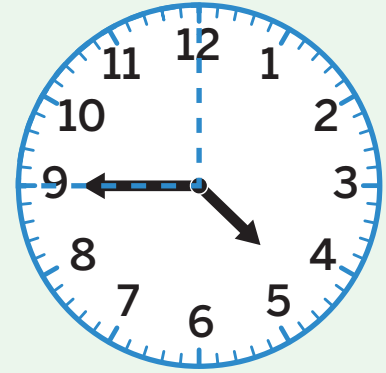
When telling time, think about the clock split into halves and quarters. When the minute hand is 1 quarter past the hour, use the term **quarter past**. When the minute hand is 1 quarter before the next hour, use **quarter to**.



4 o' clock



quarter past 4



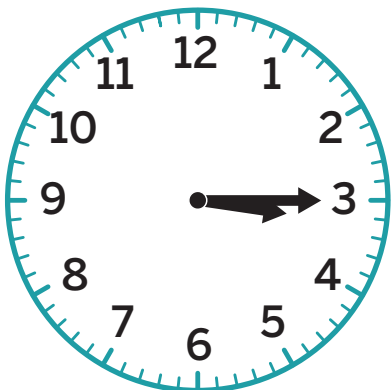
quarter to 5

**quarter past** An expression that means it is 15 minutes past the hour (ex: the clock shows quarter past 4 o'clock, or 4:15)

**quarter to** An expression that means it is 15 minutes until the next hour (ex: the clock shows quarter to 5 o'clock or 4:45)

## Practice 6.12

- 1 Write the time shown on the clock using the phrases *quarter past*, *half past*, or *quarter to*.

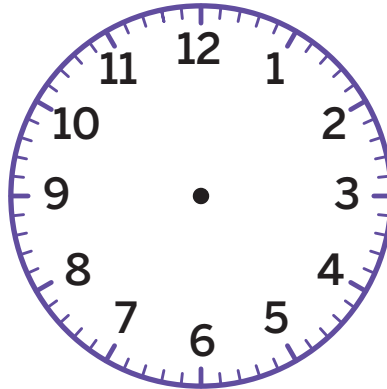


\_\_\_\_\_

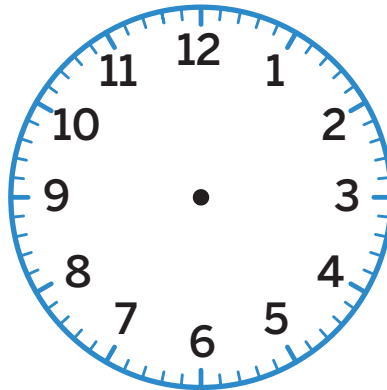
For Problems 2 and 3, draw hands on the clock to show the time.

 Draw

2 quarter to 7



3 half past 5



## Spiral Review

For Problems 4 and 5, use the digits 1, 2, and 3.

- 4 Write the *greatest* three-digit number you can make with the digits in standard form.

\_\_\_\_\_

- 5 Write the *greatest* three-digit number you can make with the digits in expanded form.

\_\_\_\_\_

For Problems 6 and 7, use the digits 7, 8, and 9.

- 6 Write the *greatest* three-digit number you can make with the digits in standard form.

\_\_\_\_\_

- 7 Write the *greatest* three-digit number you can make with the digits in expanded form.

\_\_\_\_\_

For Problems 8–11, find the value of the expression.

8  $19 - 6$  \_\_\_\_\_

9  $9 + 8$  \_\_\_\_\_

10  $17 - 6$  \_\_\_\_\_

11  $4 + 12$  \_\_\_\_\_

# Hop Around the Clock (Part 1)

Let's count by 5 on the clock.



## Warm-Up



eyes on teacher

### I am a doer of math.

Think about how Arjun's class uses time on their field trip. How is telling time an important part of your life?

## Activity

### 1

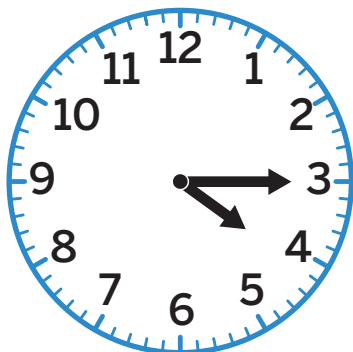
## Counting by 5 on the Clock

Write the time shown on each clock. Show or explain how you found the time.



Show or explain your thinking.

1



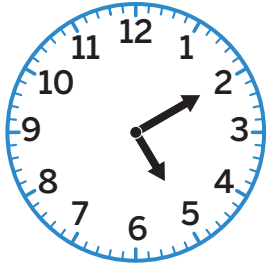
time: \_\_\_\_\_

**1****Counting by 5 on the Clock (continued)****Show or explain your thinking.****2**

time: \_\_\_\_\_

**3**

time: \_\_\_\_\_

**4**

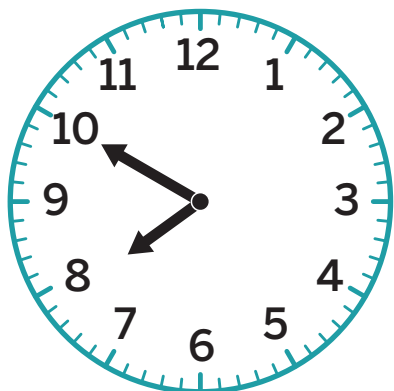
time: \_\_\_\_\_

## 2

## Field Trip Times

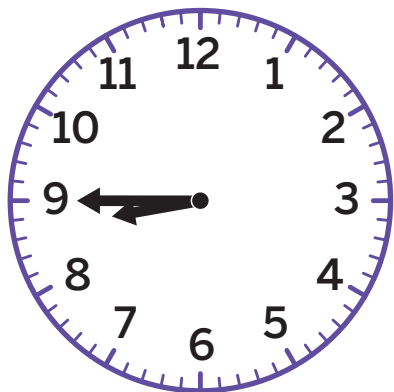
Read each story. Use the clock to complete each problem.

- 5 The night before the field trip, Arjun went to bed at the time shown on the clock. What time did Arjun go to bed?



\_\_\_\_\_

- 6 Ms. Rubin's class boarded the bus at the time shown on the clock. What time did they board the bus?

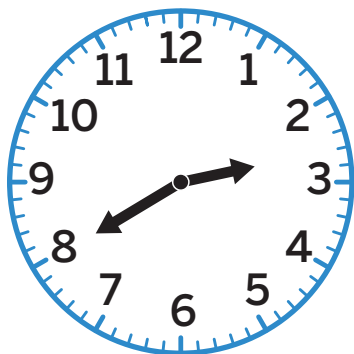


\_\_\_\_\_

## 2

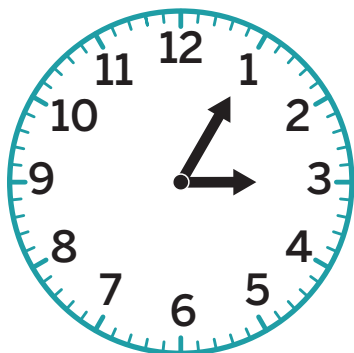
## Field Trip Times (continued)

- 7 Ms. Rubin's class was back at school at the time shown on the clock. What time does the clock show?



---

- 8 Arjun went home at the time shown on the clock. What time did Arjun go home?



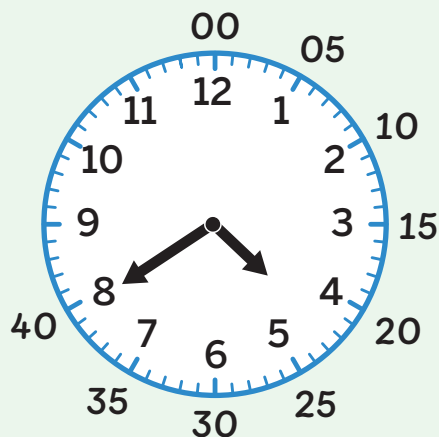
---

- 9 **Discuss** 

Compare your strategies for Problem 7 and Problem 8. What strategies can you use to help you tell time?

## Summary 6.13

You can count forward or backward by 5 to tell the minutes on an analog clock. To tell the hour, think about the placement of the hour hand and the minute hand.



For the minutes, I started at the 12 and counted by 5 until I got to the 8. 0, 5, 10, 15, 20, 25, 30, 35, 40. The hour hand is between the 4 and the 5, so it is 4:40.

## Practice 6.13

1 What time does this clock show?

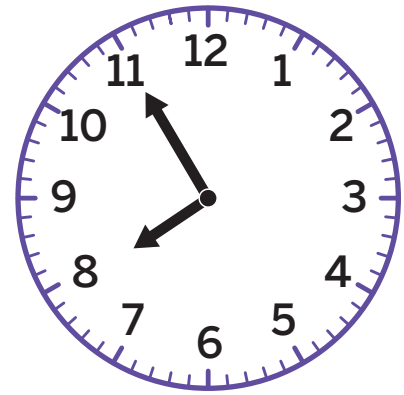


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# Practice 6.13

Name \_\_\_\_\_ Date \_\_\_\_\_

2 Priya says the clock shows 7:11. Do you agree with Priya? Explain your thinking.

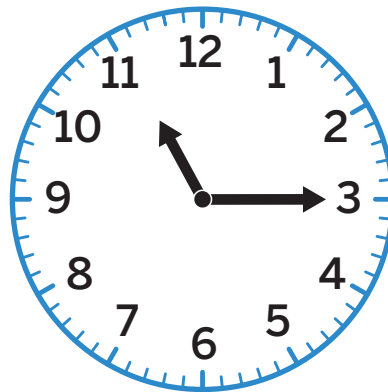


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---

3 Circle the clock that shows 11:15.



## Spiral Review

- 4 Circle the equation that could help you find the value  $19 - 8$ .

$9 - 5 = 4$

$9 - 8 = 1$

$4 + 4 = 8$

$3 + 4 = 7$

- 5 Circle the equation that could help you find the value  $17 - 4$ .

$9 - 5 = 4$

$9 - 8 = 1$

$4 + 4 = 8$

$3 + 4 = 7$

- 6 How many tens would you need to make 700?

\_\_\_\_\_

- 7 How many hundreds and tens could you use to make 500?

**hundreds:** \_\_\_\_\_ **tens:** \_\_\_\_\_

- 8 How many tens would you need to make 100?

\_\_\_\_\_

# Hop Around the Clock (Part 2)

Let's tell time by counting in different ways.



## Warm-Up



eyes on teacher

**I am a doer of math.**

How could practice change your ability to do something new in math class?

## Activity

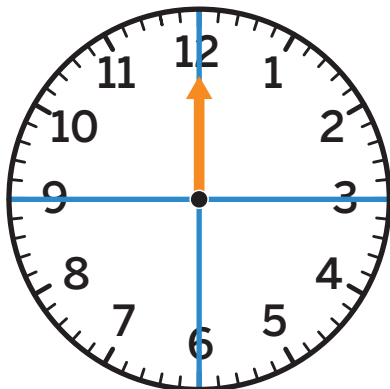
### 1

## Quarters and Minutes

Look at each clock. The shaded part shows how many minutes have passed.

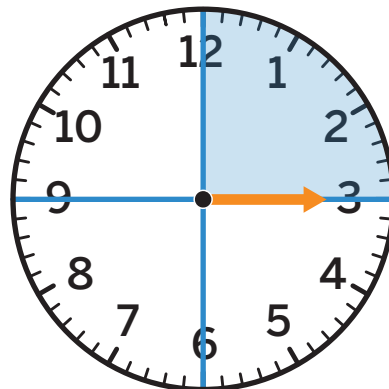
Record the number of minutes that have passed under each clock.

1



\_\_\_\_\_

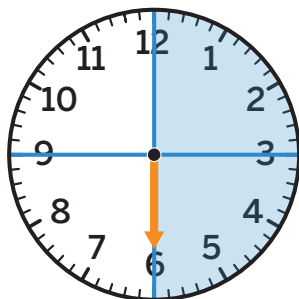
2



\_\_\_\_\_

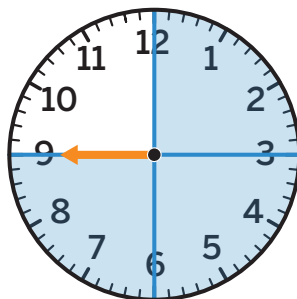
## Quarters and Minutes (continued)

3



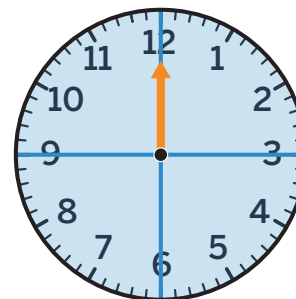
\_\_\_\_\_

4



\_\_\_\_\_

5



\_\_\_\_\_

6

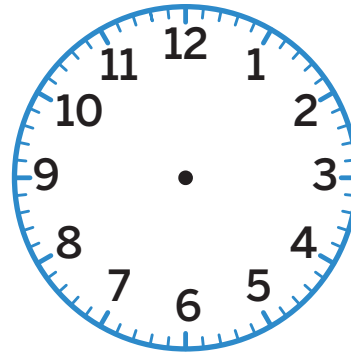
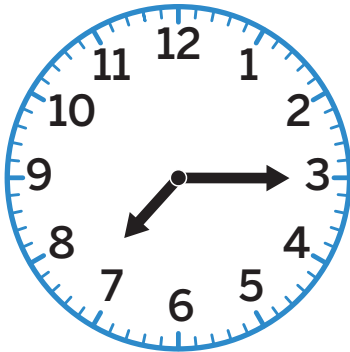
### Discuss

- What do you notice about the number of minutes that have passed on each clock?
- What do you notice about the amount of the clock face that is shaded on each clock?

# Different Ways to Count

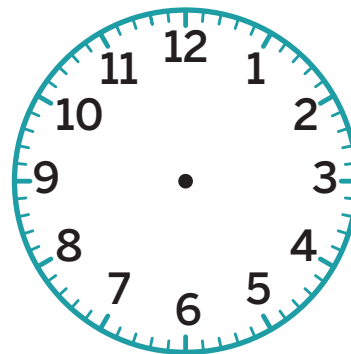
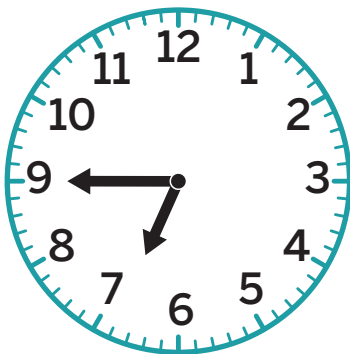
**i** Show your thinking.

- 7** Write the time shown on the first clock to show the time Ms. Rubin goes to the gym. Draw hands on the second clock and write the time to show 5 minutes later.



time: \_\_\_\_\_ 5 minutes later: \_\_\_\_\_

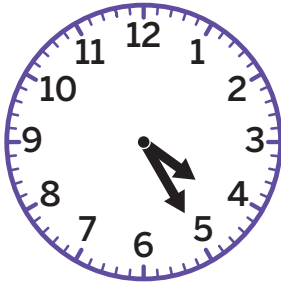
- 8** Write the time shown on the first clock to show the time Ms. Rubin needs to leave for the gym. Draw hands on the second clock and write the time to show 10 minutes earlier.



time: \_\_\_\_\_ 10 minutes earlier: \_\_\_\_\_

## Different Ways to Count (continued)

- 9 The clock shows the time Ms. Rubin gets home from school. Use **2** different strategies to write the time shown on the clock. Explain each strategy.

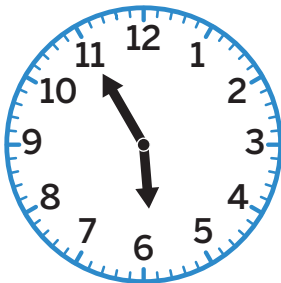


time: \_\_\_\_\_

Strategy 1: \_\_\_\_\_

Strategy 2: \_\_\_\_\_

- 10 The clock shows the time Ms. Rubin eats dinner. Use **2** different strategies to write the time shown on the clock. Explain each strategy.



time: \_\_\_\_\_

Strategy 1: \_\_\_\_\_

Strategy 2: \_\_\_\_\_

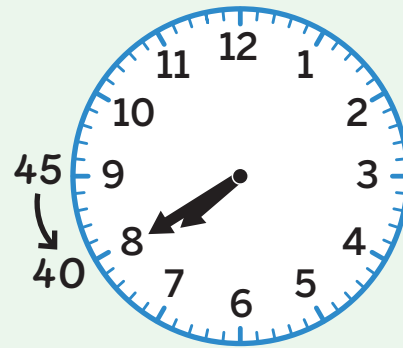
## Summary 6.14

When telling time, it can be helpful to start at a time you know that is closest to the minute hand and use different counting strategies.



7:40

The minute hand is close to the 30-minute mark, so I started at 30 and counted by 5 to the 8 and got 40.

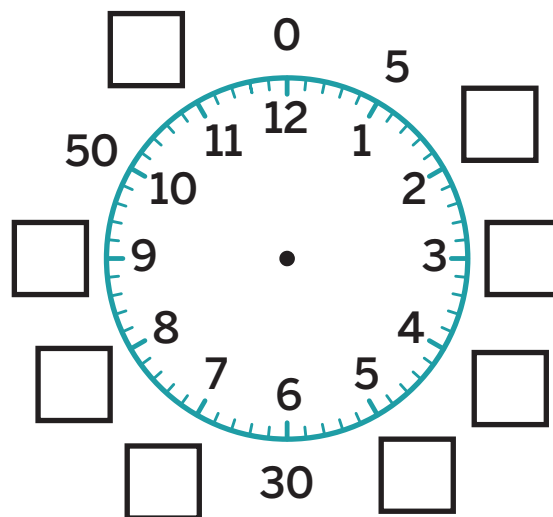


7:40

I know that 9 represents the 45-minute mark, so I counted back by 5 to get 40.

## Practice 6.14

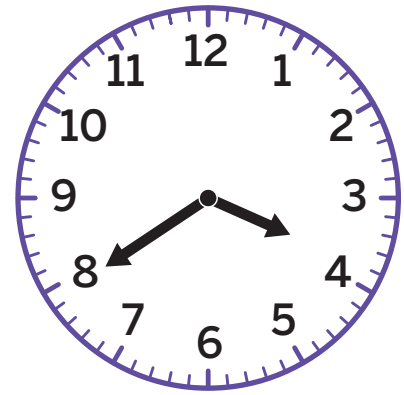
- 1 Fill in the missing numbers to show the time to the nearest 5 minutes. Then draw hands on the clock to show 7:15.



## Practice 6.14

Name \_\_\_\_\_ Date \_\_\_\_\_

- 2 Circle the time that is shown on the clock. Explain your thinking.



3:08

3:40

4:08

4:40

---

---

---

## Spiral Review

For Problems 3 and 4, find the value of the expression.

**i** Show your thinking.

3  $51 + 37$

answer: \_\_\_\_\_

4  $47 - 22$

answer: \_\_\_\_\_

For Problems 5 and 6, find the value of the expression.

**i** Show your thinking.

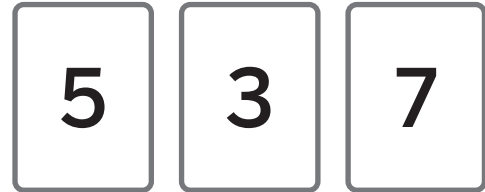
**5**  $34 + 48$

answer: \_\_\_\_\_

**6**  $48 - 19$

answer: \_\_\_\_\_

For Problems 7 and 8, use the three-digit number shown on the number cards.



**7** Write the number in expanded form.

\_\_\_\_\_

**8** Write the number in words.

\_\_\_\_\_

For Problems 9–12, find the value of the expression.

**9**  $20 - 11$  \_\_\_\_\_

**10**  $8 + 5$  \_\_\_\_\_

**11**  $18 - 12$  \_\_\_\_\_

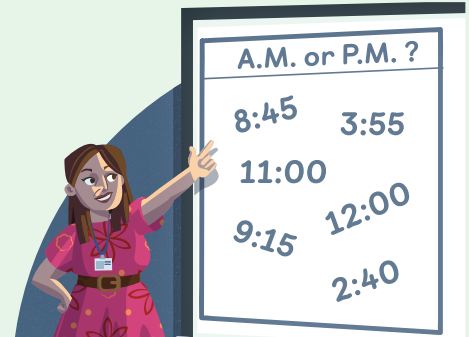
**12**  $3 + 16$  \_\_\_\_\_

Name \_\_\_\_\_ Date \_\_\_\_\_


Represent Data  2.MD.7, SMP.3, SMP.6, SMP.7

# Is It a.m. or p.m.?

Let's read and write times using a.m. or p.m.



## Warm-Up

 eyes on teacher

### I am a doer of math.

Think of a time when it took a while to solve a math problem, but you finally solved it. How did it feel?

## Activity

### 1

## What Is the Time of Day?

Write a.m. or p.m. to show the time of day. Explain your thinking to your partner.

- 1 Diego goes to baseball practice at 3:00. \_\_\_\_\_
- 2 Jada eats breakfast at 7:00. \_\_\_\_\_
- 3 Shawn eats lunch at 12:00. \_\_\_\_\_
- 4 Clare walks her dog at 2:00. \_\_\_\_\_
- 5 Han gets on the bus to go to school at 8:00. \_\_\_\_\_
- 6 The second graders have a snack at 10:00. \_\_\_\_\_

**1****What Is the Time of Day? (continued)****7****Discuss** 

What could a second grader be doing at 2 p.m. on a Saturday?  
What about 2 a.m. on Saturday? Explain your thinking.



# Telling Time With a.m. and p.m.

- 8 Choose a time from the list for each activity and record it in the table. Then write *a.m.* or *p.m.*

1:50

12:05

4:35

8:10

7:55

Activity	Time	a.m. or p.m.
do homework		
get ready for bed		
eat lunch		
go to school		
asleep in bed		



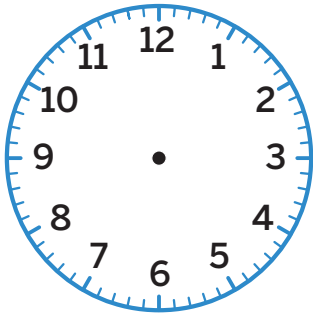
## 2

## Telling Time With a.m. and p.m. (continued)

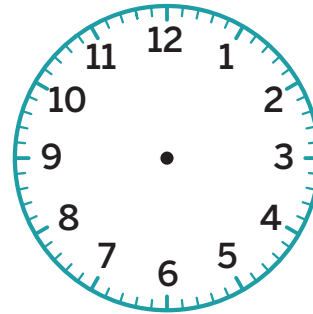
Draw hands on the clocks to show each time from Problem 8.

 Draw

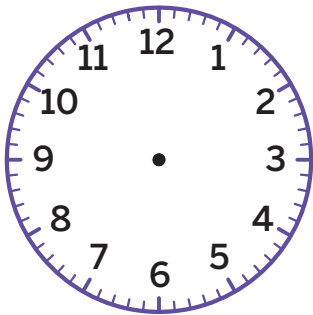
9 4:35



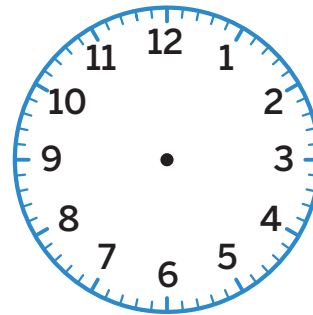
10 8:10



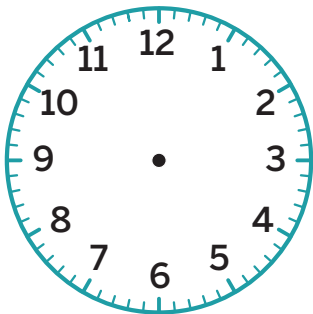
11 12:05



12 7:55



13 1:50



## Summary 6.15

It is important to label times with **a.m.** or **p.m.** because each time occurs twice a day. To show the time of day, it helps to include the labels.



7:45 a.m.



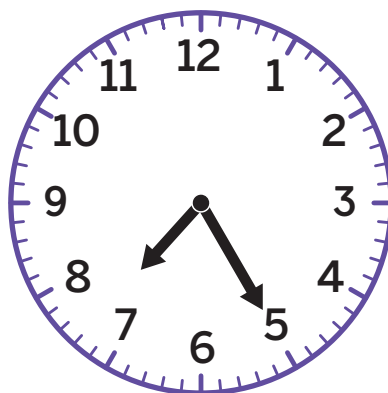
7:45 p.m.

**a.m.** A phrase referring to the period of time from midnight to noon.

**p.m.** A phrase referring to the period of time from noon to midnight.

## Practice 6.15

- 1 The clock shows when Han arrived at school. Write the time shown on the clock with *a.m.* or *p.m.*



**Practice 6.15**

Name \_\_\_\_\_ Date \_\_\_\_\_

- 2 The clock shows when Han did his homework. Write the time shown on the clock with *a.m.* or *p.m.*



- 3 Jada is helping her teacher create the class schedule at school. Fill in the table by writing *a.m.* or *p.m.*

Activity	Time	a.m. or p.m.
morning meeting	8:00	
math	9:00	
reading	10:15	
recess	11:15	
lunch	12:30	
science	1:15	
afternoon snack	2:15	
dismissal	2:55	

**Spiral Review**

For Problems 4–7, find the sum.

**4**  $9 + 8$  \_\_\_\_\_

**5**  $7 + 9$  \_\_\_\_\_

**6**  $7 + 6$  \_\_\_\_\_

**7**  $8 + 6$  \_\_\_\_\_

For Problems 8 and 9, circle the number that makes the equation true.

**8**  $87 +$  \_\_\_\_\_  $= 100$

23

13

17

28

**9**  $12 + 48 =$  \_\_\_\_\_

60

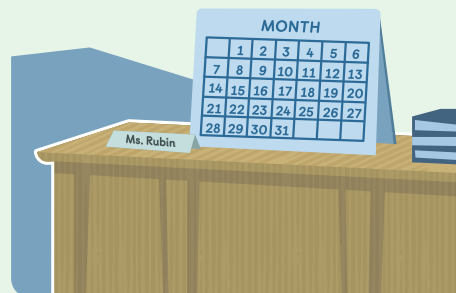
50

30

40

# Exploring Calendars

Let's examine relationships between different units of time.



## Warm-Up



eyes on teacher

### I am a doer of math.

Arjun feels proud when he presents his art. When have you felt proud in math class?

## Activity

# 1

## Calendar Time

### Hands-On

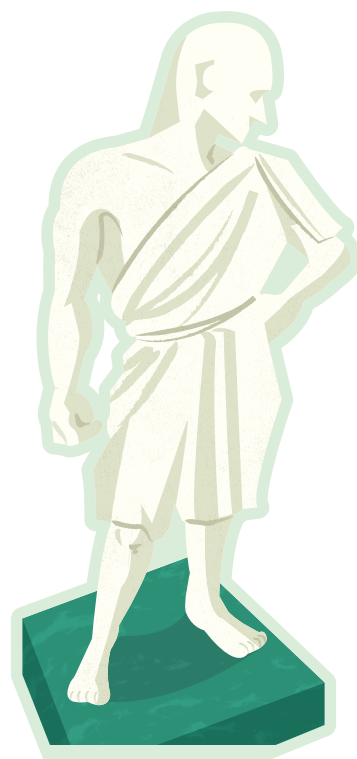
You and your partner will be given a calendar and you will be assigned a month.

**1** Create a poster about your month. Include the following information:

- On what day of the week does the month start?
- On what day of the week does the month end?
- How many days are there in the month?
- How many full weeks are there in the month?
- What else would you like to share about your month?

You can use the space on the next page to plan your poster before writing on your chart paper.

# Calendar Time (continued)



**2****Times of Your Life**

Use the calendar from Activity 1.

Choose a day that is special to you and mark that day on the calendar.

**2** Which day is a week before your special day?

\_\_\_\_\_

**3** How many days are from your special day to the first day of the month?

\_\_\_\_\_

**4** How many days are from your special day to the last day of the month?

\_\_\_\_\_

**5** Which month is 3 months before your special day?

\_\_\_\_\_

**6** Which month is 6 months after your special day?

\_\_\_\_\_

**Times of Your Life (continued)**

Trade calendars with your partner. Complete the problems about your partner's special day.

7 Which day is a week before their special day?

\_\_\_\_\_

8 How many days is it from their special day to the first day of the month?

\_\_\_\_\_

9 How many days is it from their special day to the last day of the month?

\_\_\_\_\_

10 Which month is 3 months before their special day?

\_\_\_\_\_

11 Which month is 6 months after their special day?

\_\_\_\_\_



## Summary 6.16

You can measure time using different units (e.g., days, weeks, months) and the relationships between those units.

JULY							AUGUST						
S	M	T	W	T	F	S	S	M	T	W	T	F	S
					1	2		1	2	3	4	5	6
3	4	5	6	7	8	9	7	8	9	10	11	12	13
10	11	12	13	14	15	16	14	15	16	17	18	19	20
17	18	19	20	21	22	23	21	22	23	24	25	26	27
24	25	26	27	28	29	30	28	29	30	31			
31													

## Practice 6.16

For Problems 1 and 2, use the calendar in the Summary.

- 1** Jada is counting down to her birthday. Her birthday is on August 23. Today is July 12. How many weeks is it until Jada's birthday?

---

- 2** Today is Jada's birthday, August 23. How many days is it from her birthday to the last day of August?

---

Diego is planning a trip with his uncle. Use the calendar for Problems 3 and 4.

MAY							JUNE						
S	M	T	W	T	F	S	S	M	T	W	T	F	S
						1			1	2	3	4	5
2	3	4	5	6	7	8	6	7	8	9	10	11	12
9	10	11	12	13	14	15	13	14	15	16	17	18	19
16	17	18	19	20	21	22	20	21	22	23	24	25	26
23	24	25	26	27	28	29	27	28	29	30			
30	31												

**3** Diego and his uncle are leaving for their trip on June 1, which is exactly 3 weeks from today's date. Circle today's date on the calendar.

**4** Diego and his uncle will return home on June 29. How many *days* is their trip? How many *weeks*?

days: \_\_\_\_\_

weeks: \_\_\_\_\_

### Spiral Review

For Problems 5–8, write the number that makes the equation true.

**5**  $4 + 9 = \underline{\hspace{2cm}}$

**6**  $20 - 9 = \underline{\hspace{2cm}}$

**7**  $12 + 7 = \underline{\hspace{2cm}}$

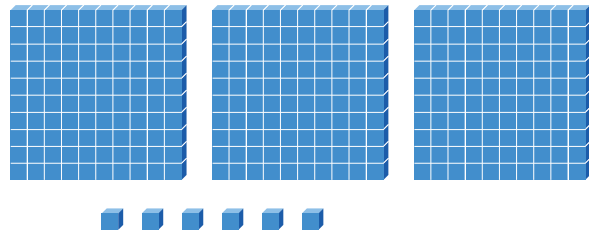
**8**  $11 - 6 = \underline{\hspace{2cm}}$

For Problems 9–12, draw lines to match the three-digit number with the base-ten blocks that represent the same value.

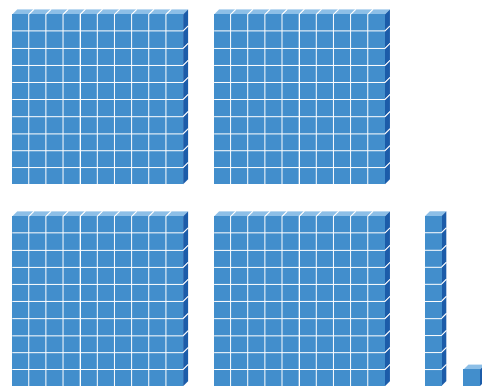
Three-digit number

Base-ten blocks

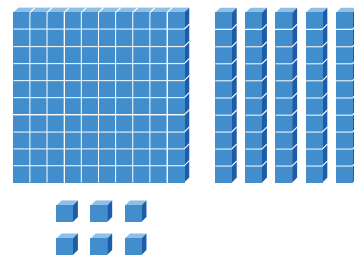
9 156



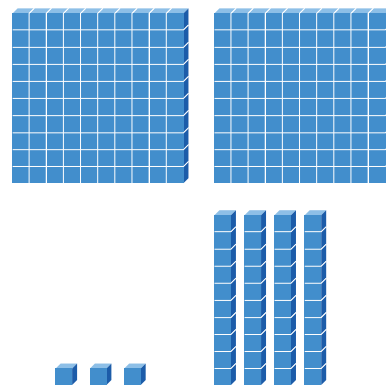
10 306

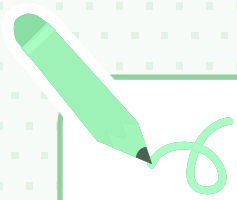


11 243



12 411





Notes:

## Math at Work

Shape is one of the basic elements of art. What shapes do you see in these 3 paintings?



Laurence Berger/Shutterstock.com.



LulekP/Shutterstock.com.



Sharaf Maksumov/Shutterstock.com

**Artists** use their creativity and talent to create works of art. They might use different shapes in their art, such as triangles, quadrilaterals, hexagons, circles, or prisms.



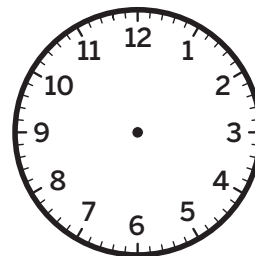
Krakenimages.com/Shutterstock.com. LN team/Shutterstock.com.

## Math at Home

Work with an adult at home to create a drawing or painting that uses different shapes. What does your art mean to you?

## Math Mindset

If this clock showed 8:55, where would the minute hand be? Why would it be there?



## Unit 7

# Adding and Subtracting Within 1,000

### Big Ideas in This Unit

CC3 Number Strategies Skip Counting to 100

### Questions for Investigation

- How can we use what we know about place value to add and subtract within 1,000?
- When and how do we compose or decompose a hundred or a ten?
- How can we choose and explain strategies for adding and subtracting within 1,000?



#### Explore: Rebuilding the River Rock Bridge

How many purple and green rocks could be used to rebuild the bridge?

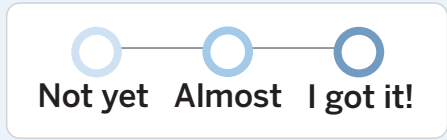


#### Unit Story: Where Eli Went

In this story, Bea goes on an unexpected adventure through a magical forest to find her stuffed porcupine, Eli.


# Watch Your Knowledge Grow

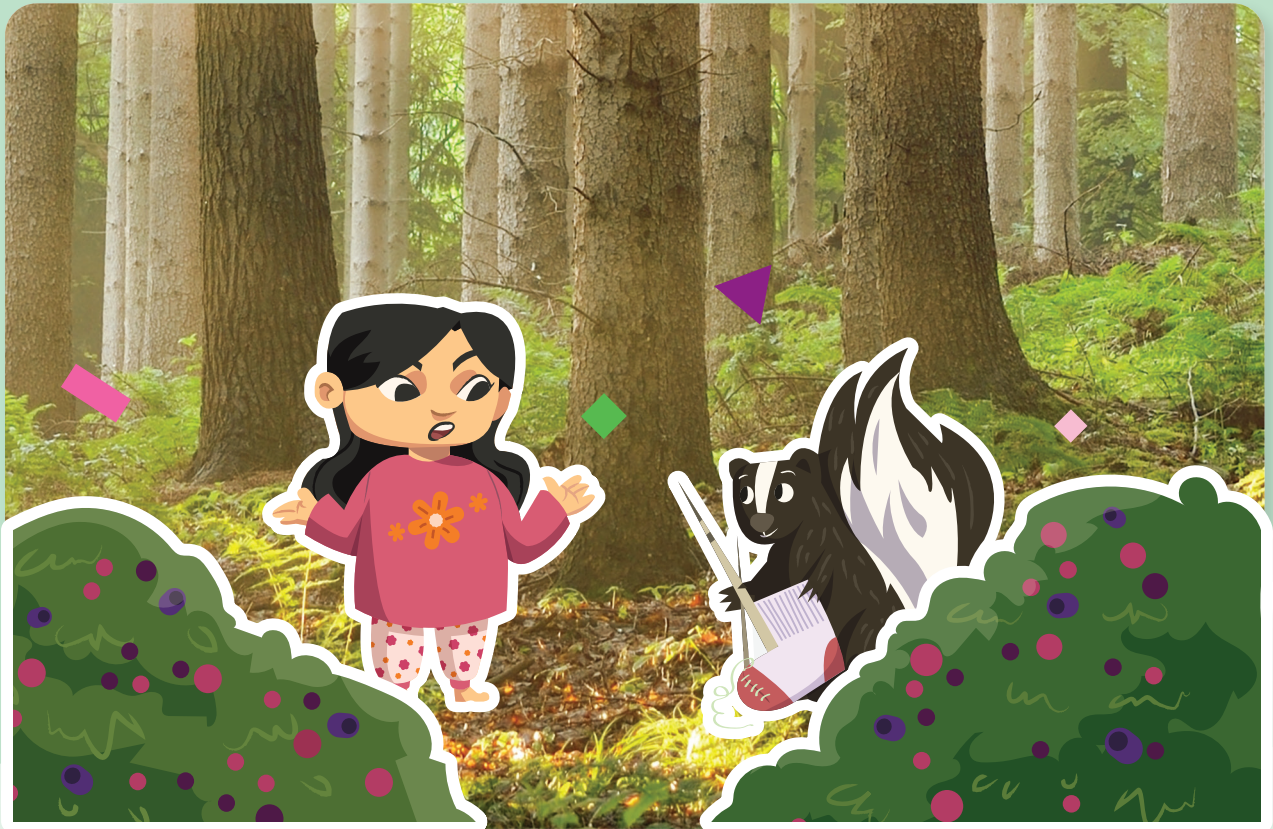
This is the math you'll explore in this unit. Rate your understanding to see how your knowledge grows!



I can . . .	Before	After
Understand that the 3 digits of a three-digit number represent amounts of hundreds, tens, and ones.		
Understand that 100 can be thought of as a bundle of 10 tens.		
Mentally add or subtract 10 or 100 to a given number from 100–900.		
Add within 1,000 using concrete models and strategies based on place value.		
Understand that when adding within 1,000, sometimes it is necessary to compose tens or hundreds.		
Count within 1,000 including skip-counting by 5s, 10s, and 100s.		
Subtract within 1,000 using concrete models and strategies based on place value.		
Understand that when subtracting within 1,000, sometimes it is necessary to decompose tens or hundreds.		
Add up to 4 two-digit numbers using strategies based on place value and properties of operations.		
Explain why addition and subtraction strategies work.		

# Adding Within 1,000 Using Place Value Strategies

 Unit Story: Where Eli Went



Aastels/Shutterstock.com

Skunk wondered how many total berries there were on the pink and purple berry bushes.

How could Skunk find the total?


# Explore: Rebuilding the River Rock Bridge

How many purple and green rocks could be used to rebuild the bridge?



## Warm-Up



 eyes on teacher

Discuss  What do you notice? What do you wonder?

## Where Eli Went

### Unit Story





**Use the information sheet to find different amounts of purple and green rocks that Bea and Beaver could have collected.**

- Record amounts of purple and green rocks each character could have collected in the table.
- Discuss with another pair how you determined the amounts.

### Ways to be a mathematician

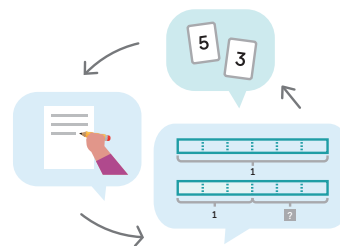
- 1** I can take my time to think about a challenging problem before trying to solve it.

○ ——— ○ ——— ○  
Not yet Almost I got it!



- 2** I can use numbers, words, and diagrams to make sense of math ideas and situations.

○ ——— ○ ——— ○  
Not yet Almost I got it!



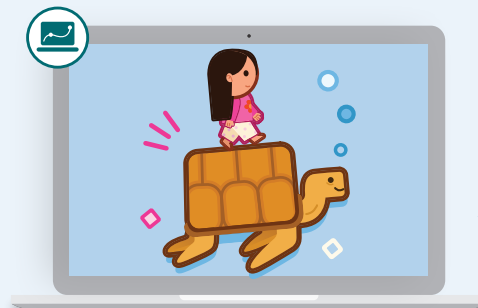
- 3** I can see how ideas are connected and use patterns to help solve problems.

○ ——— ○ ——— ○  
Not yet Almost I got it!




# Turtle Hurdles

Let's use patterns to add tens and hundreds to three-digit numbers.



## Warm-Up

**1**

 eyes on teacher



**I can be all of me in math class.**  
What makes you similar to other mathematicians? What makes you different?

## Activity

**1**

# A Shell-y Situation

Help Bea cross the river. Fill in the number patterns.

**2** Count on by 10, starting at 526.

526, , ,

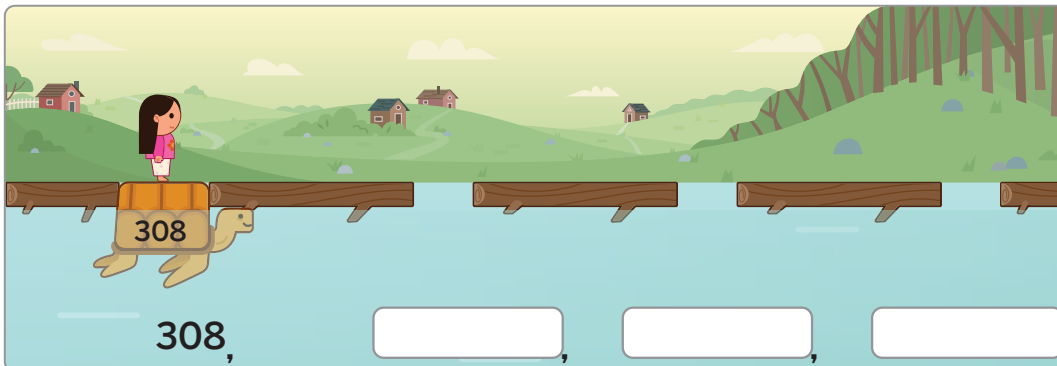
**3** Count on by 10, starting at 243.

243, , ,

**1****A Shell-y Situation (continued)****Discuss** 

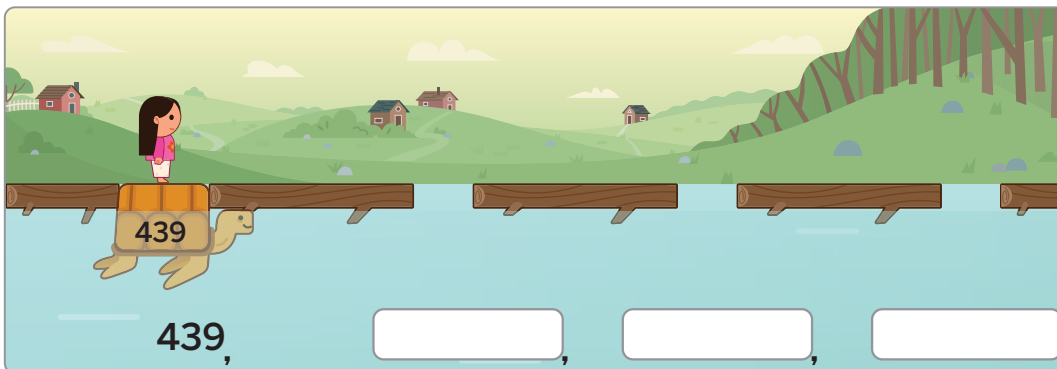
What patterns do you notice when counting on by 10?

**4** Count on by 100, starting at 308.



308, , ,

**5** Count on by 100, starting at 439.



439, , ,

**Discuss** 

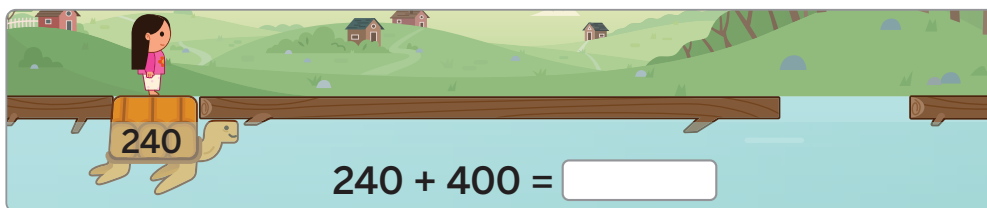
What patterns do you notice when counting on by 100?

**6** **Discuss** 

Let's discuss the number patterns.

# Bridging the Gap

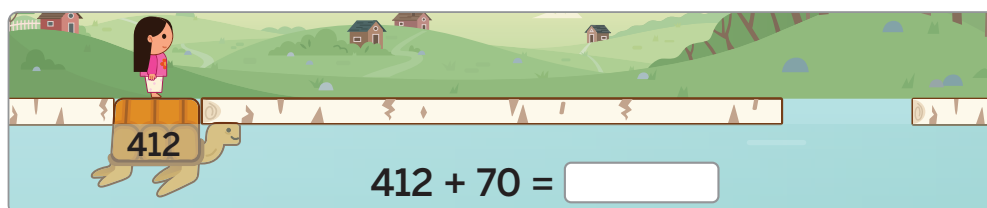
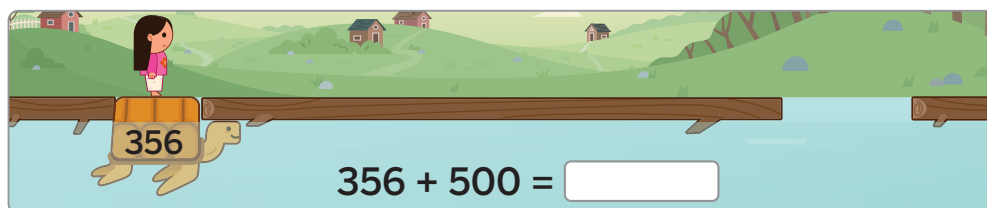
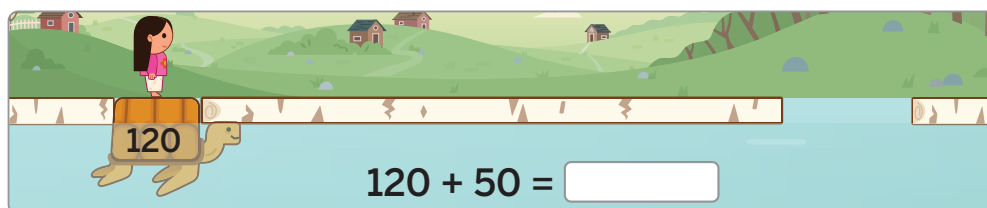
**7** Find the sum.



**Discuss**

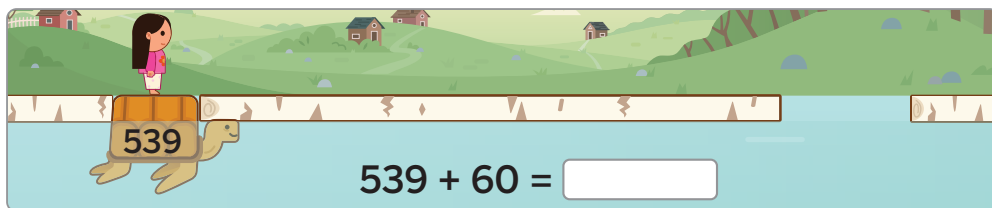
How did you find the sum?

**8** Find each sum. Complete as many challenges as you have time for.

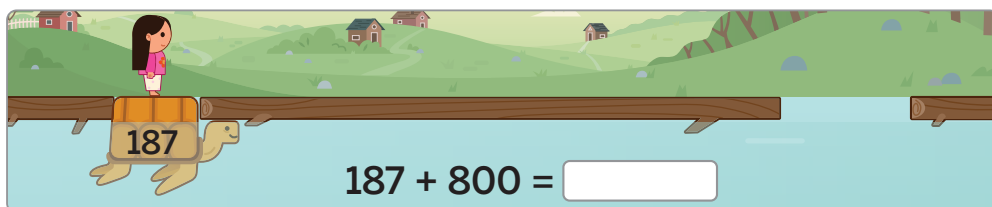


## Bridging the Gap (continued)

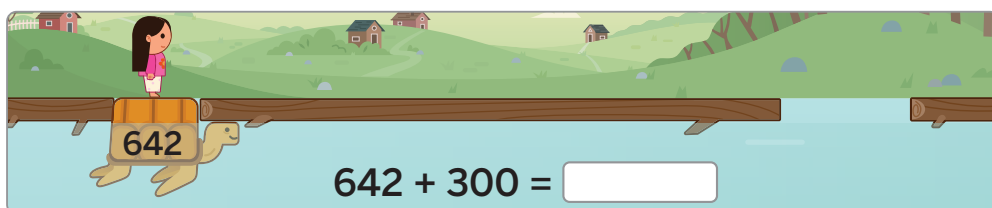
8



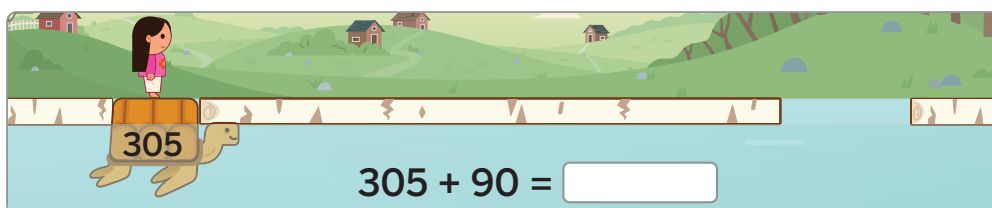
$539 + 60 = \square$



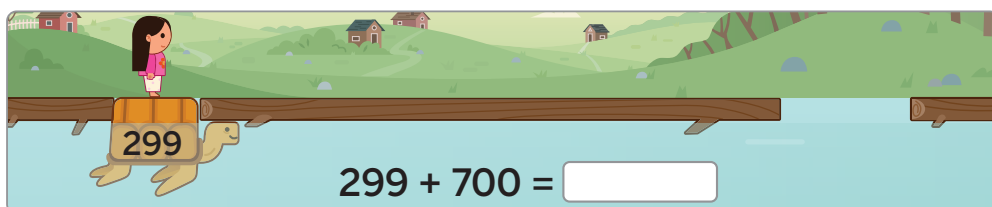
$187 + 800 = \square$



$642 + 300 = \square$



$305 + 90 = \square$



$299 + 700 = \square$

9

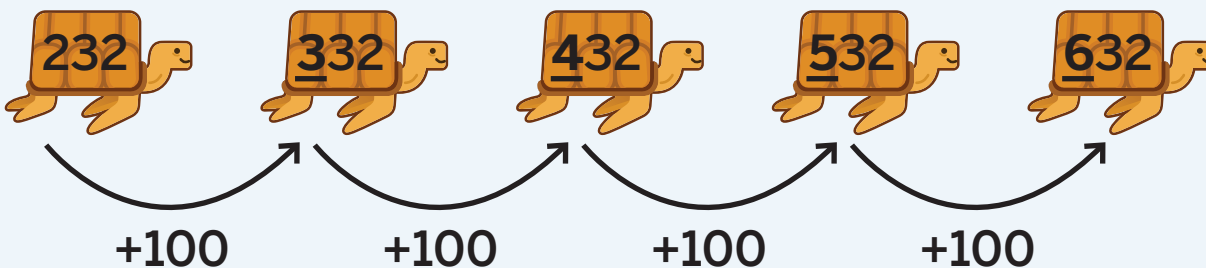
Discuss 

Let's discuss strategies for finding the sum.

## Summary 7.02

You can use what you know about place value and counting on by 10 or 100 to add amounts of tens and hundreds to three-digit numbers.

$$232 + 400 = \underline{632}$$



## Practice 7.02

For Problems 1 and 2, fill in the number pattern.

- 1 Count on by 10, starting at 812.

812, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

- 2 Count on by 100, starting at 403.

403, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

For Problems 3 and 4, find the sum.

3  $332 + 60$  \_\_\_\_\_

4  $439 + 500$  \_\_\_\_\_

### Spiral Review

For Problems 5–8, find the number that makes the equation true.

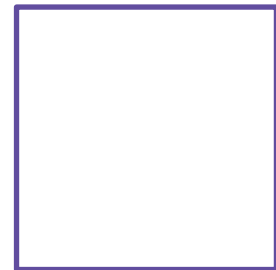
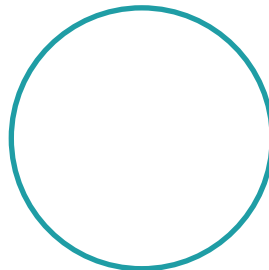
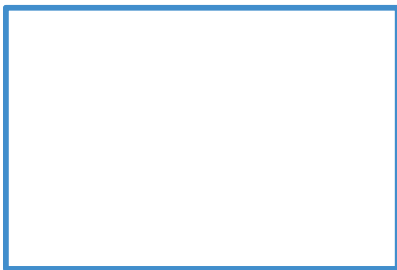
5  $6 + 13 =$  \_\_\_\_\_

6  $15 - 7 =$  \_\_\_\_\_

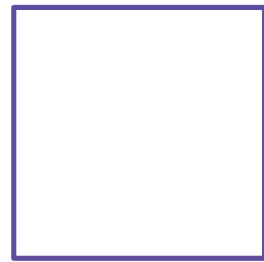
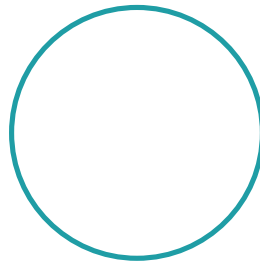
7  $9 + 8 =$  \_\_\_\_\_

8  $19 - 12 =$  \_\_\_\_\_

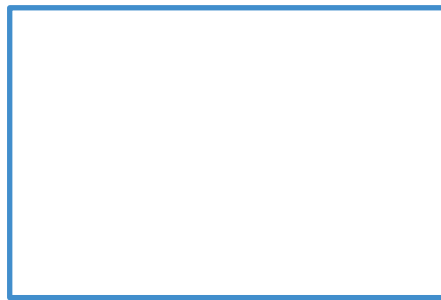
9 Draw lines to split each shape into fourths.



**10** Draw lines to split each shape into halves.



**Use the rectangle for Problems 11 and 12.**



**11** Draw lines to split the rectangle into thirds. Shade **2** parts blue. Shade **1** part red.

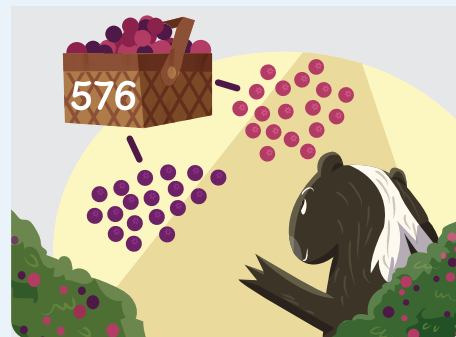
**12** How much of the rectangle is shaded?

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# There's Something About Berries

Let's add numbers within 1,000.



**We are a math community.**  
Skunk asked Bea for help counting berries. How can you support another mathematician if they ask for help?

## Warm-Up



## Activity

# 1 Preparing for Pie

Hands-On

For each row, find the sum. Use base-ten blocks if it is helpful.

	Purple berries	Pink berries	Total berries
1	305	243	
2	71	318	
3	134	642	
4	204	763	

**1**

**Preparing for Pie (continued)**

**5** Explain how you found the sum for Problem 1.

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# Introducing the Center, Cover Up

Stage 10



**Pairs**  Let's add within 1,000 without composing.

**You'll need:** 2 base-ten units, two-color counters, Gameboard A or B, Recording Sheet



## How to Play

1

### Player A:

- Put each cube on a number in the gray boxes.
- Add the numbers. Cover the sum with a counter.
- Record the addition expression and sum.

2

### Player B:

- Move one of the cubes. Add the numbers.
- If the sum is not already covered with a counter, cover it.
- Record the addition expression and sum.

3

Take turns. The first player to cover 6 squares in a row wins.



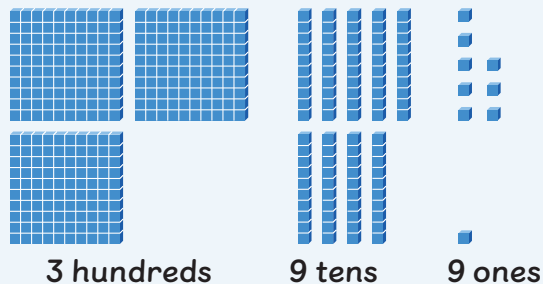
## Summary 7.03

When adding numbers within 1,000, you can count on or add by place. When you add by place, add hundreds to hundreds, tens to tens, and ones to ones.

### Counting on

258: 358, 368, 378, 388, 398, 399

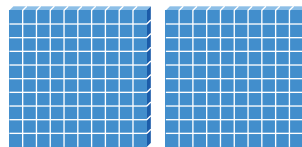
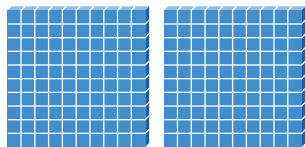
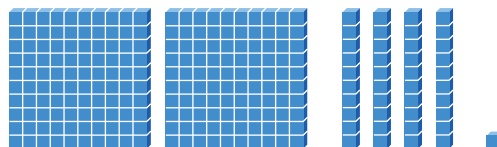
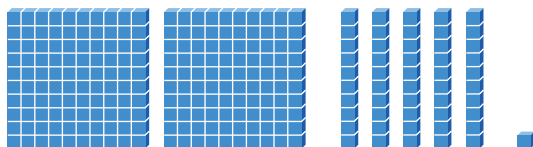
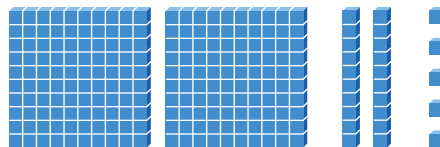
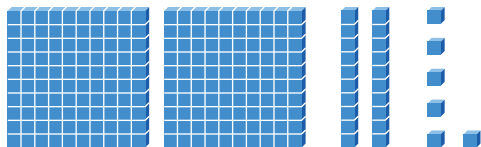
### Adding by place



$$258 + 141 = \underline{399}$$

## Practice 7.03

- 1 Circle the base-ten blocks that represent the equation  $226 + 451 = 677$ .



For Problems 2 and 3, find the sum. Use base-ten blocks if it is helpful.

 Show or explain your thinking.

**2**  $213 + 682$

answer: \_\_\_\_\_

**3**  $365 + 214$

answer: \_\_\_\_\_

### Spiral Review

**4** Circle **3** expressions with a sum of 18.

$4 + 13 + 2$

$5 + 6 + 7$

$3 + 9 + 5$

$8 + 6 + 3 + 1$

$11 + 3 + 6$

$4 + 6 + 4 + 4$

- 5** For each object, select whether its length is likely to be less than 1 meter, about 1 meter, or more than 1 meter.

	Less than 1 meter	About 1 meter	More than 1 meter
pencil			
school bus			
height of a desk			
water bottle			

- 6** Select the estimates of length that are reasonable.

- (A) The height of a classroom door is 10 meters
- (B) The width of a classroom door is 1 meter
- (C) The length of a car is about 4 meters
- (D) The length of a fire truck is about 3 meters

**For Problems 7 and 8, circle the number that is less than the number shown.**

- 7** 372

373

443

389

335

- 8** 906

913

889

927

909

# Baking With Skunk

Let's add to help Skunk bake.



## Warm-Up



eyes on teacher



**I can be all of me in math class.**

Skunk did not give up even though the berries fell to the ground. How is this similar to your work in math class?

## Activity

### 1

## How Many Berries?

### Hands-On

The expressions represent the amount of berries Skunk has to bake a berry cobbler. Use base-ten blocks to find each sum.

1  $17 + 25$

\_\_\_\_\_

2  $417 + 125$

\_\_\_\_\_

### 3 Discuss

How was finding the sum in Problems 1 and 2 similar? How was it different?

**1****How Many Berries? (continued)**

Use base-ten blocks to find each sum.

**4**  $118 + 536$

\_\_\_\_\_

**5**  $234 + 346$

\_\_\_\_\_

**6** **Discuss** 

Explain to your partner how you solved Problems 4 and 5.

## 2

# Mix and Mingle: To Compose or Not to Compose

## Hands-On

You and your partner will each be given a card with a three-digit number that represents an amount of berries from Skunk's friends.

7 For each round:

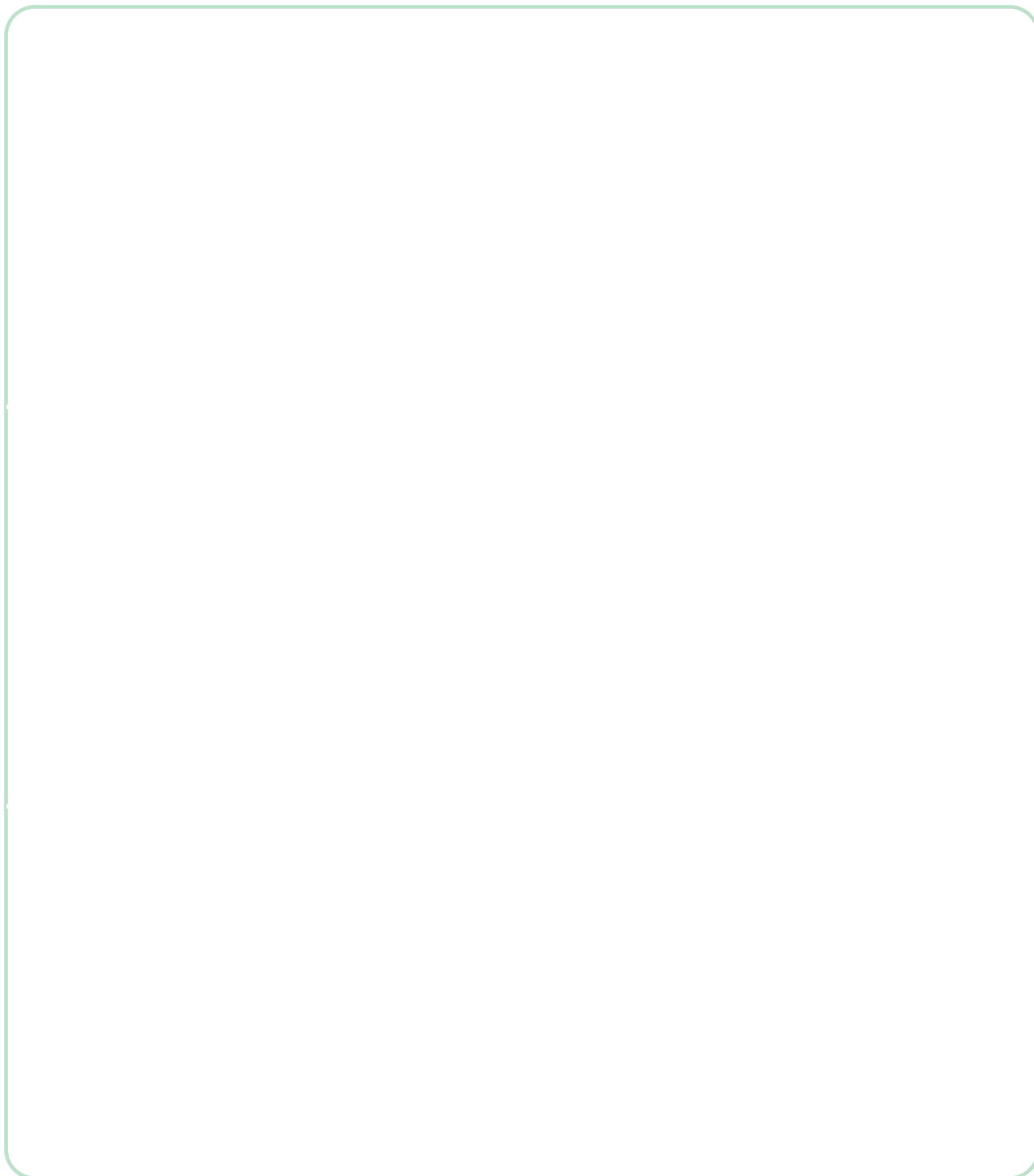
- Write an addition expression.
- Discuss if you need to compose a ten *before* solving.
- Find the sum and show your thinking.

Addition expression	Will you need to compose a ten?	Sum
_____ + _____	yes / no	
_____ + _____	yes / no	
_____ + _____	yes / no	
_____ + _____	yes / no	



## Mix and Mingle: To Compose or Not to Compose (continued)

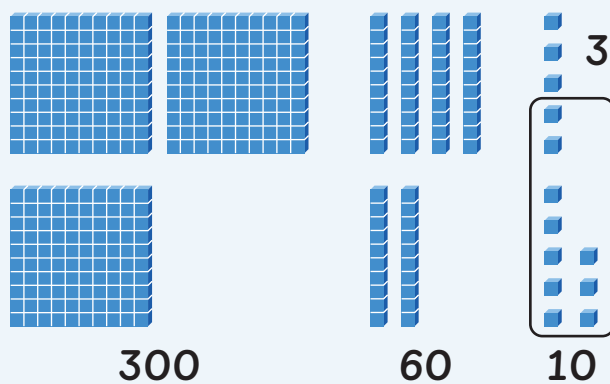
Show your work in the box if it is helpful. Separate your work for each problem.



## Summary 7.04

When adding by place, you need to compose a ten if there are 10 or more ones. The digit in the ones place of each addend can help you decide if you need to compose a ten.

$$245 + 128 = 373$$



## Practice 7.04

For Problems 1 and 2, use the addition expression.

$$639 + 129$$

1 Will you need to compose a ten to find the sum? Write *yes* or *no*. \_\_\_\_\_

2 Find the sum. Use base-ten blocks if it is helpful.

 Show or explain your thinking.

answer: \_\_\_\_\_

- 3** Circle **4** expressions in which you need to compose a ten to find the sum.

$413 + 268$

$567 + 122$

$345 + 643$

$863 + 109$

$116 + 784$

$138 + 403$

**Spiral Review**

- 4** Circle the clock that shows 4:50. Explain why the other clock does not show 4:50.



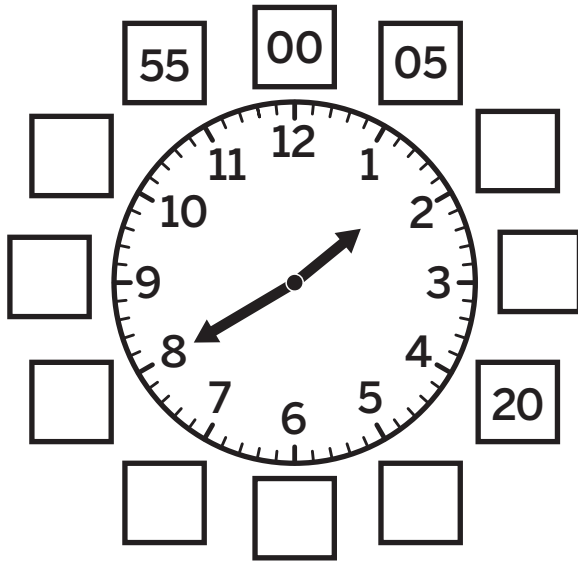
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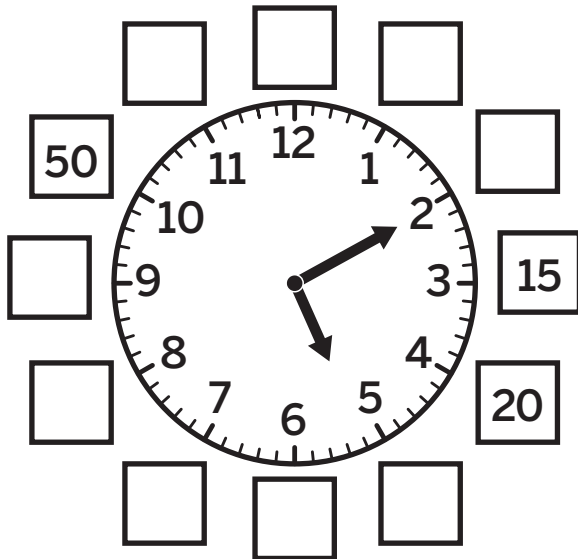
For Problems 5 and 6, fill in the missing labels. Write the time shown on the clock.

5



time: \_\_\_\_\_

6



time: \_\_\_\_\_

For Problems 7–10, find the value of the expression.

7  $8 + 6$  \_\_\_\_\_

8  $6 + 7$  \_\_\_\_\_

9  $9 + 7$  \_\_\_\_\_

10  $18 - 12$  \_\_\_\_\_

# Beaver's Sculpture Garden


Let's add to help Beaver build a sculpture garden.



**We are a math community.**  
Beaver works hard for the community. How is this similar to how you have worked this year in math class?

## Warm-Up



 eyes on teacher

## Activity

### 1

## Lovely Litter

### Hands-On

Each expression represents an amount of litter that Beaver will use as building materials. Use base-ten blocks to find each sum.

1  $363 + 228$

\_\_\_\_\_

2  $363 + 282$

\_\_\_\_\_

### 3 Discuss

How was finding the value of the expressions in Problems 1 and 2 the same? How was it different?

**1****Lovely Litter (continued)**

Use base-ten blocks to find each sum.

**4**  $576 + 351$

\_\_\_\_\_

**5**  $263 + 542$

\_\_\_\_\_

**6** **Discuss** 

Explain to your partner how you solved Problems 4 and 5.

# Beaver's Branches

## Hands-On

Use the numbers to write addition expressions to help Beaver. You may use each number more than once.

### Amounts of branches

322

581

164

417

- 7 Write an addition expression for which you do *not* need to compose to find the sum.

\_\_\_\_\_ + \_\_\_\_\_

- 8 Write an addition expression for which you need to compose *only a ten* to find the sum.

\_\_\_\_\_ + \_\_\_\_\_

- 9 Write an addition expression for which you need to compose *only a hundred* to find the sum.

\_\_\_\_\_ + \_\_\_\_\_

**Beaver's Branches (continued)****10** Discuss 

Compare your addition expression from Problem 9 with your partner's. Justify your answer by explaining how you know your addition expression requires composing a hundred.

**11** Find the sum of the expression you wrote for Problem 9.

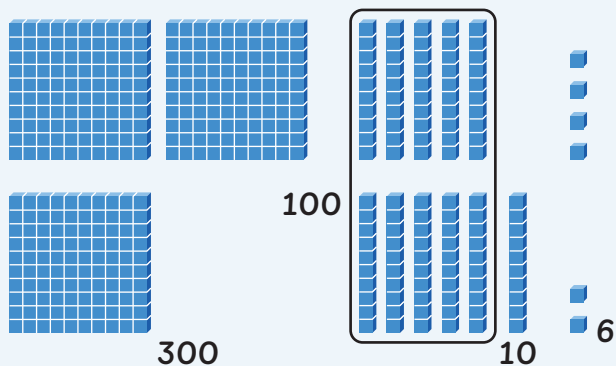
 **Show or explain your thinking.**

answer: \_\_\_\_\_

## Summary 7.05

When adding by place, you need to compose a hundred if there are 10 or more tens. The digit in the tens place of each addend can help you decide if you need to compose a hundred before finding the sum.

$$2\underline{5}4 + 1\underline{6}2 = 416$$



## Practice 7.05

For Problems 1 and 2, use the addition expression.

$$397 + 252$$

- 1 Will you need to compose a hundred to find the sum?  
Write *yes* or *no*. \_\_\_\_\_
- 2 Find the sum of the expression. Use base-ten blocks if it is helpful.

 Show or explain your thinking. \_\_\_\_\_

answer: \_\_\_\_\_

For Problems 3 and 4, use the numbers to write an addition expression for which you need to compose *only a hundred* to find the sum. You may use each number more than once.

456

181

363

227

**3**

\_\_\_\_\_ + \_\_\_\_\_

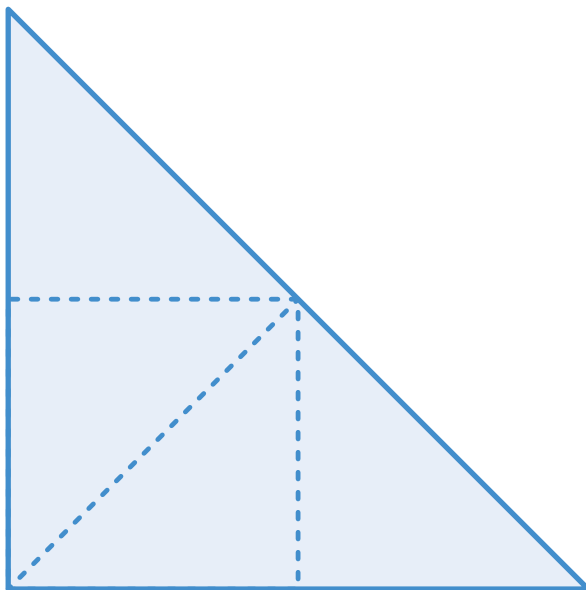
**4**

\_\_\_\_\_ + \_\_\_\_\_

**Spiral Review**

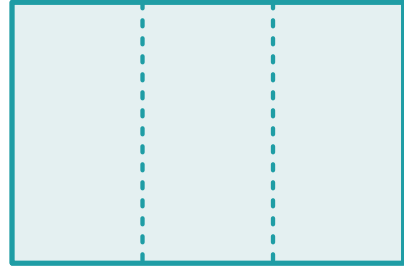
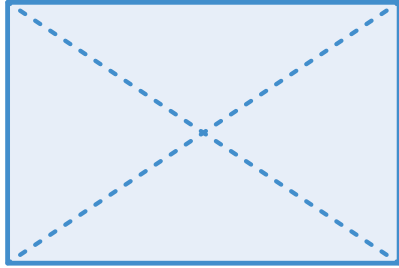
**5**

Write the name of the equal parts of the shape.



\_\_\_\_\_

- 6** Circle the shape that is split into smaller equal parts.  
Explain your thinking.




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For Problems 7 and 8, find the number that makes the equation true.

**i** Show your thinking.

**7**  $27 + 66 = \underline{\hspace{2cm}}$

**8**  $46 + \underline{\hspace{2cm}} = 66$

# Sorting Addition Expressions

Let's sort addition expressions into categories and find the sums.



## Warm-Up



eyes on teacher



**I can be all of me in math class.**

How have you grown this year as a mathematician?

## Activity

### 1

# Card Sort: Addition Expression Exploration

## Hands-On

You and your partner will be given a set of cards with addition expressions.

### 1 Sort

Sort the cards into categories using what you know about composing. Create a name for each category. Then fill in the table to show how you sorted the cards.

**1****Card Sort: Addition Expression Exploration  
(continued)**

Category	Cards

**2****Discuss** 

Compare your sort with another pair. Explain how you know the cards are sorted into the correct categories.

## 2

## What's the Sum?

You and your partner will find the sums for Card C and Card F from Activity 1. Show your thinking by drawing base-ten diagrams.

- 3 Find the sum for Card C.

$$757 + 165$$

 Show your thinking.

answer: \_\_\_\_\_

**What's the Sum? (continued)**

- 4 Find the sum for Card F.

$$385 + 215$$

 Show your thinking.

answer: \_\_\_\_\_

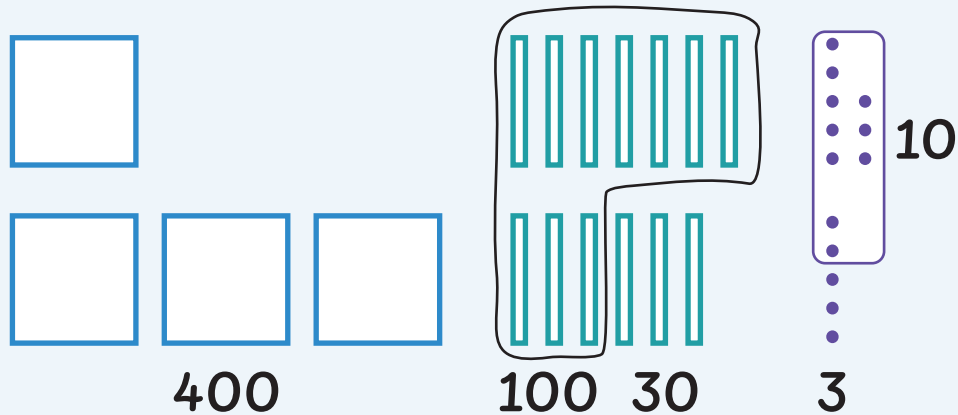
- 5 Discuss 

How was composing to find the sum in Problems 3 and 4 the same? How was it different?

## Summary 7.06

It is important to consider all place values when adding by place. Sometimes, you need to compose a ten and a hundred to find the sum.

$$178 + 365 = 543$$



## Practice 7.06

- 1 Find the sum.  
 $479 + 328$

 Show your thinking.

answer: \_\_\_\_\_

For Problems 2 and 3, find the sum.

 Show your thinking.

**2**  $247 + 358$

answer: \_\_\_\_\_

**3**  $198 + 634$

answer: \_\_\_\_\_

## Spiral Review

4 Circle the number that is *greater* than 596.

539

399

589

601

5 Circle the number that is *less* than 596.

536

799

597

610

Use the following numbers for Problems 6 and 7.

642

577

609

534

658

6 Order and record the numbers from *greatest* to *least*.

\_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

**greatest****least**

7 Order and record the numbers from *least* to *greatest*.

\_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

**least****greatest**

# Working With Others

Let's represent addition strategies with equations.



## Warm-Up



eyes on teacher

**I can be all of me in math class.**

Bea felt worried when Eli was lost. When have you felt worried in math class? What helped you feel better?

## Activity

### 1

# Adding With Equations

Priya found the sum of  $358 + 167$  and represented her thinking with equations.

$$300 + 100 = 400$$

$$50 + 60 = 110$$

$$8 + 7 = 15$$

$$400 + 110 + 15 = \underline{525}$$

### 1 Discuss

Explain how Priya used equations to represent her strategy.

**1****Adding With Equations (continued)**

- 2** Use Priya's strategy to find the sum of  $193 + 796$ . Show your thinking with equations.

 **Show your thinking.**

answer: \_\_\_\_\_

## Is the Order Important?

- 3 Shawn and Clare are working together to find the sum of  $786 + 121$ . Shawn starts by adding the ones. Clare tells Shawn they have to add the hundreds first. Do you *agree* or *disagree* with Clare? Justify your answer.

 Show your thinking.

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**Is the Order Important? (continued)**

- 4 Find the sum of  $405 + 289$ . Show your thinking with equations.



Show your thinking.

answer: \_\_\_\_\_

## Summary 7.07

Equations can be used to represent your thinking when adding within 1,000. When adding by place, the hundreds, tens, and ones can be added in any order.

$$183 + 248$$

Adding hundreds first:

$$100 + 200 = 300$$

$$80 + 40 = 120$$

$$3 + 8 = 11$$

$$300 + 120 + 11 = \underline{431}$$

Adding ones first:

$$3 + 8 = 11$$

$$80 + 40 = 120$$

$$100 + 200 = 300$$

$$11 + 120 + 300 = \underline{431}$$

## Practice 7.07

- 1 Find the sum of  $456 + 225$ . Show your thinking with equations.

 Show your thinking.

answer: \_\_\_\_\_

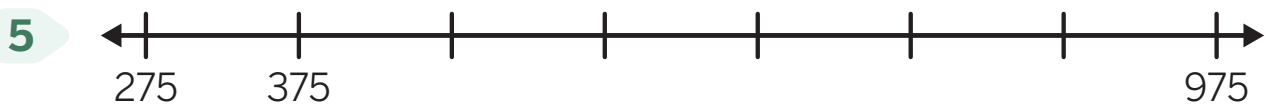
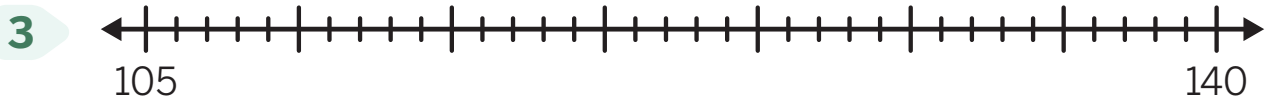
**2** Find the sum of  $573 + 259$ . Show your thinking with equations.

**i** Show your thinking.

answer: \_\_\_\_\_

**Spiral Review**

For Problems 3–5, fill in the missing numbers on the number line.



- 6** For each object, select whether its length is likely to be less than 1 meter, about 1 meter, or more than 1 meter.

	Less than 1 meter	About 1 meter	More than 1 meter
guitar			
carrot			
length of a swimming pool			
giraffe's neck			

- 7** Select the estimates of length that are reasonable.

- (A) A carton of eggs is 3 meters long
- (B) A soup can is 1 meter tall
- (C) An airplane is 60 meters long
- (D) The length of a dump truck is 11 meters

# Asking for Help

Let's show and explain our addition strategies.



## We are a math community.

In the Unit Story, Bea asks for help finding Eli. Who can you ask for help in math class?

## Warm-Up



eyes on teacher

## Activity

# 1

## Introducing the Center, Target Numbers

Stage 6



**Pairs**  Let's add hundreds, tens, and ones to three-digit numbers.

**You'll need:** Number Cards, 1–9, Recording Sheet



## How to Play

- 1 Draw 3 number cards to make a three-digit number as the starting number for both partners. Record the starting number in the first box on the Recording Sheet.
- 2 Draw the top 5 number cards. Choose 1 card to represent the hundreds, 1 card to represent the tens, and 1 card to represent the ones to make a three-digit number to add to the starting number. Record the number.
- 3 Complete the equation by finding the sum. Represent your thinking as you add. Record the sum as the starting number in your next equation.
- 4 Take turns until each player's Recording Sheet is full. The player with a final sum closer to 1,000 wins.

## Target Numbers (continued)

Number cards	Equation
_____ hundreds _____ tens _____ ones	$\boxed{\phantom{00}} + \boxed{\phantom{00}} = \boxed{\phantom{00}}$
_____ hundreds _____ tens _____ ones	$\boxed{\phantom{00}} + \boxed{\phantom{00}} = \boxed{\phantom{00}}$
_____ hundreds _____ tens _____ ones	$\boxed{\phantom{00}} + \boxed{\phantom{00}} = \boxed{\phantom{00}}$
_____ hundreds _____ tens _____ ones	$\boxed{\phantom{00}} + \boxed{\phantom{00}} = \boxed{\phantom{00}}$

## Communicating With Others

Bea spent two days cleaning up her local community. On the first day she collected 446 pieces of trash along the side of a busy street. The second day she collected 165 pieces of trash at a local park

- 1 Make an estimate. Approximately how many pieces of trash did Bea collect in total?

 Show your thinking.

estimate: \_\_\_\_\_

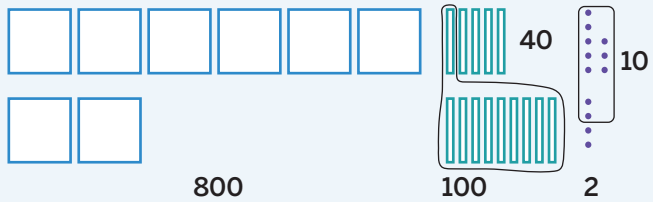
### 2 Discuss

- What strategy will you use to find the total amount of trash that Bea collected?
- What representation(s) will you use to show your thinking?
- How will you make your thinking clear for others?

## Summary 7.08

When adding within 1,000, you can represent your thinking with base-ten diagrams or equations.

$$658 + 294$$



$$800 + 100 + 40 + 10 + 2 = 952$$

$$\begin{aligned} 600 + 200 &= 800 \\ 50 + 90 &= 140 \\ 8 + 4 &= 12 \end{aligned}$$

$$800 + 140 + 12 = 952$$

## Practice 7.08

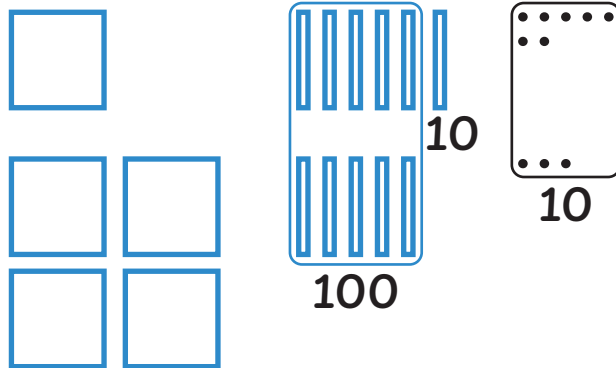
- 1 Find the sum of  $105 + 296$ .

 Show or explain your thinking.

answer: \_\_\_\_\_

- 2** Clare's drawing for finding the sum of  $167 + 453$  is shown. Show Clare's strategy using equations.

**Show your thinking.**



- 3** Diego is collecting money for a school fundraiser. Last week he collected \$348. This week he collected \$274. How much money did Diego collect?

**Show your thinking.**

answer: \_\_\_\_\_

## Spiral Review

For Problems 4–7, find the value of the expression.

4  $16 - 8$  \_\_\_\_\_

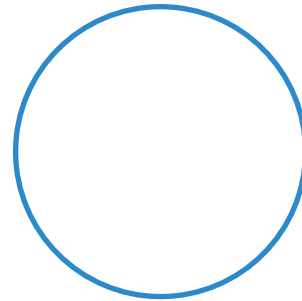
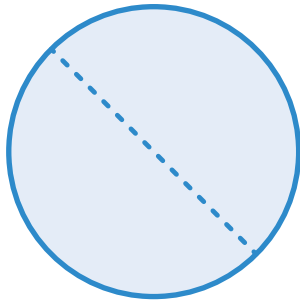
5  $8 + 7$  \_\_\_\_\_

6  $11 + 7$  \_\_\_\_\_

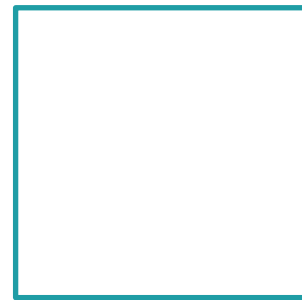
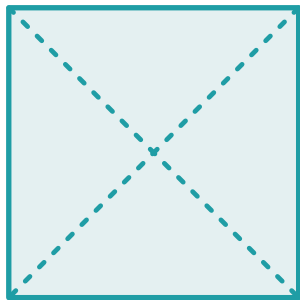
7  $15 - 12$  \_\_\_\_\_

For Problems 8–10, draw lines to split the shape into the same number of equal parts in a different way.

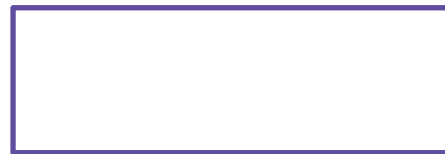
8



9



10





Notes:

# Subtracting Within 1,000 Using Place Value Strategies

✦ Unit Story: Where Eli Went



Natalya Rozhkova/Shutterstock.com

After cleaning up some of the litter, Beaver wondered how many pieces of trash there still were along the riverbank.

How could Beaver find out how many pieces of trash were left?

# Don't Worry, Bea's Happy

Let's use patterns to subtract tens and hundreds from three-digit numbers.



**I am a doer of math.**  
How have you used what you already know to help you understand something new in math class?

## Warm-Up

**1**  eyes on teacher

## Activity

# 1 Bea's Bridge Back

Help Bea cross the river. Fill in the number patterns.

**2** Count back by 10, starting at 359.

359, [ ], [ ], [ ]

**3** Count back by 10, starting at 794.

794, [ ], [ ], [ ]

## Discuss

What patterns do you notice when counting back by 10?

## 1

## Bea's Bridge Back (continued)

- 4** Count back by 100, starting at 902.



902, , ,

- 5** Count back by 100, starting at 678.



678, , ,

**Discuss** 

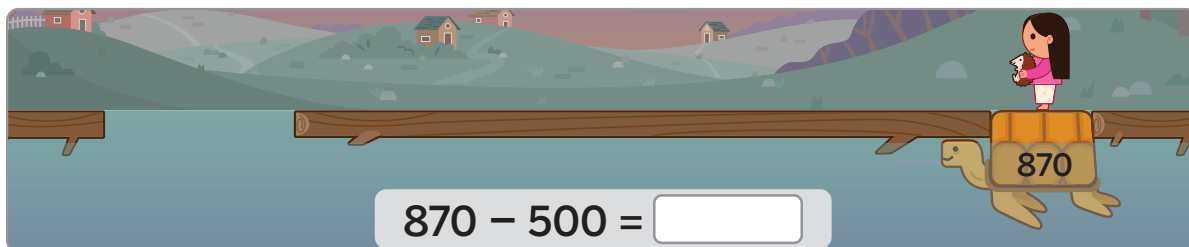
What patterns do you notice when counting back by 100?

**6** **Discuss** 

Let's discuss the number patterns.

# Helping Eli Home

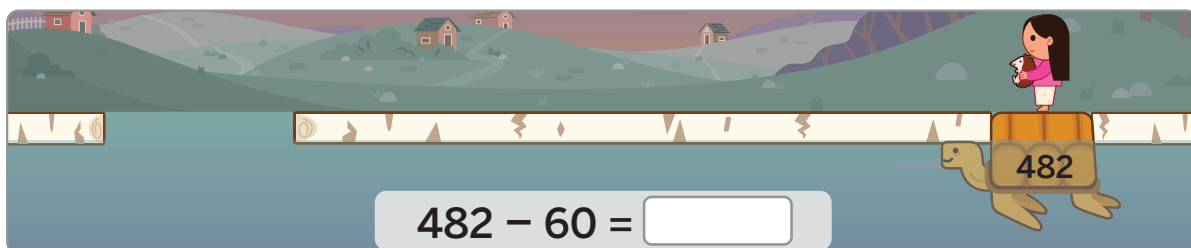
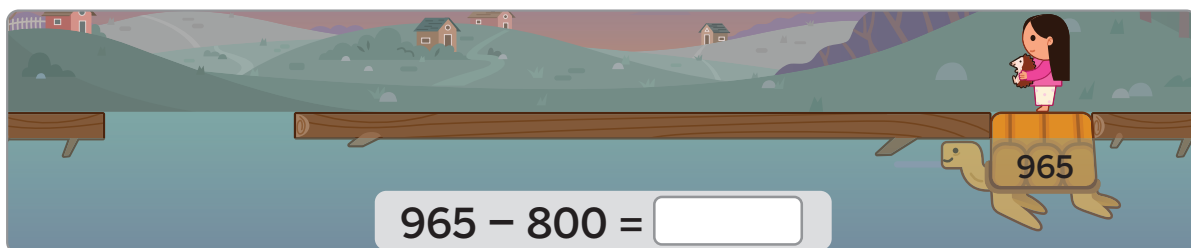
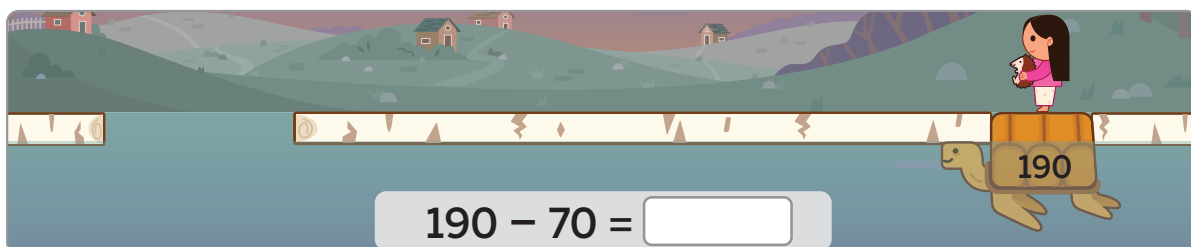
- 7** Find the difference.



## Discuss

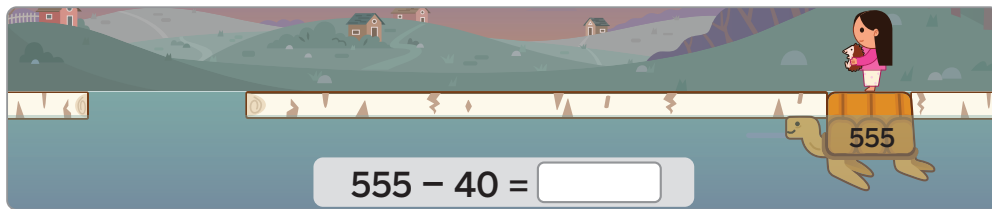
How did you find the difference?

- 8** Find each difference. Complete as many challenges as you have time for.

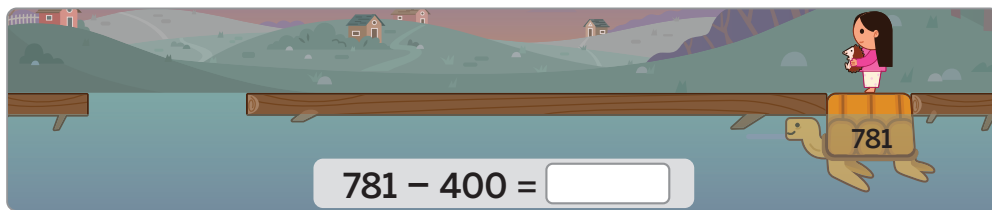


## Helping Eli Home (continued)

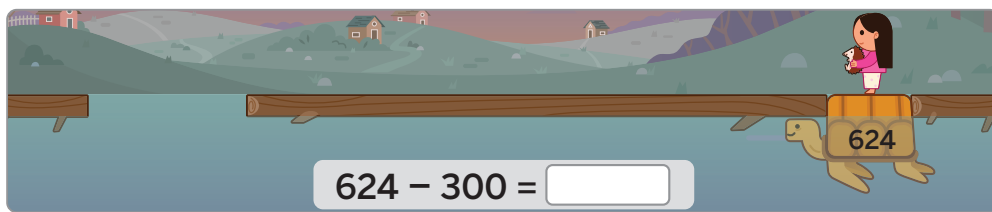
8



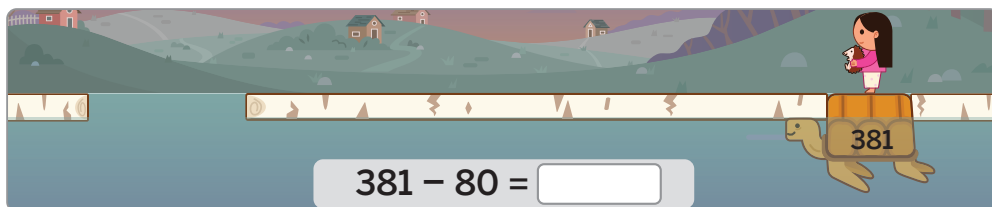
$555 - 40 = \square$



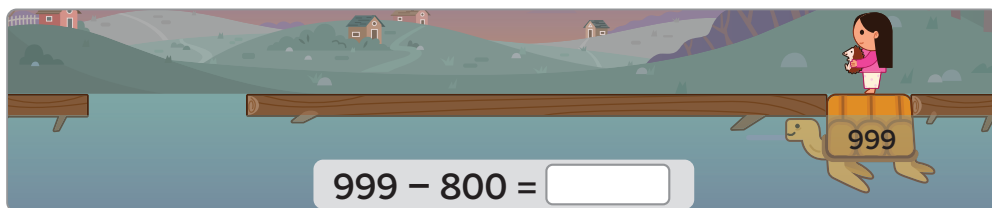
$781 - 400 = \square$



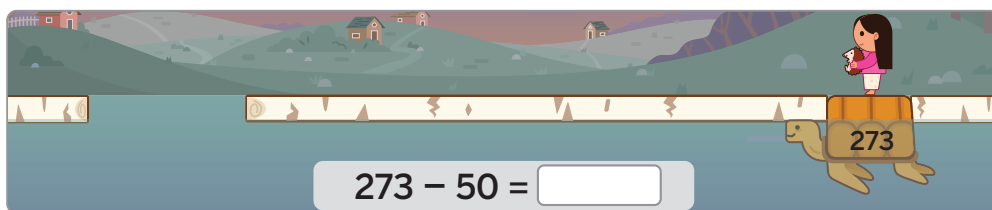
$624 - 300 = \square$



$381 - 80 = \square$



$999 - 800 = \square$



$273 - 50 = \square$

9

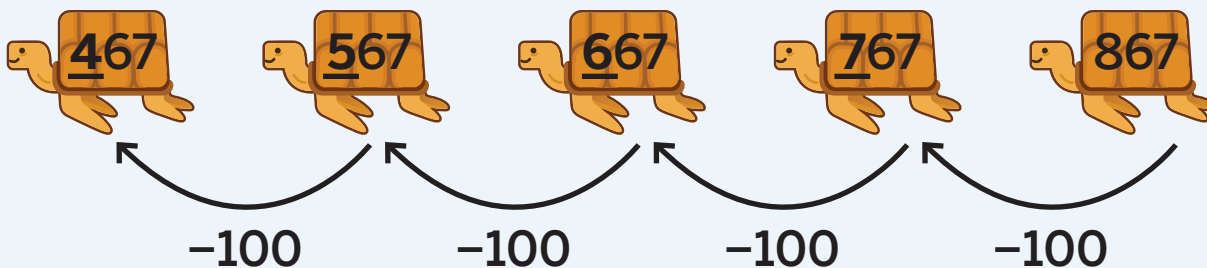
Discuss 

Let's discuss strategies for finding the difference.

## Summary 7.09

You can use what you know about place value and counting back by 10 or 100 to subtract amounts of tens and hundreds from three-digit numbers.

$$867 - 400 = \underline{467}$$



## Practice 7.09

For Problems 1 and 2, fill in the number pattern.

- 1 Count back by 10, starting at 395.

395, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

- 2 Count back by 100, starting at 918.

918, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

## Practice 7.09

Name \_\_\_\_\_ Date \_\_\_\_\_

For Problems 3 and 4, find the difference.

3  $653 - 400$  \_\_\_\_\_

4  $486 - 50$  \_\_\_\_\_

## Spiral Review

For Problems 5 and 6, write  $<$ ,  $>$ , or  $=$  to make the statement true.

5



\_\_\_\_\_



6



\_\_\_\_\_



For Problems 7–12, find the value of the expression.

 Show your thinking.

**7**  $90 - 32$

answer: \_\_\_\_\_

**8**  $18 + 55$

answer: \_\_\_\_\_

**9**  $42 - 26$

answer: \_\_\_\_\_

**10**  $72 + 23$

answer: \_\_\_\_\_

**11**  $89 - 47$

answer: \_\_\_\_\_

**12**  $41 + 19$

answer: \_\_\_\_\_

# Counting Quills

Let's subtract numbers within 1,000.



## Warm-Up



eyes on teacher

### We are a math community.

Deer enjoyed recycling to help his community. How can you support your math community today?

## Activity

### 1

# How Many Quills Are Left?

## Hands-On

For each row, find each difference to help Deer figure out how many quills are left. Use base-ten blocks if it is helpful.

	Deer	Raccoon	Difference
1	493	232	
2	875	312	

**How Many Quills Are Left? (continued)**

	Deer	Raccoon	Difference
3	349	41	
4	578	423	

- 5 Explain how you found the difference for Problem 1.

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# Crafting With Quills

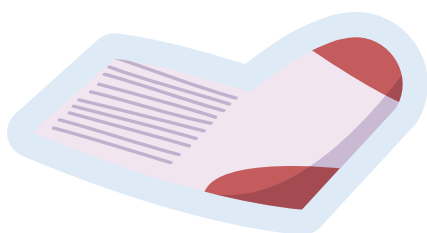
## Hands-On

The expressions represent how many quills are left. Find each difference.

6  $284 - 123$

 Show or explain your thinking.

answer: \_\_\_\_\_



## Crafting With Quills (continued)

7 992 – 341



Show or explain your thinking.

answer: \_\_\_\_\_

8 639 – 615



Show or explain your thinking.

answer: \_\_\_\_\_



- 2 Find the difference of  $165 - 134$ .

 **Show or explain your thinking.**

**answer:** \_\_\_\_\_

- 3 Diego's family is building a new shed on their farmland. They need 93 pine boards to complete construction. They already have 32 pine boards. How many more pine boards do they need to finish the shed?

 **Show your thinking.**

**answer:** \_\_\_\_\_

## Spiral Review

Shawn is playing a video game. Shawn needs to complete each number pattern to unlock the next level.

For Problems 4–6, fill in the missing numbers to complete the number pattern.

4



5



6



7

Create your own number pattern that ends with 945. You can count by 5, 10, or 100.




# How Many Leaves?

Let's subtract to find out how many leaves are left from Tree's branches.



## Warm-Up



 eyes on teacher

### We are a math community.

In the Unit Story, animals in the forest help Bea find her way. How have you helped others in math class?

## Activity

### 1

## Brilliant Branches

### Hands-On

The expressions represent the amount of silver and gold leaves Bird has left. Use base-ten blocks to find each difference.

1  $54 - 36$  \_\_\_\_\_

2  $354 - 236$  \_\_\_\_\_

### 3 Discuss

How was finding the difference in Problems 1 and 2 similar?  
How was it different?

**Brilliant Branches (continued)**

Use base-ten blocks to find each difference.

4  $543 - 428$  \_\_\_\_\_ 5  $876 - 639$  \_\_\_\_\_

6 **Discuss** 

Explain to your partner how you solved Problems 4 and 5.

## Mix and Mingle: To Decompose or Not to Decompose

### Hands-On

You and your partner will each be given a card with a three-digit number that represents an amount of leaves.

7 For each round:

- Write a subtraction expression.
- Discuss if you need to decompose a ten *before* solving.
- Find the difference and show your thinking.

Subtraction expression	Will you need to decompose a ten?	Difference
_____ - _____	yes / no	
_____ - _____	yes / no	
_____ - _____	yes / no	
_____ - _____	yes / no	

## Mix and Mingle: To Decompose or Not to Decompose (continued)

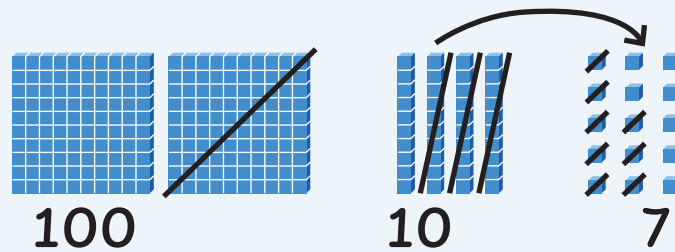
You can show your work in the box if it is helpful. Separate the work for each problem.



## Summary 7.11

When subtracting by place, you need to decompose a ten if the amount of ones you are taking away is greater than the amount of ones you have. The digit in the ones place of each number can help you decide if you need to decompose a ten.

$$245 - 128 = 117$$



## Practice 7.11

For Problems 1 and 2, use the subtraction expression.

$$543 - 129$$

- 1 Will you need to decompose a ten to find the difference?  
Write *yes* or *no*. \_\_\_\_\_
- 2 Find the difference. You can use base-ten blocks if it is helpful.

**i** Show or explain your thinking. \_\_\_\_\_

answer: \_\_\_\_\_

## Practice 7.11

Name \_\_\_\_\_ Date \_\_\_\_\_

- 3** Circle **3** expressions in which you need to decompose a ten to find the difference.

$549 - 228$

$387 - 179$

$693 - 345$

$683 - 109$

$716 - 604$

$438 - 403$

- 4** Find the difference of one of the expressions you circled from Problem 3. You can use base-ten blocks if it is helpful.

**i** Show or explain your thinking.

expression: \_\_\_\_\_

answer: \_\_\_\_\_

## Spiral Review

For Problems 5 and 6, circle the number that makes the equation true.

**5**  $13 - 8 =$  \_\_\_\_\_

9

6

21

5

**6**  $7 + 8 =$  \_\_\_\_\_

1

15

17

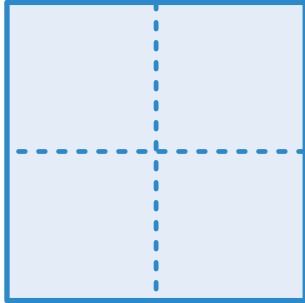
13

For Problems 7–9, draw lines to match the partitioned shape with the name of its equal parts.

Shape

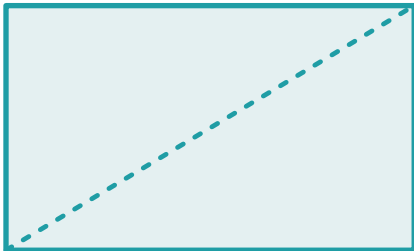
Equal parts

7



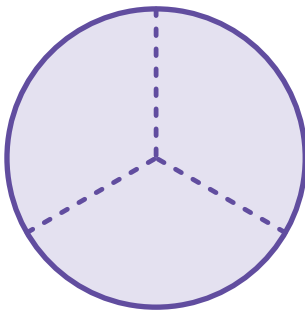
thirds

8



fourths

9



halves

# Bea's Journey

Let's subtract to help Bea on her journey to find Eli.



**I can be all of me in math class.**  
Bea goes on a journey to find Eli. What has your journey in math class been like this year?

## Warm-Up



## Activity

### 1

# The Glowing Field

## Hands-On

Each expression represents an amount of fireflies that flew away. Use base-ten blocks to find each difference.

1  $345 - 128$  \_\_\_\_\_ 2  $345 - 182$  \_\_\_\_\_

### 3 Discuss

How was finding the difference in Problems 1 and 2 the same?  
How was it different?

**1****The Glowing Field (continued)**

Use base-ten blocks to find each difference.

4  $436 - 364$

\_\_\_\_\_

5  $729 - 451$

\_\_\_\_\_

6 Explain how you solved Problem 4 or Problem 5.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



# Planning Bea's Route

## Hands-On

Each space represents a possible path to find Eli.

- 7 Shade the spaces with expressions in which decomposing a hundred is necessary to find the difference.



$464 - 182$	$352 - 71$	$257 - 176$	$438 - 125$
$488 - 383$	$752 - 346$	$509 - 188$	$735 - 573$
$570 - 435$	$174 - 63$	$291 - 29$	$645 - 351$



**Planning Bea's Route (continued)****8 Discuss** 

Justify how you know the shaded subtraction expressions require decomposing a hundred.

**Choose 1 of the subtraction expressions you shaded in Problem 7.**

**9** Write the subtraction expression from Problem 7.

\_\_\_\_\_

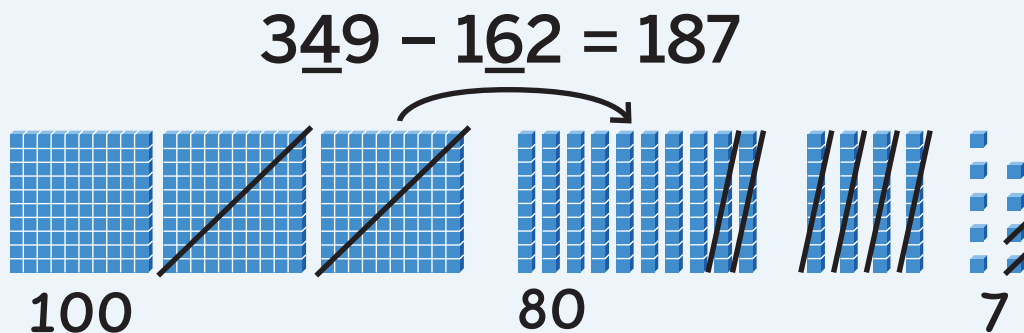
**10** Find the difference.

 **Show or explain your thinking.**

answer: \_\_\_\_\_

## Summary 7.12

When subtracting by place, you need to decompose a hundred if the amount of tens you are taking away is greater than the amount of tens you have. The digit in the tens place of each number can help you decide if you need to decompose a hundred.



## Practice 7.12

- 1** Circle **3** expressions in which you need to decompose a hundred.

$409 - 118$

$827 - 362$

$346 - 215$

$781 - 674$

$316 - 204$

$539 - 473$

For Problems 2 and 3, use the subtraction expression.

$$408 - 167$$

- 2 Will you need to decompose a hundred to find the difference?

Write *yes* or *no*. \_\_\_\_\_

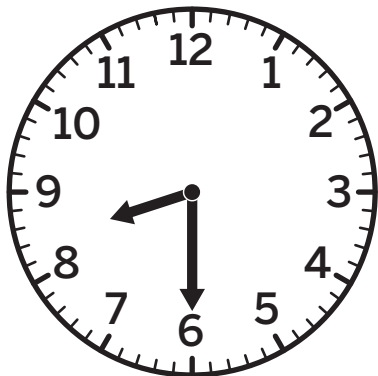
- 3 Find the difference of the expression. Use base-ten blocks if it is helpful.

 Show or explain your thinking.

answer: \_\_\_\_\_

### Spiral Review

- 4 The clock shows Clare's bedtime. Circle the time that is shown on the clock.



8:30 a.m.

9:30 a.m.

9:30 p.m.

8:30 p.m.

**Practice 7.12**

Name \_\_\_\_\_ Date \_\_\_\_\_

**5** Fill in the table with  $<$ ,  $>$ , or  $=$  to make each statement true.

Number	$<$ , $>$ , or $=$	Number
457		475
336		309
892		892
185		158

For Problems 6–9, find the number that makes the equation true.

 **Show your thinking.**

**6**  $48 + 35 = \underline{\hspace{2cm}}$

**7**  $66 + 29 = \underline{\hspace{2cm}}$

**8**  $99 - 29 = \underline{\hspace{2cm}}$

**9**  $50 - 31 = \underline{\hspace{2cm}}$

# Frog's Funplex

Let's subtract to play at Frog's Funplex.



## Warm-Up



eyes on teacher



**I can be all of me in math class.**  
How would you describe yourself as a mathematician now compared to the beginning of the year?

## Activity

### 1

# Lily Pad Party

## Hands-On

You and your partner will be given 2 spinners. Use the spinners to create subtraction expressions. Then find the difference. Show your thinking by drawing base-ten diagrams.

1 Write the subtraction expression.

\_\_\_\_\_ - \_\_\_\_\_

2 Find the difference of the expression you wrote in Problem 1.



Show your thinking.

answer: \_\_\_\_\_

**1****Lily Pad Party (continued)**

- 3** Write the subtraction expression.

\_\_\_\_\_ - \_\_\_\_\_

- 4** Find the difference of the expression you wrote in Problem 3.

**i** Show your thinking.

answer: \_\_\_\_\_

- 5** Write the subtraction expression.

\_\_\_\_\_ - \_\_\_\_\_

- 6** Find the difference of the expression you wrote in Problem 5.

**i** Show your thinking.

answer: \_\_\_\_\_

## 2

## How Many Tokens?

Find each difference to see how many tokens Toad and Newt have left. Draw a base-ten diagram to show your thinking.

7  $700 - 567$

 Show your thinking.

answer: \_\_\_\_\_

8  $472 - 276$

 Show your thinking.

answer: \_\_\_\_\_

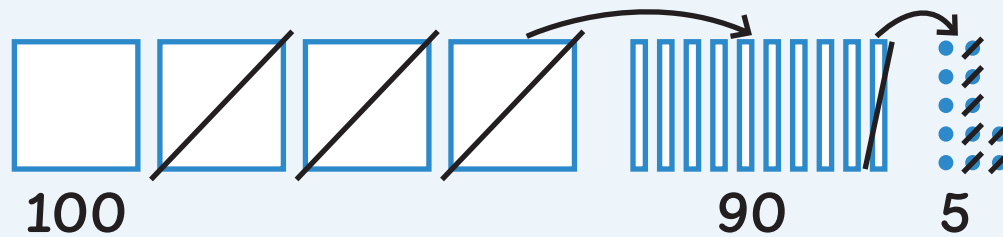
9 **Discuss** 

How was decomposing to find the difference in Problems 7 and 8 the same? How was it different?

## Summary 7.13

Consider all place values when subtracting by place. Sometimes, you need to decompose a ten and a hundred to find the difference.

$$402 - 207 = 195$$



## Practice 7.13

- 1 Find the difference. Draw a base-ten diagram to show your thinking.

$$763 - 368$$

**i** Show your thinking.

answer: \_\_\_\_\_

- 2** Find the difference. Draw a base-ten diagram to show your thinking.

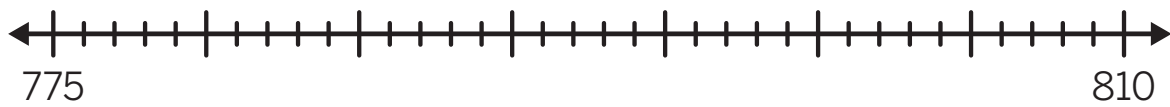
$$762 - 273$$

**i** Show your thinking.

answer: \_\_\_\_\_

**Spiral Review**

- 3** Fill in the missing numbers on the number line.



- 4** Fill in the missing numbers on the number line.



For Problems 5–7, find the sum.

 Show your thinking.

**5**  $11 + 9 + 4 + 16$

answer: \_\_\_\_\_

**6**  $7 + 5 + 13 + 3$

answer: \_\_\_\_\_

**7**  $22 + 6 + 13 + 24$

answer: \_\_\_\_\_

# Pond Games

Let's make sense of different ways to subtract within 1,000.



**I can be all of me in math class.**  
Animals in the Unit Story find creative ways to use Eli's quills. In what ways are you creative in math class?

## Warm-Up



## Activity

# 1 Keeping Score

Frog and Newt were finding the difference of  $321 - 146$  to find how many points Frog needed to match Newt's score. The first steps of their strategies are represented with base-ten diagrams.

Frog's strategy:



Newt's strategy:



## 1 Discuss

Will Newt's strategy work? Justify your thinking.

## 1

## Keeping Score (continued)

Complete each strategy to find the difference.

$$321 - 146$$

## 2 Frog's strategy

 Show your thinking. \_\_\_\_\_



answer: \_\_\_\_\_

## 3 Newt's strategy

 Show your thinking. \_\_\_\_\_



answer: \_\_\_\_\_

4 Discuss 

Was your idea about Newt's strategy correct? How do you know?

## Different Ways to Decompose

Use the scores to create subtraction expressions. Then find if you need to decompose. Find each difference.

Sticky Quills Scores				
Frog	Newt	Toad	Turtle	
814	328	936	675	

5 Write a subtraction expression.

\_\_\_\_\_ - \_\_\_\_\_

6 Circle the unit(s) you will need to decompose.

a hundred

a ten

none

7 Find the difference of your expression from Problem 5.

 Show or explain your thinking.

answer: \_\_\_\_\_

**Different Ways to Decompose (continued)**

- 8 Write a subtraction expression.

\_\_\_\_\_ - \_\_\_\_\_

- 9 Circle the unit(s) you will need to decompose.

a hundred

a ten

none

- 10 Find the difference of your expression from Problem 8.

 Show or explain your thinking.

answer: \_\_\_\_\_

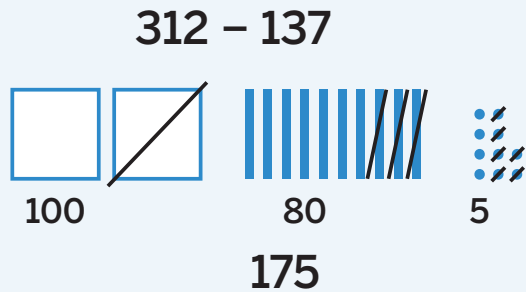
- 11 **Discuss** 

Why is it helpful to know if you will need to decompose a ten or a hundred before you subtract?

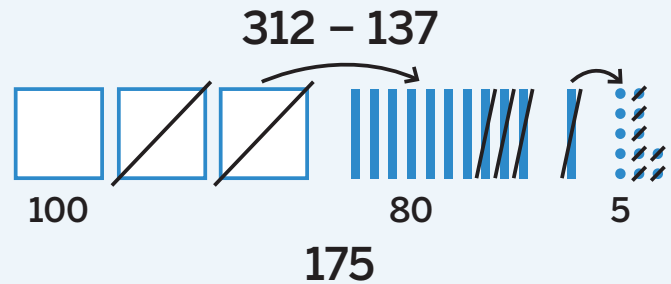
## Summary 7.14

You can subtract by place by decomposing before subtracting or decomposing while subtracting.

### Decompose before subtracting



### Decompose while subtracting



## Practice 7.14

- 1 Find the difference of  $352 - 164$ .

 Show or explain your thinking.

answer: \_\_\_\_\_

## Practice 7.14

Name \_\_\_\_\_ Date \_\_\_\_\_

For Problems 2 and 3, use the numbers to write subtraction expressions that require decomposing a hundred. You may use each number only once.

456

193

619

265

2

\_\_\_\_\_ - \_\_\_\_\_

3

\_\_\_\_\_ - \_\_\_\_\_

4

Choose **1** expression you wrote from Problem 2 or Problem 3 and find the difference.



Show your thinking.

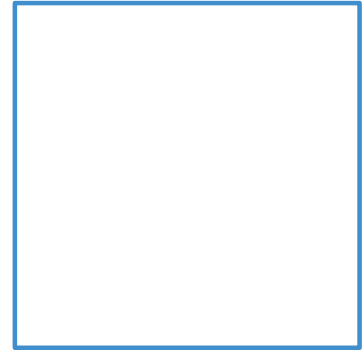
expression: \_\_\_\_\_

answer: \_\_\_\_\_

## Spiral Review

Use the square for Problems 5 and 6.

- 5 Split the square into 4 equal parts.  
Shade 3 parts blue.  
Shade 1 part red.



- 6 How much of the square is shaded?

---

---

For Problems 7–10, find the value of the expression.

7  $12 - 6$  \_\_\_\_\_

8  $18 - 7$  \_\_\_\_\_

9  $5 + 7$  \_\_\_\_\_

10  $16 - 8$  \_\_\_\_\_

For Problems 11 and 12, find the value of the expression.

 Show your thinking.

11  $81 - 46$

12  $18 + 39$

answer: \_\_\_\_\_

answer: \_\_\_\_\_

# Sharing Ideas

Let's compare representations of subtraction.



**We are a math community.**  
The animals in the Unit Story play games together. What is important to remember when you play games with others?

## Warm-Up



## Activity

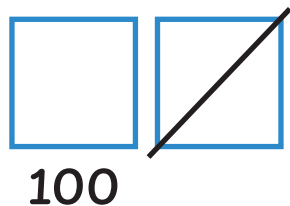
### 1

# Toad's Equations

Toad represented Newt's strategy with equations. Newt's base-ten diagram and Toad's equations are shown.

$$321 - 146$$

Newt's diagram



100



70

5

175

Toad's equations

$$321 = 200 + 110 + 11$$

$$200 - 100 = 100$$

$$110 - 40 = 70$$

$$11 - 6 = 5$$

$$100 + 70 + 5 = 175$$

## 1 Discuss

How are the representations similar? How are they different?

**1****Toad's Equations (continued)**

- 2 Circle the unit(s) you need to decompose to find the difference of  $783 - 567$ .

a hundred

a ten

none

- 3 Find the difference of  $783 - 567$ . Show your thinking using drawings or equations.

 Show your thinking.

answer: \_\_\_\_\_



## 2

## A New Round

The expressions represent Turtle's, Toad's, and Newt's final scores. Find each difference. Represent your thinking using drawings or equations.

 Show your thinking.

4 Turtle's score:  $502 - 355$

answer: \_\_\_\_\_

5 Toad's score:  $432 - 351$

answer: \_\_\_\_\_

**A New Round (continued)**

 Show your thinking.

**6** Newt's score:  $983 - 489$

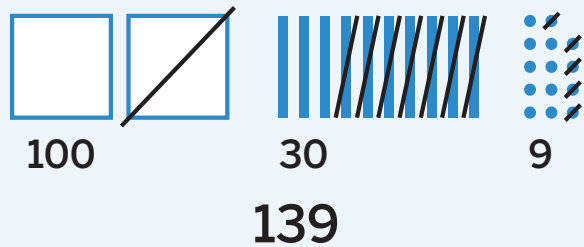
answer: \_\_\_\_\_

**7** Discuss 

Choose **1** problem. Explain why your strategy works.

## Summary 7.15

Base-ten diagrams and equations can be used to show strategies when subtracting by place.



$$314 - 175$$

$$314 = 200 + 100 + 14$$

$$200 - 100 = 100$$

$$100 - 70 = 30$$

$$14 - 5 = 9$$

$$100 + 30 + 9 = 139$$

## Practice 7.15

- 1 Find the difference of  $612 - 533$ . Show your thinking using drawings or equations.

 Show your thinking.

answer: \_\_\_\_\_

## Practice 7.15

Name \_\_\_\_\_ Date \_\_\_\_\_

- 2 Find the difference of  $571 - 183$ . Show your thinking using drawings or equations.

 Show your thinking.

answer: \_\_\_\_\_

## Spiral Review

For Problems 3–6, write  $<$ ,  $>$ , or  $=$  to make the statement true.

3  $292$  \_\_\_\_\_  $229$

4  $467$  \_\_\_\_\_  $399$

5  $561$  \_\_\_\_\_  $561$

6  $802$  \_\_\_\_\_  $812$

For Problem 7, use the following numbers.

419

392

437

526

486

7 Order and record the numbers from *least* to *greatest*.

\_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_  
least greatest

For Problems 8–11, find the value of the expression.

 Show your thinking.

8  $85 - 42$

answer: \_\_\_\_\_

9  $17 + 56$

answer: \_\_\_\_\_

10  $76 - 39$

answer: \_\_\_\_\_

11  $34 + 23$

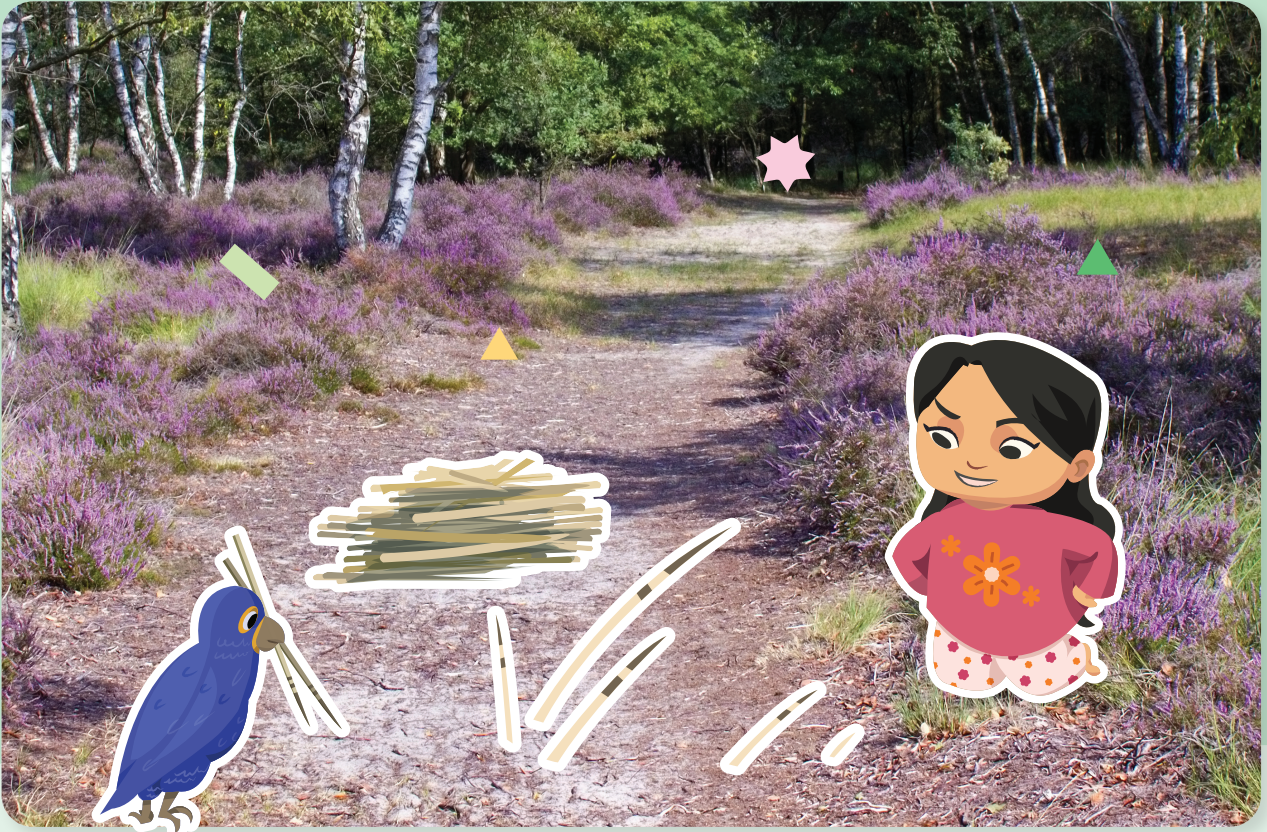
answer: \_\_\_\_\_



Notes:

# Choosing Strategies to Add and Subtract Within 1,000

✦ Unit Story: Where Eli Went



Mira Drozdowski/Shutterstock.com

Eli lost many quills throughout his journey.

What strategies could you use to find how many total quills Eli lost? What strategies could you use to find how many quills Eli has left?

# Replacing Eli's Quills

Let's add up to 4 two-digit numbers.



## Warm-Up



eyes on teacher



### I can be all of me in math class.

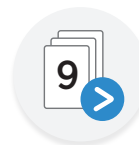
In the Unit Story, Eli shares his quills to help others. How do you feel when you share ideas in math class?

## Activity

# 1

## Introducing the Center, Greatest of Them All

Stage 3



**Pairs** Let's make and compare sums of 4 two-digit numbers.

**You'll need:** Number Cards, 0–9, Recording Sheet



**Set Up** Shuffle the number cards and put them in a stack facedown.



### How to Play

- 1 Draw a number card. Record the number in one of your boxes. Repeat until you and your partner both have 4 two-digit addends.
- 2 Discuss if you need to compose a ten or hundred before finding the sum.
- 3 Find the sum and record it. Compare using  $<$ ,  $>$ , or  $=$ . The player with the greater sum earns 1 point.
- 4 When the Recording Sheet is full, the player who earns more points wins.

## Greatest of Them All (continued)

Winner?					
Compare using <, >, or =.					
My partner's sum					
My sum					
Expression	<div style="border: 1px dotted black; padding: 5px; text-align: center;"> <math>\square + \square</math>  <math>\square + \square</math>  <math>\square + \square</math>  <math>\square + \square</math>  <math>\square + \square</math> </div>	<div style="border: 1px dotted black; padding: 5px; text-align: center;"> <math>\square + \square</math>  <math>\square + \square</math>  <math>\square + \square</math>  <math>\square + \square</math>  <math>\square + \square</math> </div>	<div style="border: 1px dotted black; padding: 5px; text-align: center;"> <math>\square + \square</math>  <math>\square + \square</math>  <math>\square + \square</math>  <math>\square + \square</math>  <math>\square + \square</math> </div>	<div style="border: 1px dotted black; padding: 5px; text-align: center;"> <math>\square + \square</math>  <math>\square + \square</math>  <math>\square + \square</math>  <math>\square + \square</math>  <math>\square + \square</math> </div>	<div style="border: 1px dotted black; padding: 5px; text-align: center;"> <math>\square + \square</math>  <math>\square + \square</math>  <math>\square + \square</math>  <math>\square + \square</math>  <math>\square + \square</math> </div>

## Refill the Quills

Help Bea replace Eli's quills by finding how many she has of each item. Write an equation that shows your thinking.

 Show your thinking.

- 1 Bea has crayons in boxes of 25, 34, and 25. What is the total number of crayons?

answer: \_\_\_\_\_ equation: \_\_\_\_\_

- 2 Bea has twigs in stacks of 16, 48, 24, and 12. What is the total number of twigs?

answer: \_\_\_\_\_ equation: \_\_\_\_\_

## 2

## Refill the Quills (continued)

 Show your thinking.

- 3 Bea has toothpicks in piles of 99, 23, 98, and 47. What is the total number of toothpicks?

answer: \_\_\_\_\_ equation: \_\_\_\_\_

4 Discuss 

Choose **1** problem. Explain to your partner how you found the total. Why did that strategy work?

## Summary 7.16

When adding up to 4 two-digit numbers, it can be helpful to rearrange the addends. Because of the **Associative Property of Addition**, rearranging the addends does not change the sum. Sometimes, you need to compose more than 1 ten and more than 1 hundred when finding the sum.

$$66 + 88 + 14 + 52 = 220$$

$$66 + 14$$

$$88 + 52$$

$$6 + 4 = 10$$

$$8 + 2 = 10$$

$$80 + 140 = 220$$

$$60 + 10 + 10 = 80 \quad 80 + 50 + 10 = 140$$

**Associative Property of Addition** The sum of 3 or more numbers remains the same regardless of how the numbers are grouped.

## Practice 7.16

- 1 Find the sum of  $97 + 96 + 15 + 34$ .

 Show your thinking.

answer: \_\_\_\_\_

**Practice 7.16**

Name \_\_\_\_\_ Date \_\_\_\_\_

Shawn and Clare were counting insects in the garden. Use the table for Problems 2 and 3.

Insect	Amount
ladybug	27
bee	34
butterfly	12
beetle	16

- 2 Find the total number of insects that were in the garden.

 Show your thinking.

answer: \_\_\_\_\_

- 3 How many ladybugs, bees, and butterflies were in the garden?

 Show your thinking.

answer: \_\_\_\_\_

## Spiral Review

For Problems 4–6, fill in the number pattern.

- 4 Skip count by 10.

341 , \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_

- 5 Skip count by 100.

289 , \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_

- 6 Skip count by 10.

308 , \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_

- 7 Create your own number pattern that ends with 862. You can count by 5, 10, or 100.

\_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_ , 862

For Problems 8 and 9, find the number that makes the equation true.

 Show your thinking.

8  $83 - 29 =$  \_\_\_\_\_

9  $25 + 43 =$  \_\_\_\_\_

# Bea's Beads

Let's choose strategies to add within 1,000.



## Warm-Up



eyes on teacher



**I can be all of me in math class.**

Bea uses math when she makes crafts. What is something you enjoy doing that involves math?

## Activity

### 1

## How Many Beads?

The expressions represent Bea's total amounts of purple, green, and orange beads. Find each sum.



Show or explain your thinking.

1

$$502 + 289$$

answer: \_\_\_\_\_

**1****How Many Beads? (continued)**

 Show or explain your thinking.

**2**  $698 + 114$

answer: \_\_\_\_\_

**3**  $825 + 175$

answer: \_\_\_\_\_

**4** **Discuss** 

Choose 1 problem. Explain why your strategy works.

# Introducing the Center, Cover Up

Stage 11



**Pairs**  Let's add within 1,000 with composing.

**You'll need:** 2 base-ten units, two-color counters, Gameboard A or B, Recording Sheet



## Set Up

- Choose a Gameboard.
- Choose who will use red counters and who will use yellow counters.



## How to Play

### 1 Player A:

- Put each cube on a number in the gray boxes.
- Add the numbers. Cover the sum with a counter.
- Record the addition expression and sum.

### 2 Player B:

- Move one of the cubes. Add the numbers.
- If the sum is not already covered with a counter, cover it.
- Record the addition expression and sum.

**3** Take turns. Record each addition expression and sum, even if you were unable to cover the sum.



**How to Win** The first player to cover 6 squares in a row wins.



## Summary 7.17

It can be helpful to think about the addends in an addition problem before choosing a strategy to find the sum. Depending on the addends, one strategy may be more helpful than another.

$$628 + 299$$

### Adding by place

$$\begin{aligned} 600 + 200 &= 800 \\ 20 + 90 &= 110 \\ 8 + 9 &= 17 \\ 800 + 110 + 17 &= 927 \end{aligned}$$

### Changing an addend and adjusting the sum

$$\begin{aligned} 628 + 300 &= 928 \\ 928 - 1 &= 927 \end{aligned}$$

## Practice 7.17

1 Find the sum of  $589 + 105$ .

 Show or explain your thinking.

answer: \_\_\_\_\_

For Problems 2–4, find the sum.

 **Show your thinking.**

**2**  $472 + 199$

answer: \_\_\_\_\_

**3**  $309 + 487$

answer: \_\_\_\_\_

**4**  $255 + 238$

answer: \_\_\_\_\_

### Spiral Review

For Problems 5–8, find the value of the expression.

**5**  $16 - 8$  \_\_\_\_\_

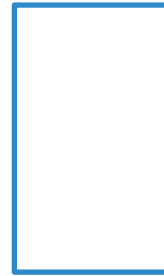
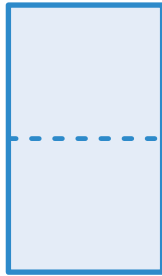
**6**  $7 + 5$  \_\_\_\_\_

**7**  $11 + 7$  \_\_\_\_\_

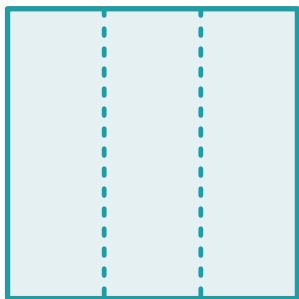
**8**  $17 - 12$  \_\_\_\_\_

For Problems 9–11, draw lines to split the shape into the same number of equal parts in a different way.

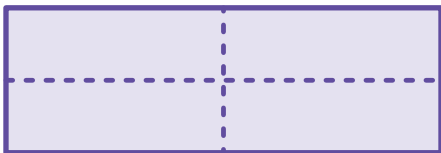
9



10

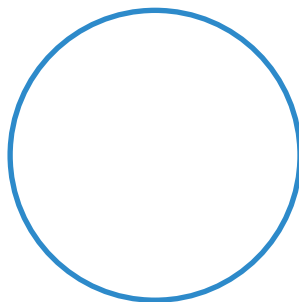


11



12

Draw lines to split the shape into **4** equal parts. Shade one fourth of the shape.



# Bye-Bye Beads

Let's choose strategies to subtract within 1,000.



## Warm-Up



eyes on teacher



### I am a doer of math.

How can staying organized with your work be helpful as you complete more challenging problems?

## Activity

### 1

## How Many Beads Are Left?

Find each difference to find the total number of beads that Bea has left of each color.



Show your thinking.

1  $1,000 - 875$

answer: \_\_\_\_\_

**1****How Many Beads Are Left? (continued)****Show your thinking.**

**2**  $794 - 520$

answer: \_\_\_\_\_

**3**  $615 - 578$

answer: \_\_\_\_\_

**4** **Discuss** Choose **1** problem. Explain why your strategy works.**5** **Discuss**

Han said he used addition to solve Problem 1. How could he use addition to solve a subtraction problem?

# Introducing the Center, Target Numbers

Stage 7



**Pairs**  Let's subtract hundreds, tens, and ones from three-digit numbers.

**You'll need:** Number Cards, 1–9, Recording Sheet



**Set Up** Place the number cards facedown in a pile.



## How to Play

1

Draw the top 5 number cards. Choose 1 card to represent the hundreds, 1 card to represent the tens, and 1 card to represent the ones to make a three-digit number to subtract from the starting number.

2

Record your number to create a subtraction expression. Complete the equation by determining the difference.

3

Record the difference from the previous equation as the starting number in your next equation.

4

Take turns until each player's Recording Sheet is full.



**How to Win** The player with a final difference closer to 0 wins.

## Target Numbers (continued)

Number cards	Equation
_____ hundreds _____ tens _____ ones	$1,000 - \boxed{\phantom{000}} = \boxed{\phantom{000}}$
_____ hundreds _____ tens _____ ones	$\boxed{\phantom{000}} - \boxed{\phantom{000}} = \boxed{\phantom{000}}$
_____ hundreds _____ tens _____ ones	$\boxed{\phantom{000}} - \boxed{\phantom{000}} = \boxed{\phantom{000}}$
_____ hundreds _____ tens _____ ones	$\boxed{\phantom{000}} - \boxed{\phantom{000}} = \boxed{\phantom{000}}$

## Summary 7.18

It can be helpful to think about the numbers in a subtraction problem before choosing a strategy to find the difference. Depending on the numbers, one strategy may be more helpful than another.

$$608 - 567$$

Subtracting by place	Counting up
$608 = 500 + 100 + 8$ $500 - 500 = 0$ $100 - 60 = 40$ $8 - 7 = 1$ $40 + 1 = 41$	$567 + 3 = 570$ $570 + 30 = 600$ $600 + 8 = 608$ $3 + 30 + 8 = 41$

## Practice 7.18

1 Find the difference of  $619 - 593$ .

 Show or explain your thinking.

answer: \_\_\_\_\_

**Practice 7.18**

Name \_\_\_\_\_ Date \_\_\_\_\_

For Problems 2 and 3, write subtraction expressions using the numbers. You may use each number only once. Find each difference.

406

276

229

389

**Show or explain your thinking.****2**

\_\_\_\_\_ - \_\_\_\_\_

answer: \_\_\_\_\_

**3**

\_\_\_\_\_ - \_\_\_\_\_

answer: \_\_\_\_\_

**Spiral Review**

For Problems 4 and 5, circle the number that makes the equation true.

**4**  $18 - 9 = \underline{\hspace{2cm}}$

9

6

7

5

**5**  $5 + 12 = \underline{\hspace{2cm}}$

7

15

17

13

For Problems 6–9, write  $<$ ,  $>$ , or  $=$  to make the statement true.

**6**  $146 \underline{\hspace{1cm}} 219$

**7**  $767 \underline{\hspace{1cm}} 799$

**8**  $543 \underline{\hspace{1cm}} 511$

**9**  $903 \underline{\hspace{1cm}} 903$

# Don't Forget to Double Check, Bea!

Let's estimate sums and differences.



## Warm-Up



eyes on teacher



### I am a doer of math.

Think of a math problem or puzzle that you enjoyed solving. Why do you think you enjoyed it?

## Activity

# 1

## About How Many Beads?

Help Bea estimate how many beads her mother has.

1 What is a reasonable estimate for  $305 + 307$ ?

about 600    greater than 600    less than 700    about 800

2 Discuss 

Compare your estimate for Problem 1 with your partner's estimate. Explain your thinking.

**1****About How Many Beads? (continued)**

**3** What is a reasonable estimate for the sum of  $462 + 494$ ?

about 700   less than 800   about 900   greater than 950

**4** **Discuss** 

Compare your estimate for Problem 3 with your partner's estimate. Explain your thinking.

**5** What is a reasonable estimate for the difference of  $650 - 220$ ?

less than 200   about 400   about 450   greater than 700

**6** Explain your estimate for Problem 5.

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# Is the Answer Reasonable?

- 7 Estimate the sum of  $193 + 517$ .

\_\_\_\_\_

- 8 **Discuss** 

Explain to your partner how you estimated the sum.

- 9 Find the sum of  $193 + 517$ .

 **Show your thinking.**

answer: \_\_\_\_\_

**Is the Answer Reasonable? (continued)**

- 10** Estimate the difference of  $523 - 394$ .

\_\_\_\_\_

- 11** **Discuss** 

Explain to your partner how you estimated the difference.

- 12** Find the difference of  $523 - 394$ .

 **Show your thinking.**

**answer:** \_\_\_\_\_

- 13** **Discuss** 

How can estimating help you when adding and subtracting?

## Summary 7.19

You can use different strategies to make reasonable estimates of sums or differences. Estimating can help you figure out if your answer is reasonable before and after you solve.

$$374 + 128$$

### Estimate

374 is about 400 and 128 is about 100.  $400 + 100$  is 500, so I estimate the sum will be about 500.

estimate: about 500

### Answer

My answer makes sense because I estimated the sum would have 5 hundreds.

$$374 + 128 = \underline{502}$$

## Practice 7.19

- 1 Estimate the difference of  $419 - 226$ . Explain your thinking.

estimate: \_\_\_\_\_

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- 2 Find the difference of  $419 - 226$ .

 Show your thinking.

answer: \_\_\_\_\_

### Spiral Review

For Problems 3–5, fill in the number pattern.

- 3 Skip count by 10.

810 , \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_

- 4 Skip count by 100.

200 , \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_

- 5 Skip count by 5.

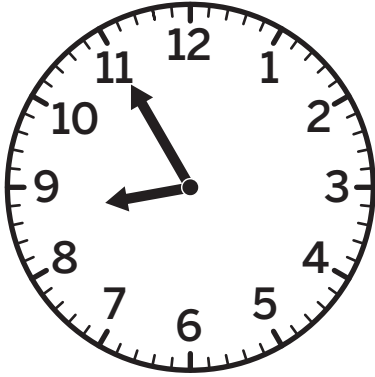
375 , \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_

For Problems 6–8, draw lines to match the clock with the written time.

**Clock**

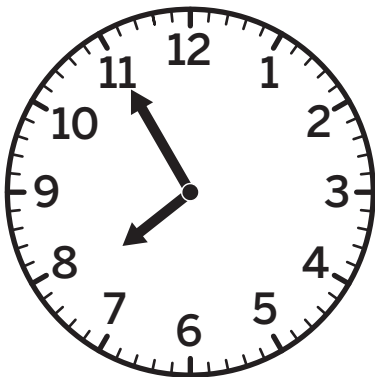
**Time**

6



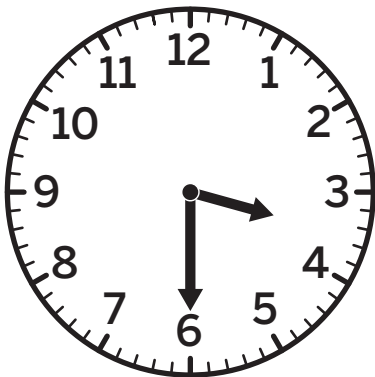
7:55

7



3:30

8



8:55

## Math at Work

What are some kinds of plants and animals that live in the forest?

**Foresters** help take care of forests and the plants and animals that live in them. They might add and subtract the number of trees in a forest to study how the tree population is changing each year.



Cast Of Thousands/Shutterstock.com. Yngstrom/Shutterstock.com.

## Math in the World

One type of squirrel is the flying squirrel. Flying squirrels don't really fly. They actually glide through the air, at up to 150 feet in a single glide. If a squirrel glided 137 feet and then 129 feet, how far did it glide altogether?



Anom Harya/Shutterstock.com.

## Math Mindset

Here are 2 subtraction problems. In which problem would you need to decompose a ten? Why?

$$794 - 468$$

$$559 - 237$$

## Unit 8



# Equal Groups

## Big Ideas in This Unit

cc1 Measure and Compare Objects cc3 Number Strategies

Skip Counting to 100 cc4 Seeing Fractions in Shapes

Squares in an Array NS Organize and Count

## Questions for Investigation

- How can we find whether an amount of objects is even or odd?
- How can we use the structure of arrays to find the total amount they represent?
- How can we use what we know about arrays to split a rectangle into equal-sized squares and find the total amount?



### Explore: Organizing Teams

How do arrangements show equal groups within numbers?



### Unit Story: On Clementine Court

In this story, the kids who live on Clementine Court figure out what games they can play to include all of their neighbors.



# Watch Your Knowledge Grow

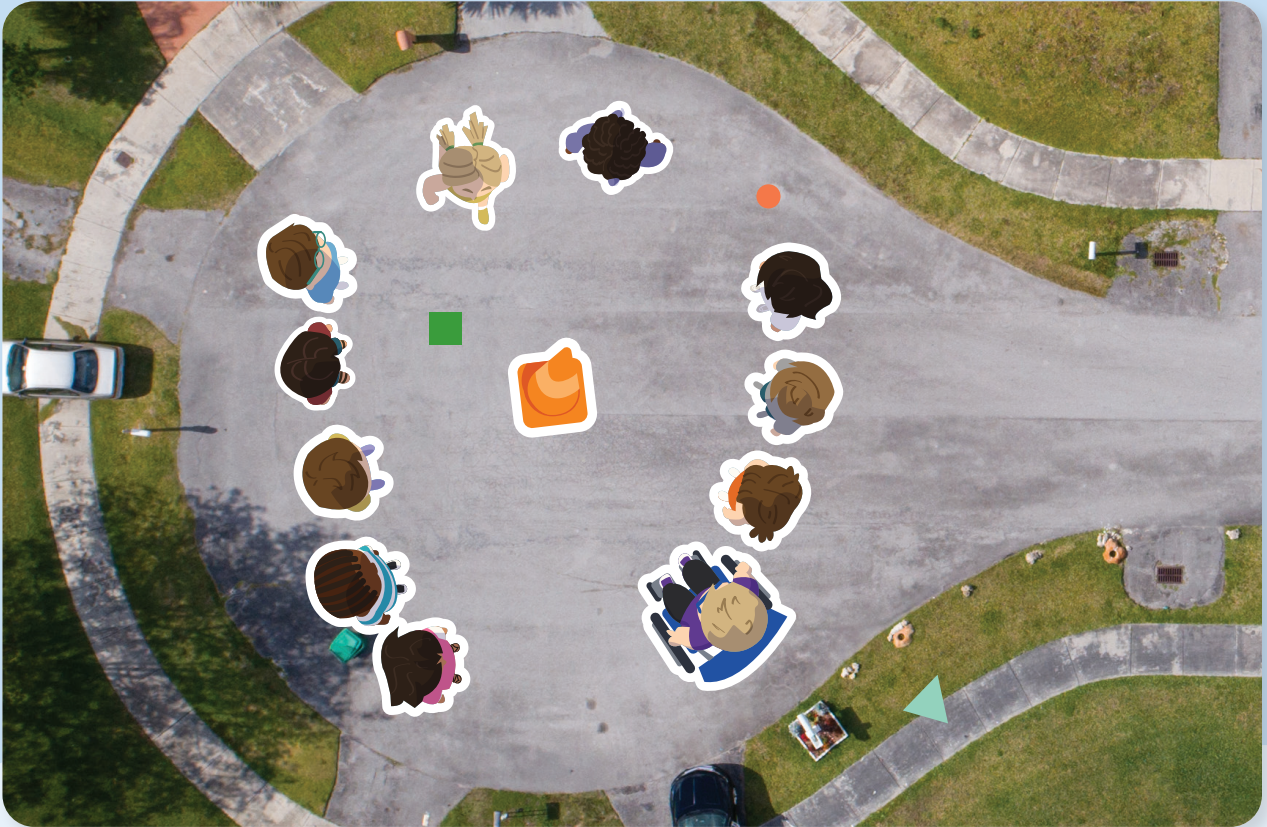
This is the math you'll explore in this unit.  
Rate your understanding to see how your knowledge grows!

Not yet   
  Almost   
  I got it!

I can . . .	Before	After
Determine whether a group of objects has an odd or even amount of members.	<input type="radio"/> — <input type="radio"/> — <input checked="" type="radio"/>	<input type="radio"/> — <input type="radio"/> — <input checked="" type="radio"/>
Pair objects by counting them by 2s.	<input type="radio"/> — <input type="radio"/> — <input checked="" type="radio"/>	<input type="radio"/> — <input type="radio"/> — <input checked="" type="radio"/>
Write an equation to express an even number as a sum of two equal addends.	<input type="radio"/> — <input type="radio"/> — <input checked="" type="radio"/>	<input type="radio"/> — <input type="radio"/> — <input checked="" type="radio"/>
Use addition to find the total number of objects arranged in rectangular arrays.	<input type="radio"/> — <input type="radio"/> — <input checked="" type="radio"/>	<input type="radio"/> — <input type="radio"/> — <input checked="" type="radio"/>
Write an equation to represent the total number of objects as a sum of equal addends.	<input type="radio"/> — <input type="radio"/> — <input checked="" type="radio"/>	<input type="radio"/> — <input type="radio"/> — <input checked="" type="radio"/>
Count within 1,000.	<input type="radio"/> — <input type="radio"/> — <input checked="" type="radio"/>	<input type="radio"/> — <input type="radio"/> — <input checked="" type="radio"/>
Skip count by 5s, 10s, and 100s.	<input type="radio"/> — <input type="radio"/> — <input checked="" type="radio"/>	<input type="radio"/> — <input type="radio"/> — <input checked="" type="radio"/>
Partition a rectangle into rows and columns of same-size squares.	<input type="radio"/> — <input type="radio"/> — <input checked="" type="radio"/>	<input type="radio"/> — <input type="radio"/> — <input checked="" type="radio"/>
Count to find the total number of squares in rectangles partitioned into rows and columns.	<input type="radio"/> — <input type="radio"/> — <input checked="" type="radio"/>	<input type="radio"/> — <input type="radio"/> — <input checked="" type="radio"/>

# Odd and Even

✦ Unit Story: On Clementine Court



Felix Mizionnikov/Shutterstock.com

The kids on Clementine Court need 2 equal teams to play *Capture the Flag*.

How could the kids figure out if they can make 2 equal teams?


# Explore: Organizing Teams

How do arrangements show equal groups within numbers?



## Warm-Up



 eyes on teacher

**Discuss**  What do you notice? What do you wonder?

## On Clementine Court

Unit Story





**Choose a number between 9 and 25 to represent a total number of children.**

- Write your number on a sticky note.
- Create a design showing how your number of children could be organized into equal teams.

### Ways to be a mathematician

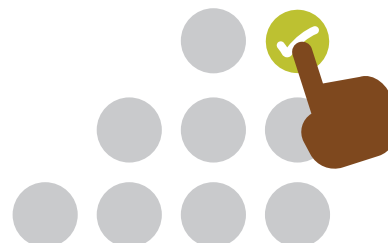
- 1** I can take my time to think about a challenging problem before trying to solve it.

○ ——— ○ ——— ○  
Not yet Almost I got it!



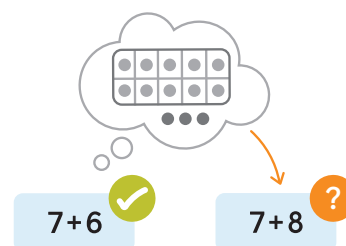
- 2** I can see how ideas are connected and use patterns to help solve problems.

○ ——— ○ ——— ○  
Not yet Almost I got it!



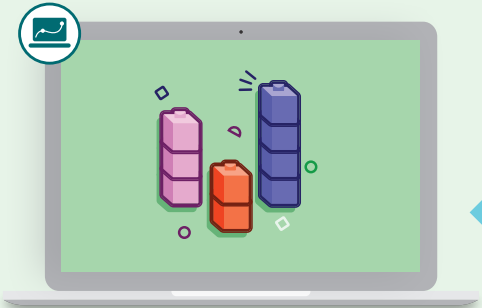
- 3** I look for strategies that I can apply to new problems.

○ ——— ○ ——— ○  
Not yet Almost I got it!



# Can You Share?

Let's split amounts of objects into 2 equal groups.



**We are a math community.**  
When have you shared objects equally in math class?

## Warm-Up

**1** eyes on teacher

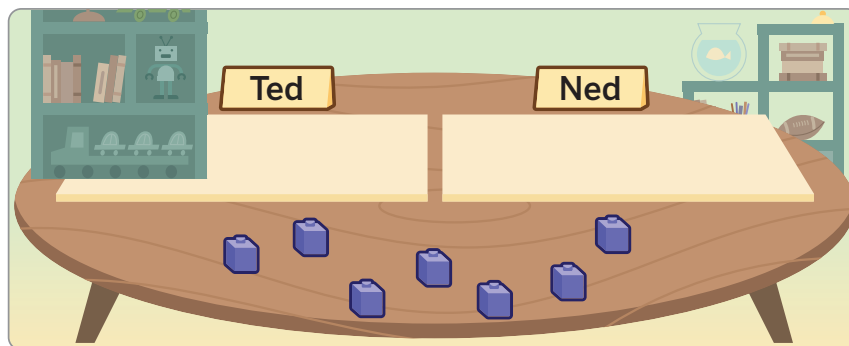
## Activity

# 1 Sharing Is Caring

Ted and Ned want to share the blocks equally. Use counters if it is helpful.

**2** Show how Ted and Ned could share 7 blocks equally.

Show or explain your thinking.



## Discuss

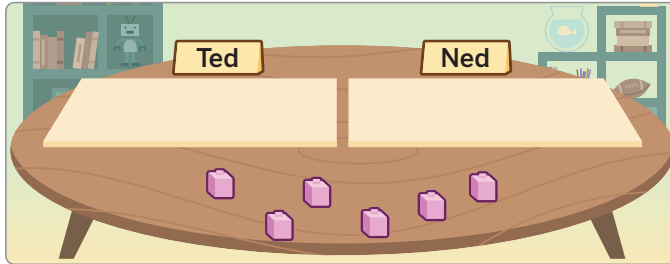
What do you notice about the groups you created?

## 1

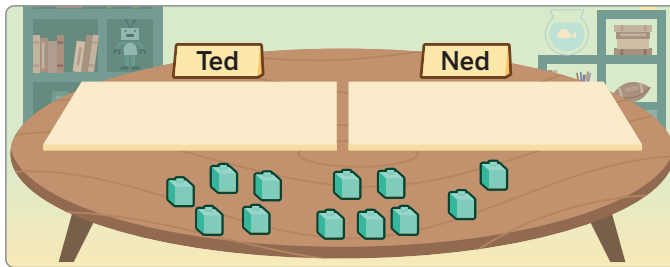
## Sharing Is Caring (continued)

 Show or explain your thinking.

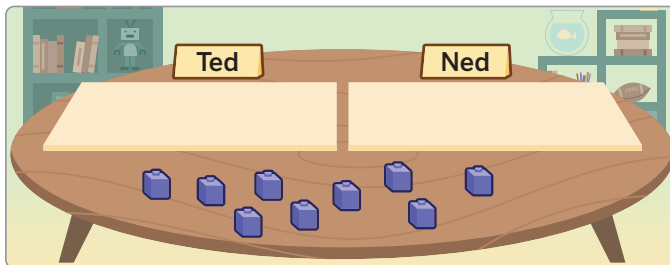
**3** Show how Ted and Ned could share 6 blocks equally.



**4** Show how Ted and Ned could share 12 blocks equally.



**5** Show how Ted and Ned could share 9 blocks equally.



**6** Discuss 

Let's discuss what we notice about sharing numbers of objects between 2 children.

# Ted and Ned's Fair Share

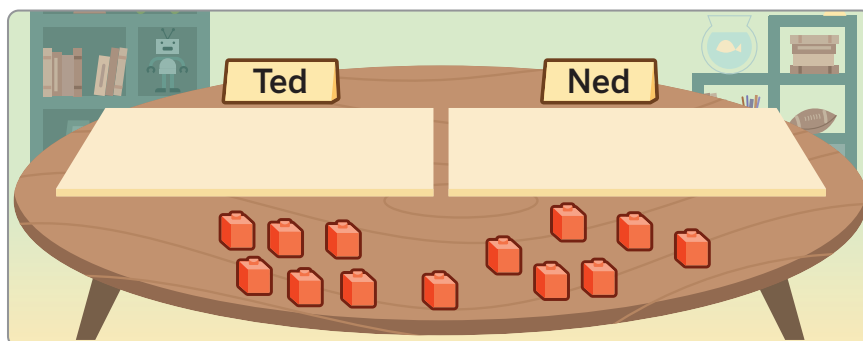
## Hands-On

Ted and Ned found more blocks to build larger towers.

Help them split the blocks into 2 equal groups. Make sure each group has *as many* blocks as possible. Use counters if it is helpful.

**7** Show how Ted and Ned could equally split 13 blocks.

 Show or explain your thinking.



## Explain

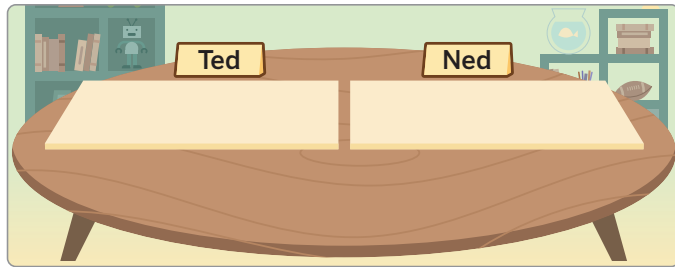
What did you notice when splitting *all* the blocks equally?

## Ted and Ned's Fair Share (continued)

For Screens 8–10, Ted and Ned want to equally split each number of blocks into 2 equal groups. Write the number of blocks left over.

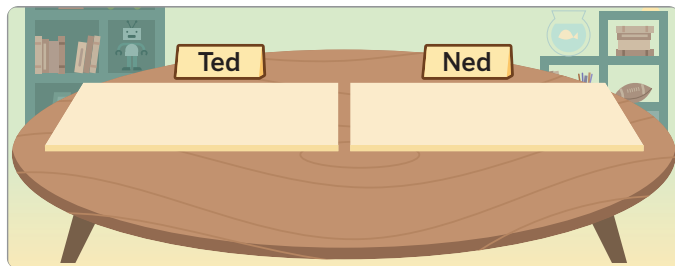
**i** Show or explain your thinking.

**8** 17 blocks



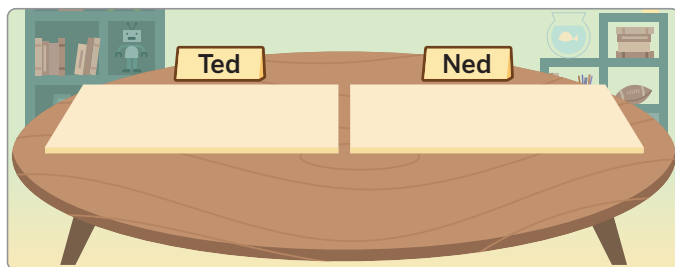
leftovers: \_\_\_\_\_

**9** 18 blocks



leftovers: \_\_\_\_\_

**10** 20 blocks



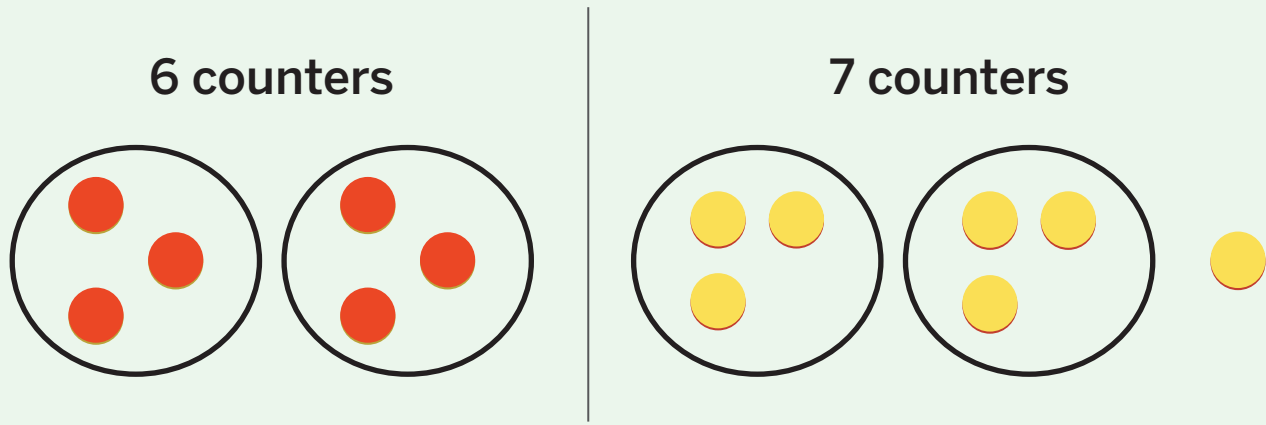
leftovers: \_\_\_\_\_

**11** Discuss 

Let's discuss splitting numbers of objects into 2 equal groups.

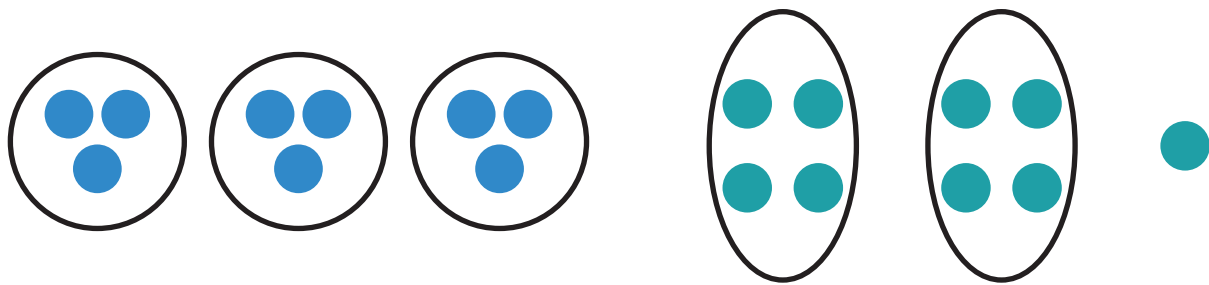
## Summary 8.02

Amounts of objects can be split into 2 equal groups with 0 or 1 leftover.



## Practice 8.02

1 Circle the work that shows 9 split into 2 equal groups.



9 can be split into equal groups.

9 is split into 2 equal groups and there is 1 left.

Clare and Diego are helping split groups of second graders into teams for field day. For Problems 2 and 3, find if each group of students can be split into 2 equal groups with 0 leftovers. Write the number of students left over.

 Show or explain your thinking.

**2** 13 students

leftovers: \_\_\_\_\_

**3** 16 students

leftovers: \_\_\_\_\_

### Spiral Review

For Problems 4–7, find the number that makes the equation true.

**4**  $3 + 15 = \underline{\hspace{2cm}}$

**5**  $19 - 12 = \underline{\hspace{2cm}}$

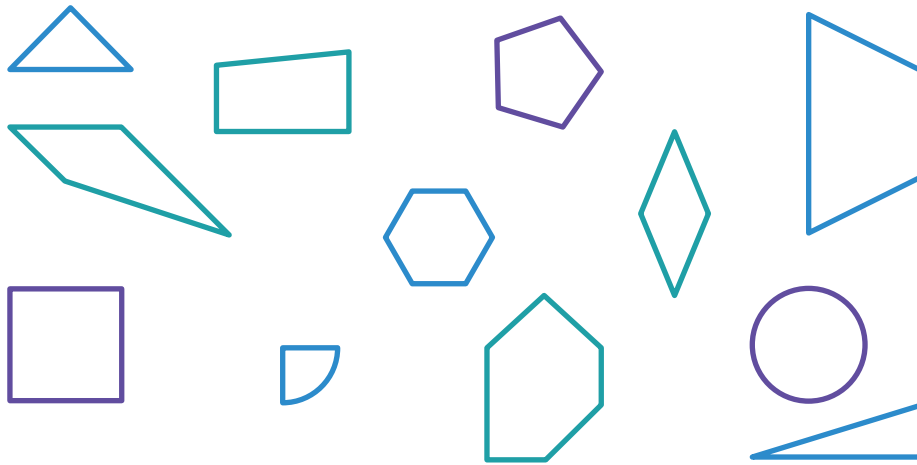
**6**  $9 + 8 = \underline{\hspace{2cm}}$

**7**  $13 - 8 = \underline{\hspace{2cm}}$

# Practice 8.02

Name \_\_\_\_\_ Date \_\_\_\_\_

- 8 Find **5** quadrilaterals and label them with an X. Explain your thinking.



---

---

- 9 Complete the shape to make a hexagon. Then draw a different 6-sided shape.

 Draw



# Everybody, Find A Partner!

Let's split amounts of objects into pairs.



**I am a doer of math.**  
Ned's plan for making pairs did not work. Do you think his friends are glad he shared the idea? Why or why not?

## Warm-Up



eyes on teacher

## Activity

### 1

## Can We All Pair Up?

### Hands-On

You and your partner will be given bags of counters that represent different amounts of people.

For Problems 1–4, organize the counters in each bag into pairs. Then represent how you organized your counters.

When you are done with Problems 1 and 2, trade bags with another pair and complete Problems 3 and 4.



Show or explain your thinking.

1

total amount: \_\_\_\_\_

2

total amount: \_\_\_\_\_

**1****Can We All Pair Up? (continued)**

 Show or explain your thinking.

**3**

total amount: \_\_\_\_\_

**4**

total amount: \_\_\_\_\_

**5****Discuss** 

What do you notice about the pairs you made? What do you wonder?

# Do You Have Any Leftovers?

## Hands-On

Find whether each amount can be split into 2 equal groups or groups of 2 with 0 leftovers.

- 6 Can each amount be split into 2 equal groups or groups of 2 with 0 leftovers? Circle *yes* or *no*.

Amount	2 equal groups	Groups of 2
15	yes / no	yes / no
16	yes / no	yes / no

**Do You Have Any Leftovers? (continued)**

Amount	2 equal groups	Groups of 2
19	yes / no	yes / no

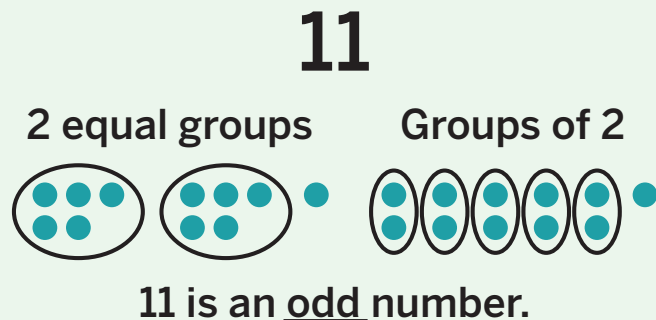
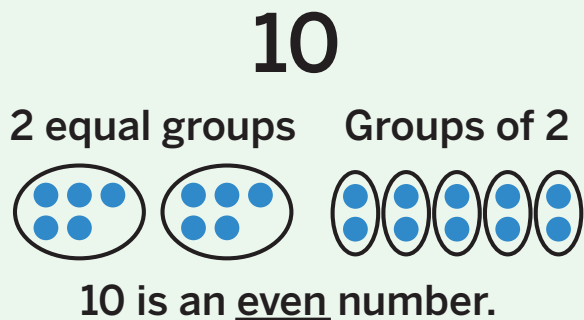
7

**Discuss** 

How is splitting amounts of objects into groups of 2 similar to splitting amounts of objects into 2 equal groups? How are they different?

## Summary 8.03

We can determine if a number is an **even number** or an **odd number** by splitting it into 2 equal groups or groups of 2.



**even number:** A whole number is even if that number of objects *can* be split into two equal groups or groups of 2 without any objects left over.

**odd number:** A whole number is odd if that number of objects *cannot* be split into two equal groups or groups of 2 without any objects left over.

## Practice 8.03

- 1 Can 17 students split into groups of 2 to play a game with 0 leftover students? Write *yes* or *no*.

**i** Show or explain your thinking.

answer: \_\_\_\_\_

## Practice 8.03

Name \_\_\_\_\_ Date \_\_\_\_\_

- 2 Can 14 students be split into groups of 2 with 0 leftover students? Write *yes* or *no*.

**i** Show or explain your thinking.

answer: \_\_\_\_\_

## Spiral Review

For Problems 3 and 4, find the value of the expression.

**i** Show your thinking.

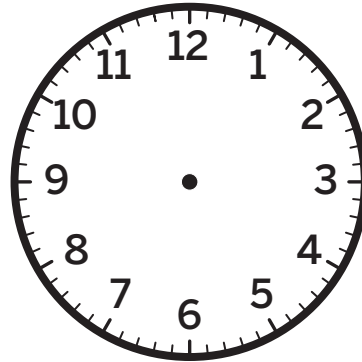
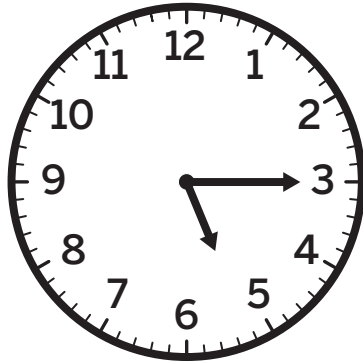
3  $49 + 28$

answer: \_\_\_\_\_

4  $81 - 52$

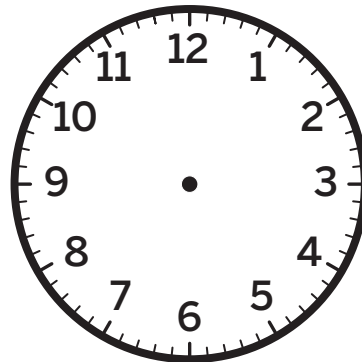
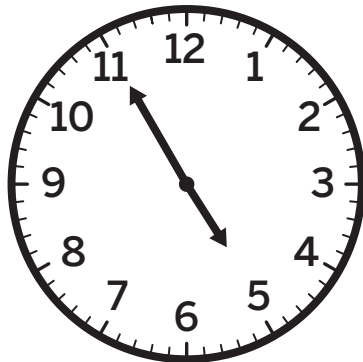
answer: \_\_\_\_\_

- 5** Write the time shown on the first clock to show the time Diego goes to basketball practice. Draw hands on the second clock and write the time to show 5 minutes later.



time: \_\_\_\_\_ 5 minutes later: \_\_\_\_\_

- 6** Write the time shown on the first clock to show the time Diego needs to leave for basketball practice. Draw hands on the second clock and write the time to show 10 minutes earlier.



time: \_\_\_\_\_ 10 minutes earlier: \_\_\_\_\_

# Is It Even or Odd?

Let's find if a number of objects is even or odd.



**We are a math community.**  
Colin kept making groups where someone did not have a partner. How might the characters have used math to help?

## Warm-Up



eyes on teacher

## Activity

### 1

## Even or Odd?

### Hands-On

Help Felix find if each number is *even* or *odd*. For each number, circle *even* or *odd*.

 Show or explain your thinking.

1

7

even / odd

2

10

even / odd

## 1

## Even or Odd? (continued)

3 14

even / odd

4 13

even / odd

Find the total number of objects and if the number is *even* or *odd*.

**i** Show your thinking.

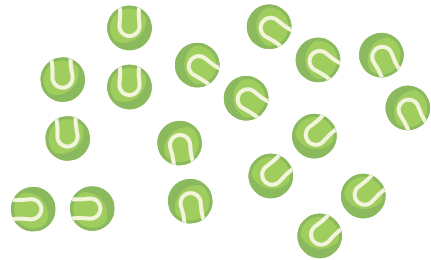
5



total: \_\_\_\_\_

even or odd: \_\_\_\_\_

6



total: \_\_\_\_\_

even or odd: \_\_\_\_\_

7 Discuss

Choose 1 *even* number and 1 *odd* number from the activity. How do you know if each number is *even* or *odd*? Explain your thinking.

## 2

## The Odd One Out

Help Jane find if there is an *even* or *odd* number of kids playing tug of war. Write an equation that represents how the kids are grouped.

 Show your thinking.

8



even or odd: \_\_\_\_\_

equation: \_\_\_\_\_

9



even or odd: \_\_\_\_\_

equation: \_\_\_\_\_

## The Odd One Out (continued)

Find if there is an *even* or *odd* number of trading cards.  
Write an equation that represents how the trading cards are grouped.

 Show your thinking.

10



even or odd: \_\_\_\_\_

equation: \_\_\_\_\_

11

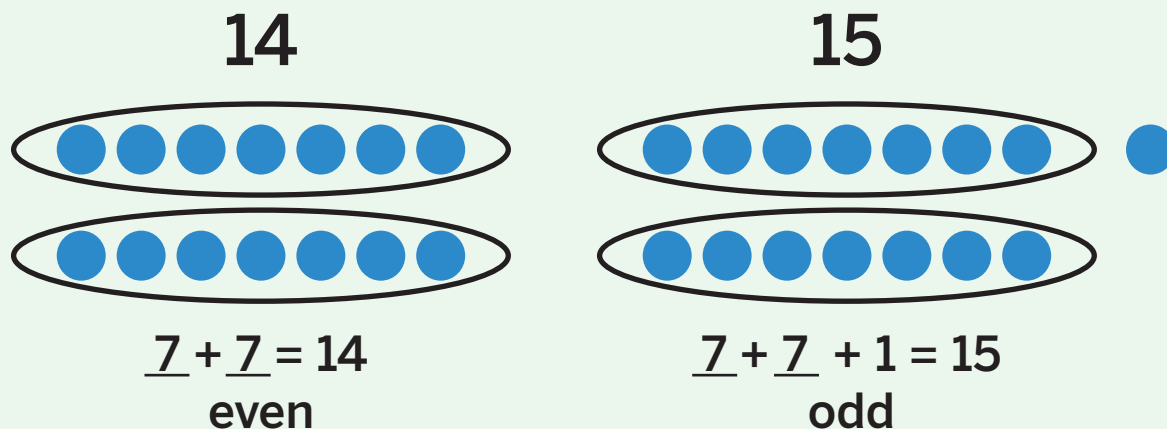


even or odd: \_\_\_\_\_

equation: \_\_\_\_\_

## Summary 8.04

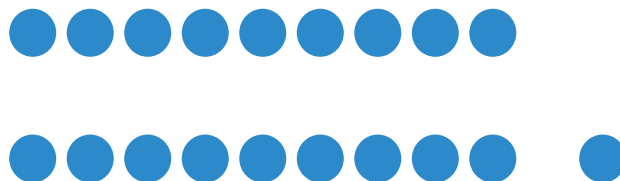
You can find if a number is *even* or *odd* by representing the number of objects in different ways. Even numbers can be represented as a sum of 2 equal addends. Odd numbers can be represented as the sum of 2 equal addends + 1.



## Practice 8.04

- 1 Find if the number of dots is *even* or *odd*. Write an equation that represents how the dots are grouped.

**i** Show your thinking.



even or odd: \_\_\_\_\_

equation: \_\_\_\_\_

For Problems 2 and 3, find if there is an *even* or *odd* number of fossils. Write an equation that represents how the fossils are grouped.

 Show your thinking.

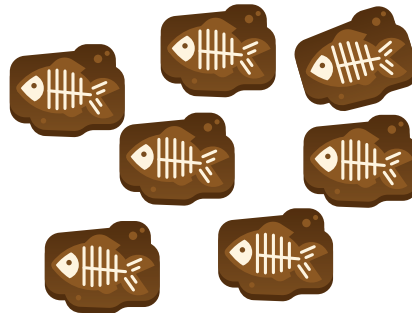
2



even or odd: \_\_\_\_\_

equation: \_\_\_\_\_

3



even or odd: \_\_\_\_\_

equation: \_\_\_\_\_

## Spiral Review

For Problems 4–7, find the value of the expression.

4  $20 - 13$  \_\_\_\_\_

5  $8 + 6$  \_\_\_\_\_

6  $19 - 12$  \_\_\_\_\_

7  $3 + 9$  \_\_\_\_\_

For Problems 8 and 9, find the value of the expression.  
You can use base-ten blocks if it is helpful.

 Show or explain your thinking.

8  $267 + 498$

answer: \_\_\_\_\_

9  $852 - 214$

answer: \_\_\_\_\_

Name \_\_\_\_\_ Date \_\_\_\_\_

Organize and Count 2.OA.3, 2.OA.2, SMP.7, SMP.8

# Can They Play?

Let's justify if a number is even or odd.



**We are a math community.**

How can math be used to solve problems in a community?

## Warm-Up



eyes on teacher

## Activity

# 1

## Card Sort: Even or Odd

### Hands-On

You and your partner will be given a set of cards with addition equations.

### 1 Sort

Find if each equation represents an even number or an odd number. Write each equation in the *even* or *odd* column of the table.



**1****Card Sort: Even or Odd (continued)**

Even	Odd

**2****Discuss** 

Use the addends in the equations to justify how you know if the sums are even or odd.

# Prove It!

## Hands-On

You and your group members will be given number cards.  
Each group member will choose 1 card.

3 Record the number you chose. \_\_\_\_\_

4 Represent if your number is even or odd in one of the following ways:

- drawing 2 equal groups
- drawing groups of 2
- writing an equation

 Show your thinking.

**Prove It! (continued)**

For Problems 5 and 6, trade books with your group members. Each group member will represent the number in a way that has not already been shown.



Show your thinking.

5

6

7

Is your number *even* or *odd*? Use the representations to justify how you know.

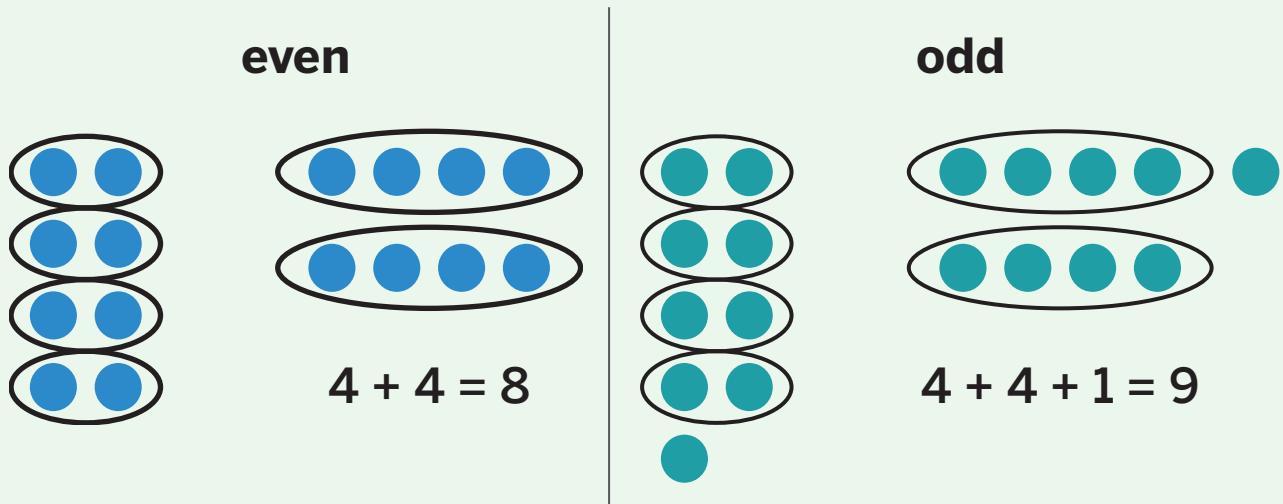
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## Summary 8.05

You can justify whether a number is *even* or *odd* by representing the number using diagrams or equations that show if it can be split into 2 equal groups or groups of 2 without a leftover.



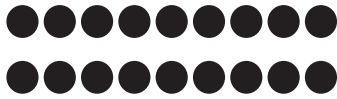
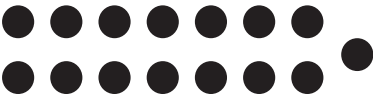
## Practice 8.05

1 Is the number 19 *even* or *odd*?

**i** Show your thinking.

answer: \_\_\_\_\_

**2** Fill in the table to show if each number is *even* or *odd*.

Number	Drawing	Even or odd
11		
18		
17		
15		

**3** Shawn has 20 marbles. Shawn thinks they can be split into 2 equal groups because 20 is an even number. Do you agree? Explain your thinking.

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**Spiral Review**

**4** Circle **3** expressions with a value of 9.

$4 + 3 + 2$

$18 - 7$

$3 + 5$

$6 + 3 + 1$

$3 + 3 + 3$

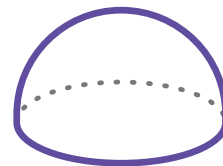
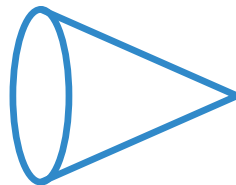
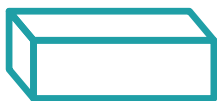
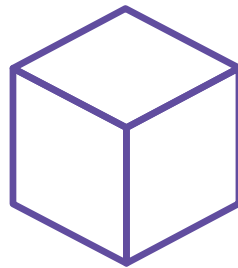
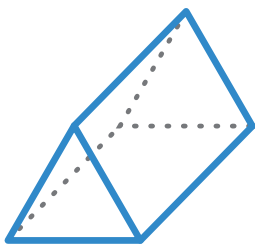
$15 - 6$

- 5 Find the value of the expression.  
 $762 - 349$

**i** Show your thinking.

answer: \_\_\_\_\_

- 6 Clare needs to choose three-dimensional shapes to use for her “Build a City” project. Her shapes need to have *at least* 1 square face. Circle **2** shapes that Clare could use for her project.



# Pointing Out Patterns

Let's look for even and odd patterns when adding.



## Warm-Up



eyes on teacher



**I am a doer of math.**

When have you used patterns in math class? How did they help you?

## Activity

### 1

## Adding 1 and 2 More, Part 1

Complete the table to show what happens when you add 1 and 2 more to the starting amount.

- Add 1 and 2 to each starting amount. In each box, circle if the amount is *even* or *odd*. Show your thinking.

Starting amount	Add 1	Add 2
4		
even / odd	even / odd	even / odd

## Adding 1 and 2 More, Part 1 (continued)

Starting amount	Add 1	Add 2
8		
even / odd	even / odd	even / odd
16		
even / odd	even / odd	even / odd

2

**Discuss** 

What patterns do you notice in the sums?

## 2

## Adding 1 and 2 More, Part 2

Complete the table to show what happens when you add 1 and 2 more to the starting amount.

- 3 Add 1 and 2 to each starting amount. In each box, circle if the amount is *even* or *odd*. Show your thinking.

Starting amount	Add 1	Add 2
7  even / odd	  even / odd	  even / odd
11  even / odd	  even / odd	  even / odd
15  even / odd	  even / odd	  even / odd

**Adding 1 and 2 More, Part 2 (continued)****4** Discuss 

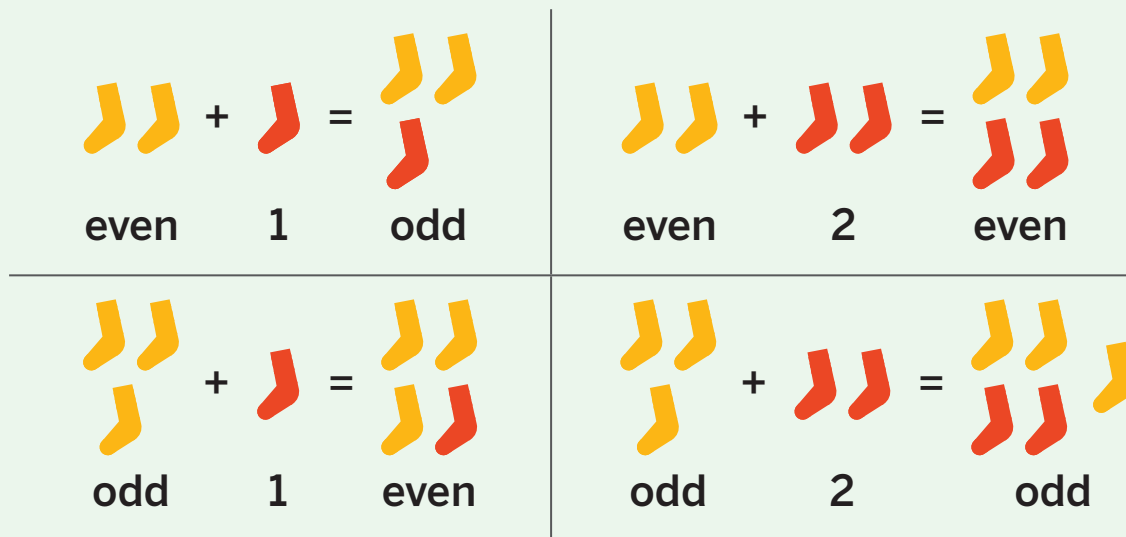
What patterns do you notice in the sums?

**5** Discuss 

How is adding 1 and 2 to even numbers different from adding 1 and 2 to odd numbers? Why is it different?

## Summary 8.06

There is a **pattern** when adding to an even or odd number. When you add 1 to an even number, the sum is odd. When you add 2 to an even number, the sum is even. When you add 1 to an odd number, the sum is even. When you add 2 to an odd number, the sum is odd.



**pattern** a specific, replicable sequence of shapes or numbers; some patterns repeat and some patterns grow.

## Practice 8.06

1 Does the expression  $13 + 2$  represent an *odd* or *even* number?

 Show your thinking.

answer: \_\_\_\_\_

**2** Help Diego find if the number of cans in each bag is *even* or *odd*. For each number, circle *even* or *odd*.

**i** Show or explain your thinking.



even / odd



even / odd



even / odd

## Spiral Review

For Problems 3–6, find the value of the expression.

3  $12 - 8$  \_\_\_\_\_

4  $6 + 7$  \_\_\_\_\_

5  $16 - 9$  \_\_\_\_\_

6  $9 + 9$  \_\_\_\_\_

For Problems 7 and 8, use the addition expression.

$$394 + 107$$

7 Will you need to compose a ten to find the sum? Write *yes* or *no*. \_\_\_\_\_

8 Find the sum. Use base-ten blocks if it is helpful.

 Show or explain your thinking.

answer: \_\_\_\_\_

9 Circle 4 expressions in which you will need to compose a ten.

$134 + 628$

$772 + 221$

$425 + 366$

$867 + 105$

$316 + 804$

$196 + 502$

# Playing Hopscotch

Let's look for patterns when skip counting.



**I am a doer of math.**  
How might you help others by sharing a mathematical idea even if you are not sure it will work?

## Warm-Up



eyes on teacher

## Activity

### 1

## Hopscotch Patterns

Take turns counting by 1 with your partner, starting at 0 and ending at 20, to help John and Joe make their hopscotch board.

- Partner A will start at 0, writing the numbers they say in the first column. Partner B will write the numbers they say in the second column. Write only 1 number in each box.

Partner A	Partner B

Partner A (continued)	Partner B (continued)

**1****Hopscotch Patterns (continued)****2****Discuss** 

What patterns do you notice in the hopscotch board?



# Introducing the Center, Last Number Wins

Stage 4



**Pairs**  Let's count by 2, 5, and 10.

**You'll need:** dry-erase markers, sheet protectors, Gameboard



## Set Up

- Choose a number that is less than or equal to 780, and record it in the first space on the Gameboard. This is your starting number.
- Choose whether to skip count by 2, 5, or 10.



## How to Play

- 1 Player A:** Record the next 1, 2, or 3 numbers on the Gameboard.
- 2 Player B:** Record the next 1, 2, or 3 numbers on the Gameboard.
- 3** Take turns choosing how many numbers to record and recording them.



**How to Win** The player who records the last number on the Gameboard wins.



## Summary 8.07

You can use patterns to skip count and to figure out if a number is even or odd.

**0, 5, 10, 15, 20, 25, 30**

I know 15 is odd because odd numbers have 1, 3, 5, 7, or 9 in the ones place, and 15 has 5 in the ones place.

When I skip count by 5 starting at 0, the digits in the ones place alternate between 0 and 5.

## Practice 8.07

- Count by 5.  
6, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_
- Count by 2.  
4, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_
- Count by 10.  
27, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_
- What is one *even* number you counted in Problems 1–3? \_\_\_\_\_
- What is one *odd* number you counted in Problems 1–3? \_\_\_\_\_

## Spiral Review

For Problems 6–11, find the value of the expression.

 Show your thinking.

**6**  $52 - 13$

answer: \_\_\_\_\_

**7**  $47 + 33$

answer: \_\_\_\_\_

**8**  $85 - 58$

answer: \_\_\_\_\_

**9**  $19 + 24$

answer: \_\_\_\_\_

**10**  $71 - 49$

answer: \_\_\_\_\_

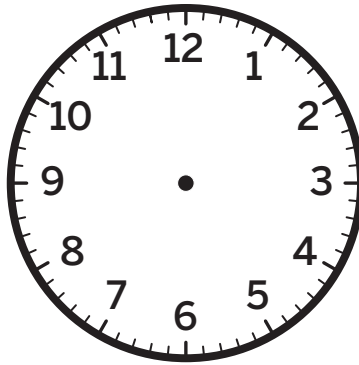
**11**  $45 + 18$

answer: \_\_\_\_\_

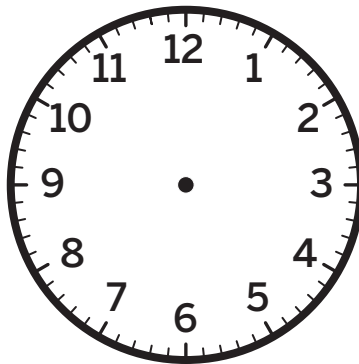
For Problems 12 and 13, draw hands on the clock to show the given time.

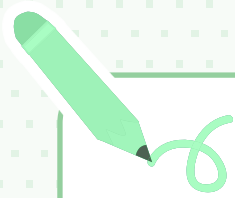
 Draw

**12** quarter to 10



**13** half past 12





Notes:

# Rectangular Arrays

 Unit Story: On Clementine Court



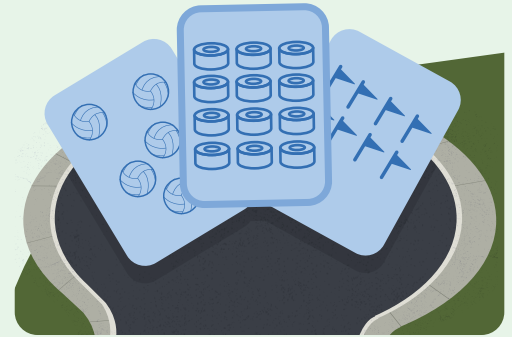
New Africa/Shutterstock.com

The kids of Clementine Court go on a scavenger hunt to find all of their sports equipment.

How could the kids organize the equipment to find how many of each type they have?

# Arranging Equipment

Let's describe arrays.



**I am a doer of math.**  
Analyzing errors can help us learn. Why is that true?

## Warm-Up



eyes on teacher

## Activity

### 1

# Card Sort: Arrangements of Objects

## Hands-On

You and your partner will be given a set of cards with different arrangements of objects.

### 1 Sort

Sort the cards into **2** categories of your choosing. Create a name for each category. Then fill in the table to show how you sorted the cards.

Category name	Cards
Category 1:	
Category 2:	

**1****Card Sort: Arrangements of Objects (continued)****2****Discuss** 

Compare your responses with another pair. What was similar or different about how you and your partner sorted the cards?

## Describing Arrays

### Hands-On

You and your partner will each choose 3 array cards.

- 3 Choose a card. Write the card letter and the total amount of objects on the card.

Array card: \_\_\_\_\_ total amount: \_\_\_\_\_

### 4 Discuss

Describe the array you chose for Problem 3 to your partner.

**Describing Arrays (continued)**

- 5 Choose another card. Write the card letter and the total amount of objects on the card.

Array card: \_\_\_\_\_ total amount: \_\_\_\_\_

- 6 **Discuss** 

Describe the array you chose for Problem 5 to your partner.

- 7 Choose another card. Write the card letter and the total amount of objects on the card.

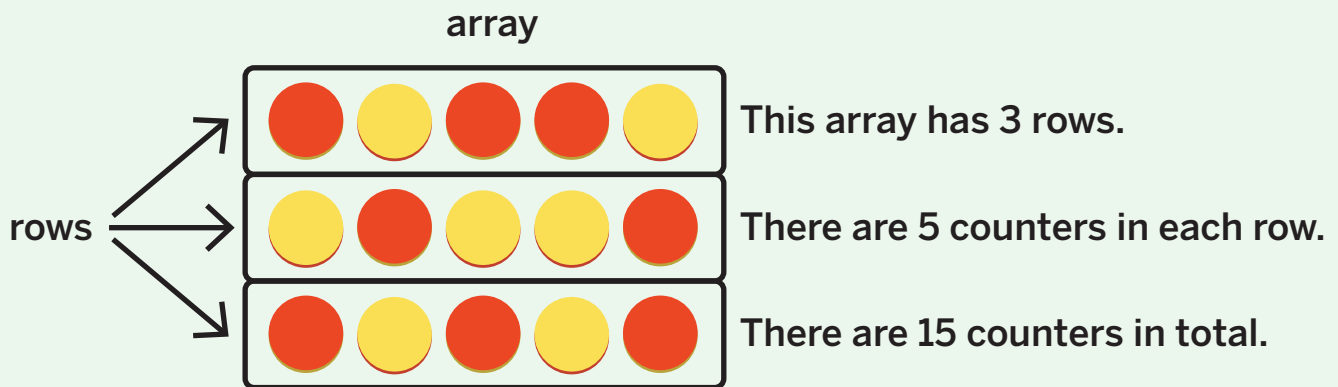
Array card: \_\_\_\_\_ total amount: \_\_\_\_\_

- 8 **Discuss** 

Describe the array you chose for Problem 7 to your partner.

## Summary 8.08

You can describe an **array** by identifying the number of **rows** and the number of objects in each row.

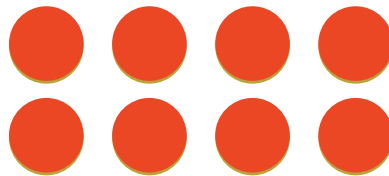


**array** An arrangement of objects in equal rows and equal columns, where each column must contain the same number of objects as the other columns, and each row must have the same number of objects as the other rows.

**row** A part of an array that goes side to side.

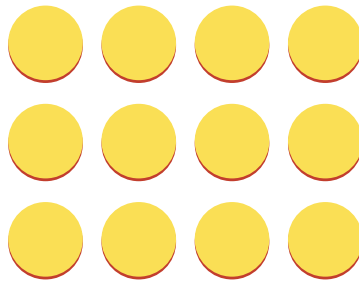
## Practice 8.08

Use the array for Problems 1–3.



- 1 There are \_\_\_\_\_ rows in the array.
- 2 There are \_\_\_\_\_ counters in each row.
- 3 There are \_\_\_\_\_ counters in total.

Use the array for Problems 4–6.



- 4 There are \_\_\_\_\_ rows in the array.
- 5 There are \_\_\_\_\_ counters in each row.
- 6 There are \_\_\_\_\_ counters in total.

### Spiral Review

- 7 Find the value of the expression.

$$17 + 8 + 23 + 5$$

 Show your thinking.

answer: \_\_\_\_\_

Use the subtraction expression for Problems 8 and 9.

$$433 - 225$$

- 8 Will you need to decompose a ten to find the difference?

Write *yes* or *no*. \_\_\_\_\_

- 9 Find the difference.

 **Show or explain your thinking**

answer: \_\_\_\_\_

- 10 Find the value of the expression.

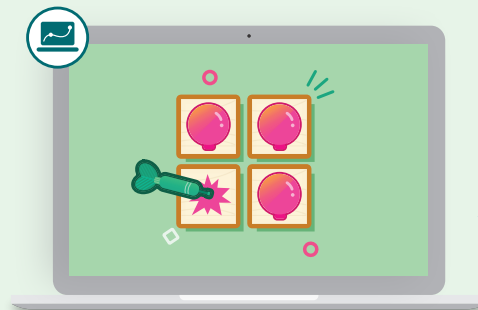
$$678 - 245$$

 **Show or explain your thinking**

answer: \_\_\_\_\_

# Balloon Pop

Let's describe and find the total amounts of objects in arrays.



**We are a math community.**  
How can math be used to give everyone a voice in a community?

## Warm-Up

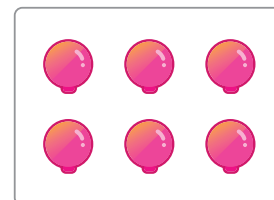
**1** eyes on teacher

## Activity

# 1 Count the Columns, Colin!

**2** Discuss

Let's describe an array that Colin created.

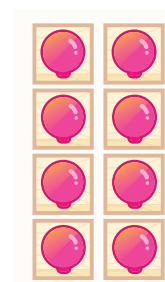


Help Colin find the number of columns and the number of balloons that could fit in each column in each array. You can show your work in the box if it is helpful.

**3**

columns: \_\_\_\_\_

number of balloons in each column: \_\_\_\_\_



**3** Discuss

How could you describe the structure of this array?

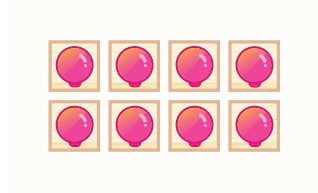
## 1

## Count the Columns, Colin! (continued)

4

columns: \_\_\_\_\_

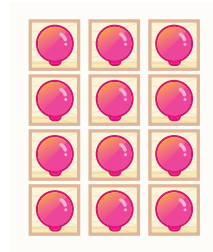
number of balloons in each column: \_\_\_\_\_



5

columns: \_\_\_\_\_

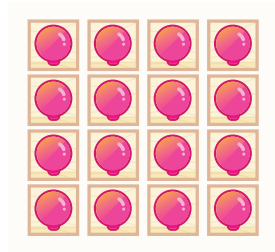
number of balloons in each column: \_\_\_\_\_



6

columns: \_\_\_\_\_

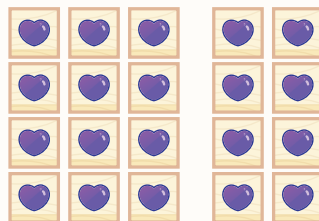
number of balloons in each column: \_\_\_\_\_



7

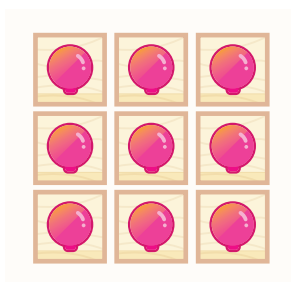
Discuss 

What is similar about the arrays? What is different? You can show your thinking in the box if it is helpful.



# Aim for the Prize!

Colin wants to win stuffed animals. Find the total number of balloons in each array. You can show your work in the box if it is helpful.

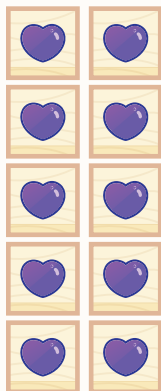
**8**

total: \_\_\_\_\_

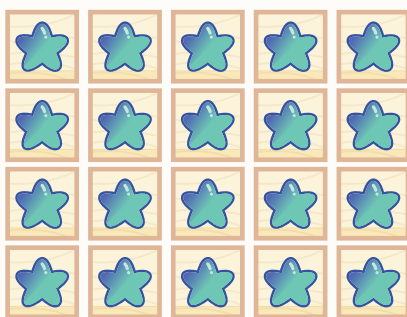
**8****Discuss** 

How did you find the total number of balloons in the array?

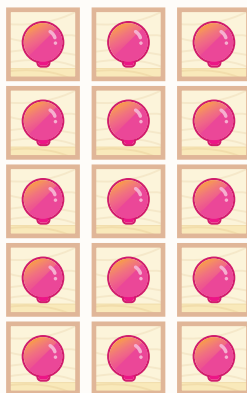
## Aim for the Prize! (continued)

**9**

total: \_\_\_\_\_

**10**

total: \_\_\_\_\_

**11**

total: \_\_\_\_\_

## Summary 8.09

In an array, **columns** go up and down. The rows and columns represented in an array can be used to describe its structure and find the total amount of objects within the array.



columns

This array has 5 columns.  
There are 3 balloons in each column.  
The array has 3 rows.  
There are 5 balloons in each row.  
There are 15 balloons in total.

**column** A part of an array that goes up and down.

## Practice 8.09

Use the array for Problems 1–3.

1 How many balloons are in each row?

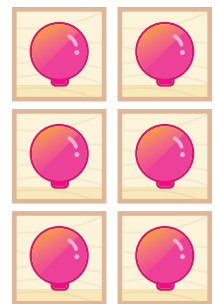
\_\_\_\_\_

2 How many balloons are in each column?

\_\_\_\_\_

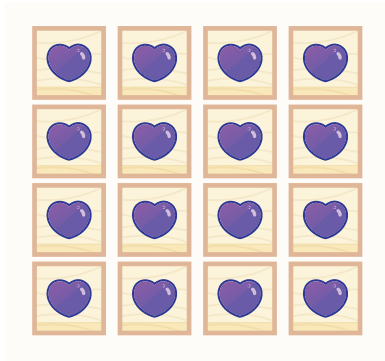
3 How many balloons are there in total?

\_\_\_\_\_



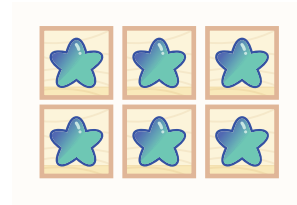
For Problems 4 and 5, find the total number of objects in the array.

4



total: \_\_\_\_\_

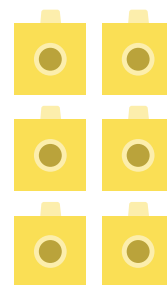
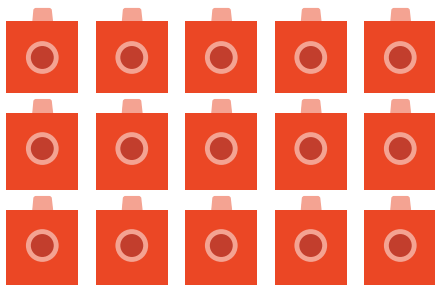
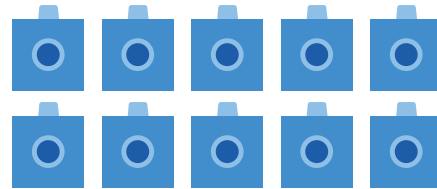
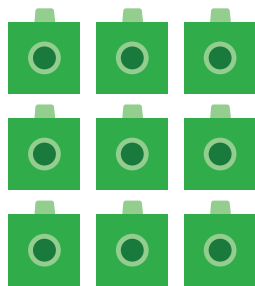
5



total: \_\_\_\_\_

6

Circle the array that has 3 rows and 5 columns.



## Spiral Review

For Problems 7–10, find the value of the expression.

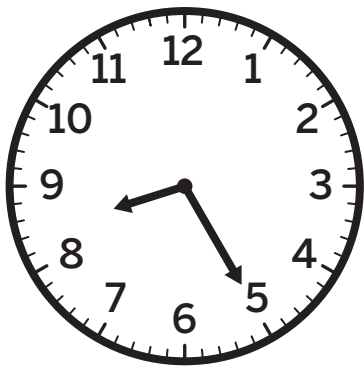
7  $19 - 8$  \_\_\_\_\_

8  $6 + 5$  \_\_\_\_\_

9  $17 - 5$  \_\_\_\_\_

10  $5 + 7$  \_\_\_\_\_

- 11 Write the time shown on the clock. Explain your thinking.



time: \_\_\_\_\_

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# Arrays Around the House

Let's represent and match arrays with equations.



**We are a math community.**  
How did the children of Clementine Court use math when playing games?

## Warm-Up



eyes on teacher

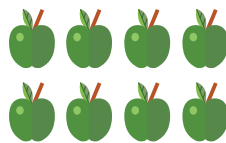
## Activity

### 1

## Arrays in the Kitchen

Gavin and his dad arranged food in the kitchen. Find the total amount of objects in each array. Write an equation to represent how you found the total.

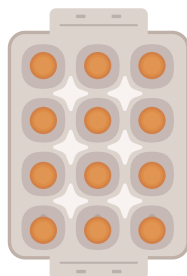
1



equation: \_\_\_\_\_

**1****Arrays in the Kitchen (continued)**

Gavin and his dad arranged food in the kitchen. Find the total amount of objects in each array. Write an equation to represent how you found the total.

**2**

equation: \_\_\_\_\_

**3**

equation: \_\_\_\_\_

**4****Discuss** 

Explain how your equations represent the arrays.

# Card Sort: Arrays and Equations

## Hands-On

You and your partner will be given a set of cards with arrays and equations representing items around Gavin's room.

### 5 Sort

Match each array with **2** equations that could be used to represent it. For each group of matching cards, write the letters of the cards in the table.

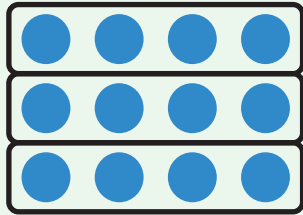
Array card	Equation cards
A	
B	
C	
D	
E	
F	

### 6 Discuss

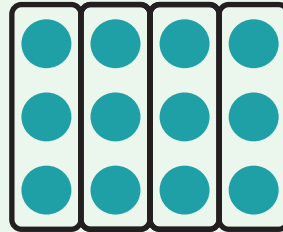
For Array card A, explain how each of the 2 equations represents it.

## Summary 8.10

You can represent the total number of objects in an array as the sum of equal addends. You can use the number of objects in each row or the number of objects in each column as the addends.



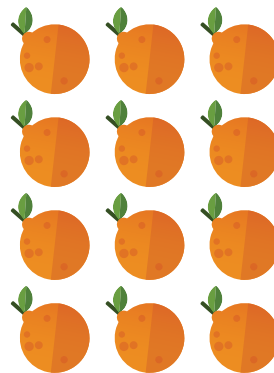
$$4 + 4 + 4 = 12$$



$$3 + 3 + 3 + 3 = 12$$

## Practice 8.10

- 1 Write an equation that represents the total amount of oranges in the array.

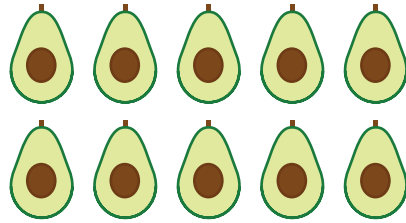


equation: \_\_\_\_\_

## Practice 8.10

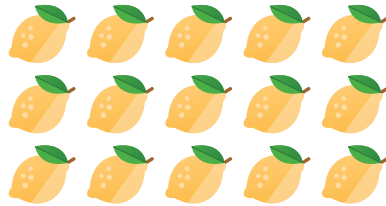
Name \_\_\_\_\_ Date \_\_\_\_\_

- 2 Write an equation that represents the total amount of avocados in the array.



equation: \_\_\_\_\_

- 3 Circle 2 equations that represent the total amount of lemons in the array.



$$5 + 5 + 5 = 15$$

$$3 + 3 + 3 = 9$$

$$5 + 5 + 5 + 5 = 20$$

$$3 + 3 + 3 + 3 + 3 = 15$$

## Spiral Review

For Problems 4 and 5, find the value of the expression.

**i** Show your thinking.

4  $71 - 29$

answer: \_\_\_\_\_

5  $18 + 37$

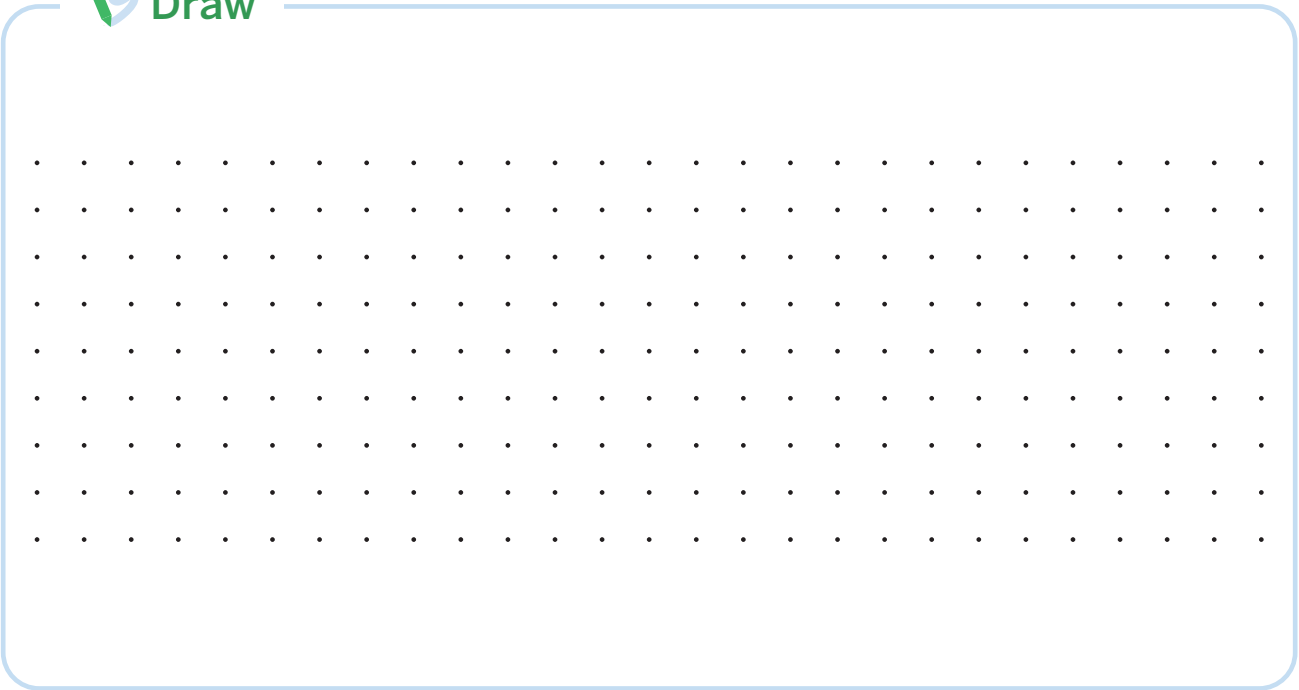
answer: \_\_\_\_\_

# Practice 8.10

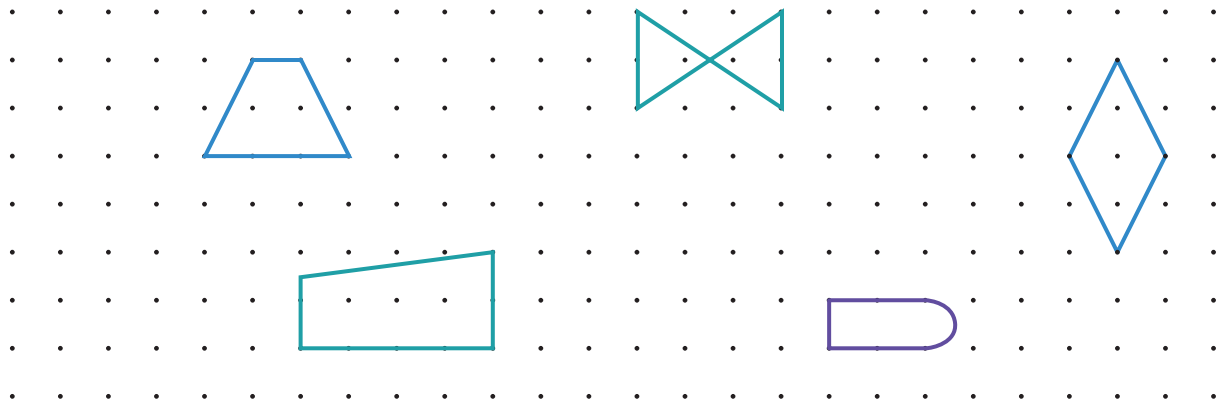
Name \_\_\_\_\_ Date \_\_\_\_\_

- 6 Clare drew a shape with 4 sides and 2 square corners. Draw a shape that could be Clare's shape.

 Draw




- 7 Circle 3 quadrilaterals.



# Clementine Court Community Day

Let's create and write equations for arrays.



 **We are a math community.**  
The families of Clementine Court work together. How has working with others helped you in math class?

## Warm-Up



## Activity

# 1 Relay Races

- Find the total number of children in the relay race by adding the number in each row or column. Write an equation that represents how you found the total.

 **Show your thinking.**



equation: \_\_\_\_\_

## 2 Discuss

Explain how you chose whether to add the number in each row or column to find the total.

## 1

## Relay Races (continued)

Find the total number of children in each relay race by adding the number in each row or column. Write an equation that represents how you found the total.

 Show your thinking.

3



equation: \_\_\_\_\_

4



equation: \_\_\_\_\_

## 2

## The Community Garden

Hands-On 

Create an array to show how to plant each number of vegetables. Write 2 equations that represent the total number of objects in the array. Use the number in each row as the addends, and then use the number in each column as the addends.

 Show or explain your thinking.

5 9 potatoes

equations: \_\_\_\_\_

6 10 carrot seeds

equations: \_\_\_\_\_

## The Community Garden (continued)

 Show or explain your thinking.

**7** 25 bell pepper seeds

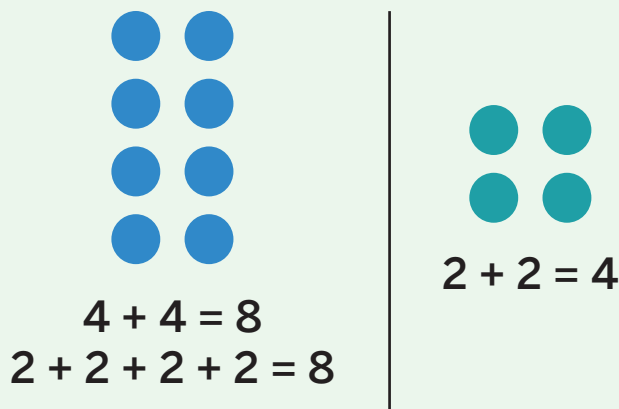
equations: \_\_\_\_\_

**8** Discuss 

What is similar or different about the arrays and the equations that represent them?

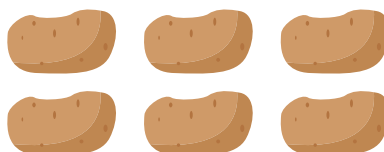
## Summary 8.11

You can choose whether to add the number of objects in each row or column to find the total number of objects in an array. When an array has the same number of rows and columns, you can write 1 equation to represent it.



## Practice 8.11

Use the array for Problems 1 and 2.



- 1 Write an equation that represents the total number of potatoes in the array using the number in each *row* as the addends.

\_\_\_\_\_

- 2 Write an equation that represents the total number of potatoes in the array using the number in each *column* as the addends.

\_\_\_\_\_

Use the array for Problems 3 and 4.



- 3** Write an equation that represents the total number of volleyballs in the array using the number in each *row* as the addends.

\_\_\_\_\_

- 4** Write an equation that represents the total number of volleyballs in the array using the number in each *column* as the addends.

\_\_\_\_\_

### Spiral Review

- 5** Circle **3** expressions with a value of 13.

$7 + 3 + 2$

$18 - 7$

$3 + 5 + 5$

$4 + 3 + 6$

$3 + 3 + 3$

$18 - 5$

For Problems 6–9, find the number that makes the equation true.

**6**  $8 + 5 =$  \_\_\_\_\_

**7**  $16 - 8 =$  \_\_\_\_\_

**8**  $7 + 9 =$  \_\_\_\_\_

**9**  $18 - 7 =$  \_\_\_\_\_

## Practice 8.11

Name \_\_\_\_\_ Date \_\_\_\_\_

For Problems 10 and 11, use the numbers to write subtraction expressions that require decomposing a hundred. You may use each number only once.

199

512

743

284

10 \_\_\_\_\_ - \_\_\_\_\_

11 \_\_\_\_\_ - \_\_\_\_\_

12 Choose an expression you wrote from Problem 10 or Problem 11 and find the difference.

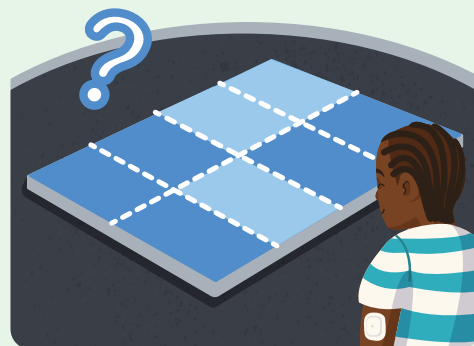
expression: \_\_\_\_\_

 Show your thinking.

answer: \_\_\_\_\_

# Arrays and Rectangles

Let's compose and split rectangles.



**I am a doer of math.**  
Think of a time when you felt nervous in math class. What might have made you feel more comfortable?

## Warm-Up



eyes on teacher

## Activity

### 1

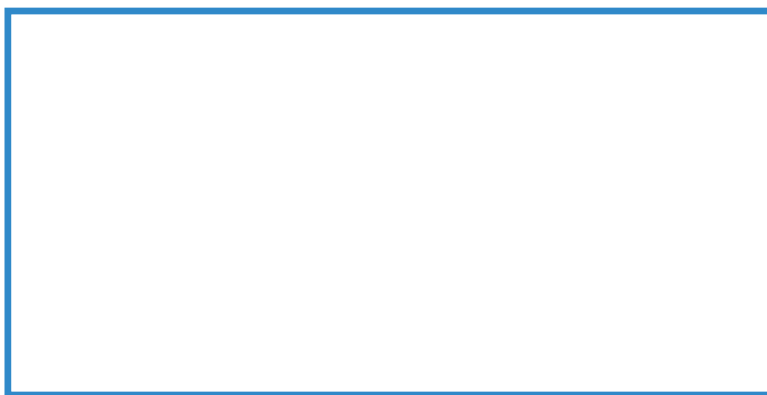
## Playing With Inch Tiles

### Hands-On

Use the inch tiles to measure Roy's notebook and show how he covered it by completely filling in the rectangle with tiles.

- 1 Estimate the length and width of Roy's notebook in inches and then use the tiles to measure.

 Show your thinking.



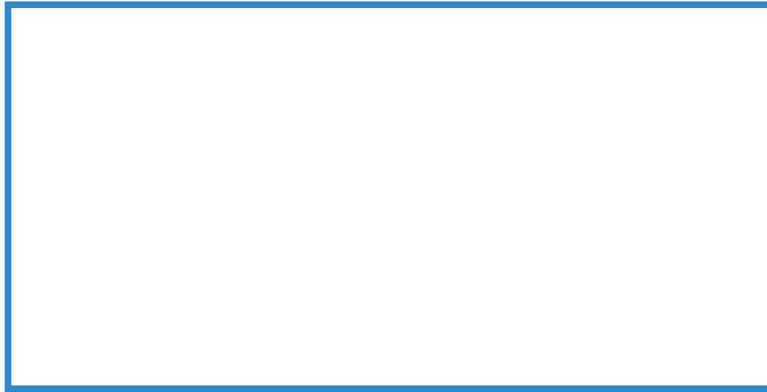
estimated length: \_\_\_\_\_ inches      actual length: \_\_\_\_\_ inches

estimated width: \_\_\_\_\_ inches      actual width: \_\_\_\_\_ inches

**1****Playing With Inch Tiles (continued)**

- 2** Fill in the rectangle with inch tiles. Write the number of rows, the number of columns, and the total number of tiles.

**i** Show your thinking.



rows: \_\_\_\_\_

total: \_\_\_\_\_

columns: \_\_\_\_\_

- 3** What do you notice about the rectangle you composed? What do you notice about the length and width of the rectangle?

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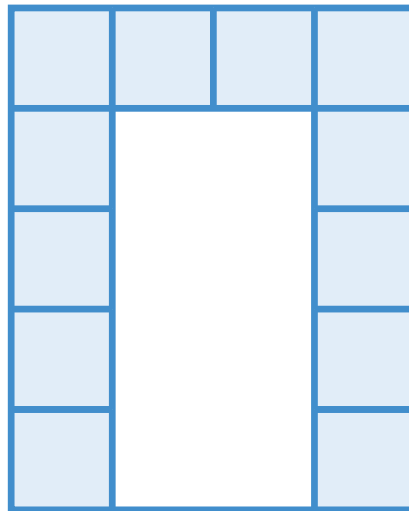
# Cutting Granola Bars

## Hands-On

Each rectangle represents a pan of granola bars. Draw lines so that each rectangle has equal rows and equal columns. Find the number of rows, the number of columns, and the total number of squares.

 Show your thinking. \_\_\_\_\_

4



rows: \_\_\_\_\_

total: \_\_\_\_\_

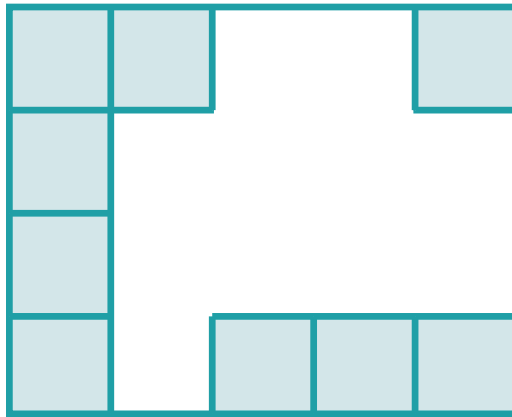
columns: \_\_\_\_\_

## Cutting Granola Bars (continued)



Show your thinking.

5

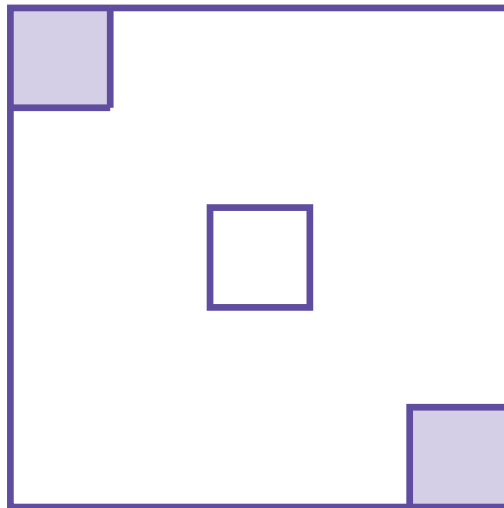


rows: \_\_\_\_\_

total: \_\_\_\_\_

columns: \_\_\_\_\_

6



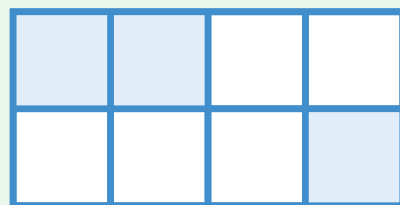
rows: \_\_\_\_\_

total: \_\_\_\_\_

columns: \_\_\_\_\_

## Summary 8.12

You can compose and split a rectangle into equal rows and equal columns using equal-sized squares to make an array.

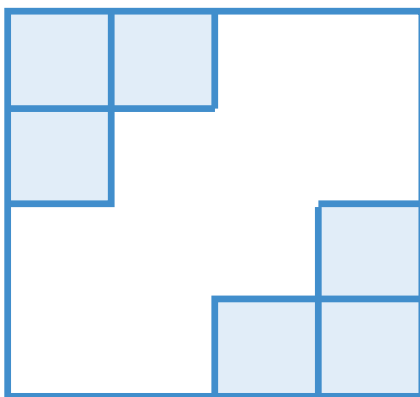


The arrays have 2 rows, 4 columns, and 8 total squares.

## Practice 8.12

- 1 Draw lines so that the rectangle has equal rows and equal columns. Find the number of rows, the number of columns, and the total number of squares.

 Show your thinking.



rows: \_\_\_\_\_

total: \_\_\_\_\_

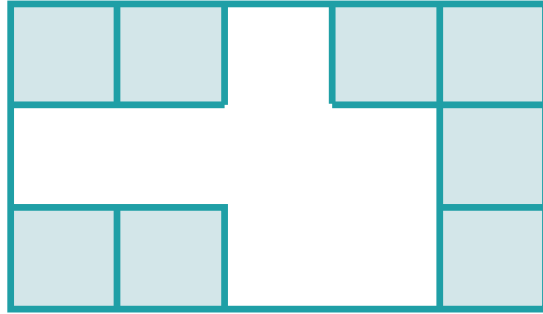
columns: \_\_\_\_\_

## Practice 8.12

Name \_\_\_\_\_ Date \_\_\_\_\_

- 2 Diego started to draw an array with equal rows and equal columns. Draw lines to finish his array. Find the number of rows, the number of columns, and the total number of squares.

**i** Show your thinking.



rows: \_\_\_\_\_

total: \_\_\_\_\_

columns: \_\_\_\_\_

## Spiral Review

- 3 Find the value of the expression.  
 $37 + 18 + 25$

**i** Show your thinking.

answer: \_\_\_\_\_

# Practice 8.12

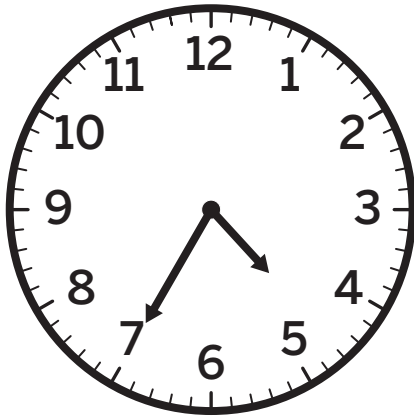
Name \_\_\_\_\_ Date \_\_\_\_\_

For Problems 4–6, draw a line to match the clock with the written time.

Clock

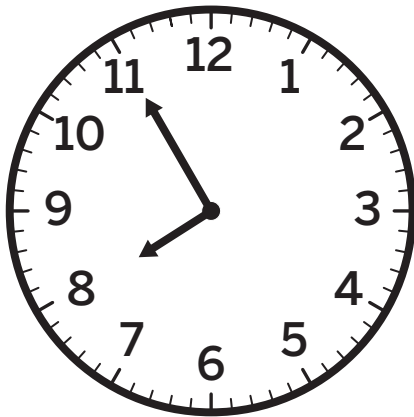
Time

4



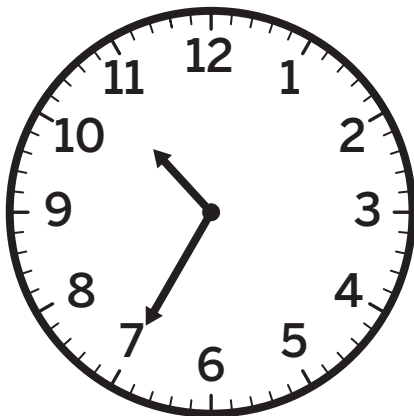
7:55

5



10:35

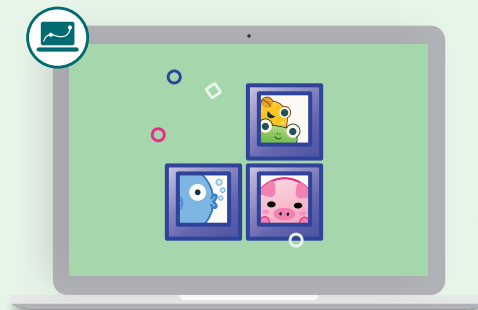
6



4:35

## Picture This!

Let's split rectangles and find the total number of equal-sized squares.



**We are a math community.**  
How did the children of Clementine Court use math to solve their problems?

### Warm-Up

**1**

👁️ eyes on teacher

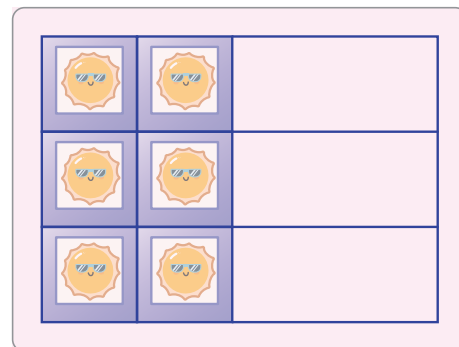
### Activity

**1**

## Preparing the Scrapbook

**2**

Show how Dani could split the rectangle into equal-sized squares.



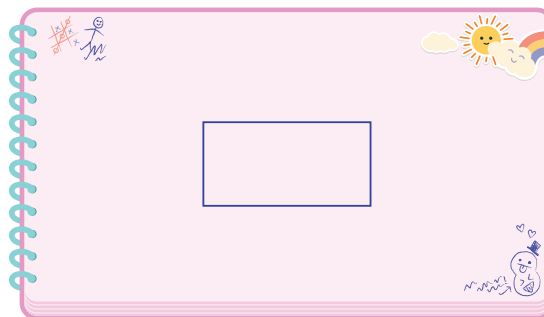
Use the given number of rows and columns to split each rectangle into equal-sized squares.



**Show your thinking.**

**3**

Split the rectangle into 2 rows and 4 columns of equal-sized squares.

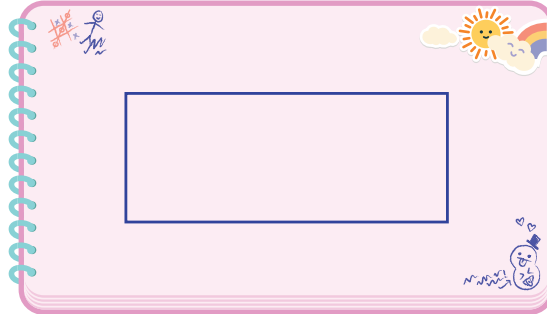


**1****Preparing the Scrapbook (continued)****Show your thinking.**

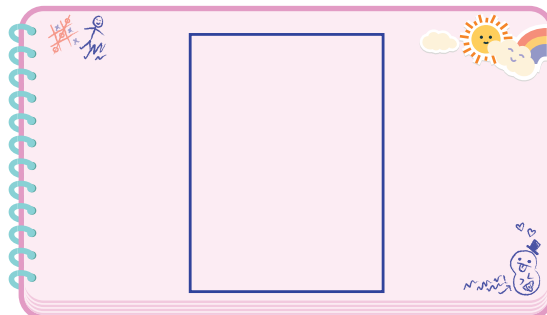
- 4** Split the rectangle into 3 rows and 5 columns of equal-sized squares.



- 5** Split the rectangle into 2 rows and 5 columns of equal-sized squares.



- 6** Split the rectangle into 4 rows and 3 columns of equal-sized squares.

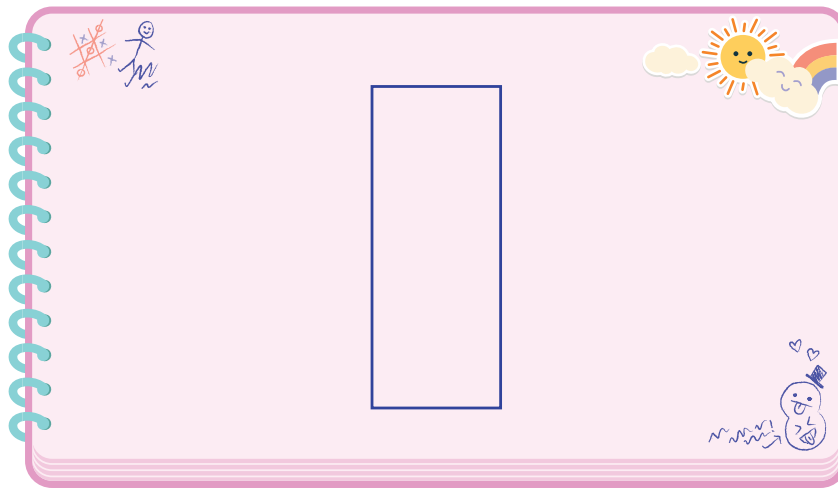


# Photo Finish

Use the numbers of rows and columns to find the total number of equal-sized square photos Dani can put in each rectangle.

**Show your thinking.**

- 7** Dani can put 5 rows and 2 columns of equal-sized square photos in this rectangle.



total: \_\_\_\_\_

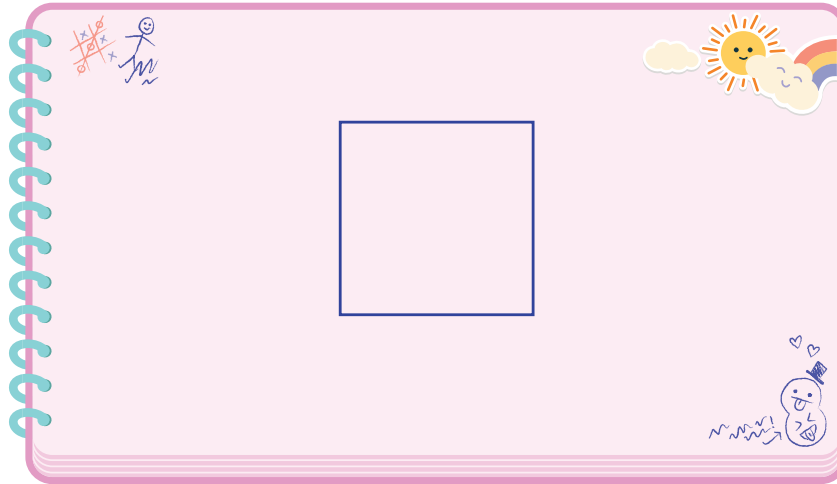
**7** **Discuss** 

How did you find the total number of photos?

## Photo Finish (continued)

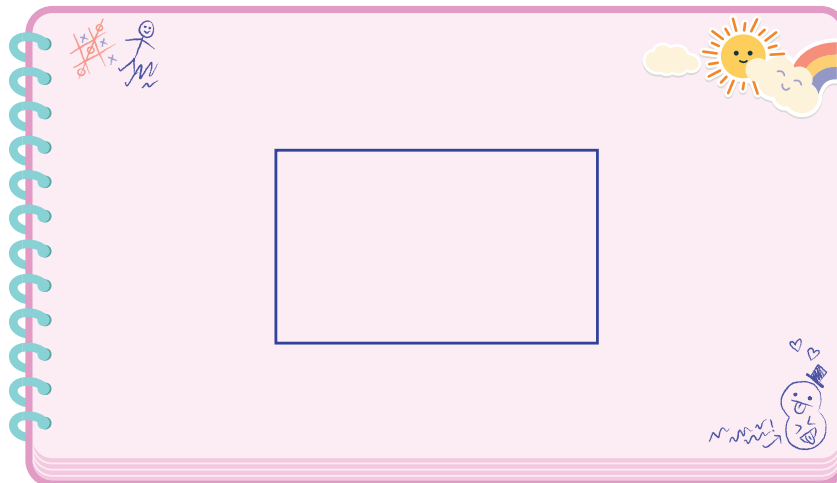
**i** Show your thinking.

- 8** Dani can put 3 rows and 3 columns of equal-sized square photos in this rectangle.



total: \_\_\_\_\_

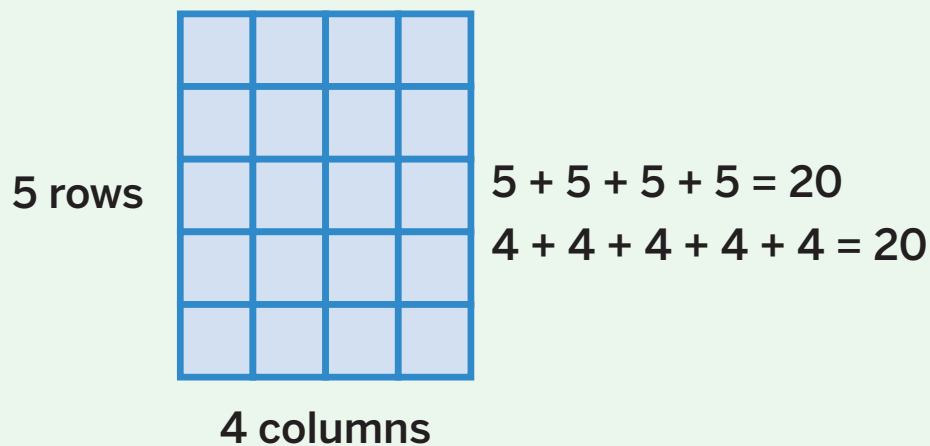
- 9** Dani can put 3 rows and 5 columns of equal-sized square photos in this rectangle.



total: \_\_\_\_\_

## Summary 8.13

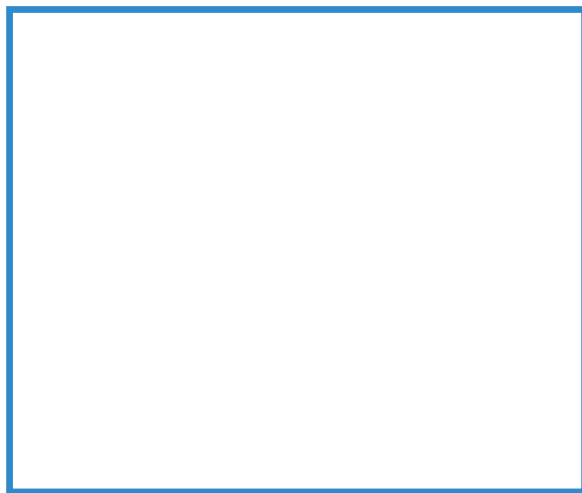
You can split rectangles into equal-sized squares and find the total number of squares by using the structure of an array.



## Practice 8.13

- 1 Split the rectangle into 3 rows and 4 columns of equal-sized squares.

 Show your thinking.



## Practice 8.13

Name \_\_\_\_\_ Date \_\_\_\_\_

- 2 Split the rectangle into 4 rows and 5 columns of equal-sized squares. Then find the total number of squares.

 Show your thinking.



total: \_\_\_\_\_

## Spiral Review

For Problems 3 and 4, find the value of the expression.

 Show your thinking.

3  $46 - 19$

answer: \_\_\_\_\_

4  $55 + 23$

answer: \_\_\_\_\_

## Practice 8.13

Name \_\_\_\_\_ Date \_\_\_\_\_

- 5 Find the value of the expression.  
 $453 + 139$

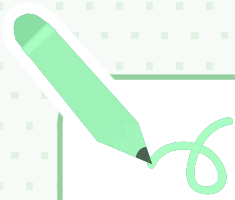
 Show your thinking.

answer: \_\_\_\_\_

- 6 Find the value of the expression.  
 $649 - 356$

 Show your thinking.

answer: \_\_\_\_\_



Notes:

## Math at Work

What is your favorite game or sport you like to play? How many players can play that game or sport?

### **Athletic coordinators**

create sports programs and schedules. They make sure there are enough pieces of sports equipment for the players. They might think about equal groups as they count them.



insta\_photos/Shutterstock.com.  
Andrew Angelov/Shutterstock.com.

## Math in the World

In baseball, players use baseball mitts to catch baseballs during a game. The array shows a group of baseball mitts. How many rows and columns are in the array? What is the total number of baseball mitts?



## Math Mindset

Does this array show an odd number or an even number?  
How do you know?

