

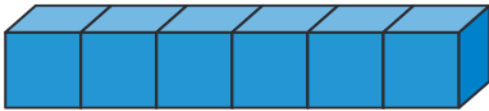
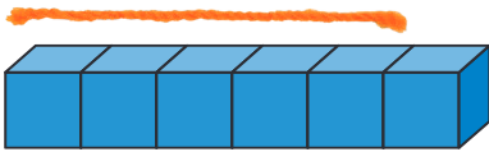
# Relate Multiplication and Area

## ✓ Show What You Know

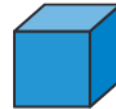
### ► Use Nonstandard Units to Measure Length

Use cubes to measure the object.

1.



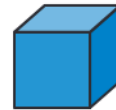
about \_\_\_\_\_



2.



about \_\_\_\_\_



### ► Add 3 Numbers Write the sum.

3.  $2 + 7 + 3 =$  \_\_\_\_\_

4.  $3 + 5 + 2 =$  \_\_\_\_\_

5.  $6 + 1 + 9 =$  \_\_\_\_\_

### ► Model with Arrays Use the array. Complete.

6.  3 rows of 4

\_\_\_\_\_  $\times$  \_\_\_\_\_ = \_\_\_\_\_

7.  4 rows of 2

\_\_\_\_\_  $\times$  \_\_\_\_\_ = \_\_\_\_\_

8.  6 rows of 8

\_\_\_\_\_  $\times$  \_\_\_\_\_ = \_\_\_\_\_

9.  7 rows of 4

\_\_\_\_\_  $\times$  \_\_\_\_\_ = \_\_\_\_\_

Name \_\_\_\_\_

# Understand Area

**I Can** count unit squares to find the area of a figure.

Florida's B.E.S.T.

● Geometric Reasoning 3.GR.2.1

● Mathematical Thinking &amp; Reasoning

MTR.1.1, MTR.2.1, MTR.5.1



## UNLOCK the Problem Real World

**CONNECT** You learned that perimeter is the distance around a figure. It is measured in linear units, or units that are used to measure the distance between two points.

**Area** is the measure of the number of unit squares needed to cover a flat surface. A **unit square** is a square with a side length of 1 unit. It has an area of 1 **square unit**.

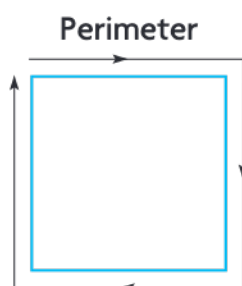
Unit Square

1 unit

1 unit

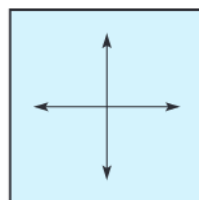
1 unit

1 unit



$$1 \text{ unit} + 1 \text{ unit} + 1 \text{ unit} + 1 \text{ unit} = 4 \text{ units}$$

Area



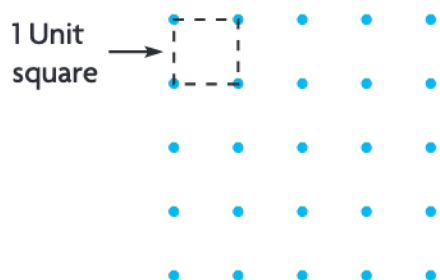
1 square unit

### Math Idea

You can count the number of units it takes to go around a figure to find its perimeter. You can count the number of unit squares inside a figure to find its area in square units.

## Activity Materials ■ geoboard ■ rubber bands

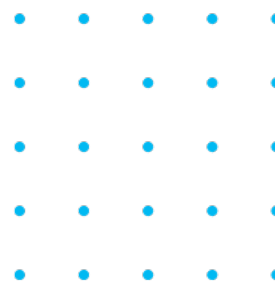
- A** Use your geoboard to form a figure made from 2 unit squares. Record the figure on this dot paper.



What is the area of this figure?

Area = \_\_\_\_\_ square units

- B** Change the rubber band so that the figure is made from 3 unit squares. Record the figure on this dot paper.



What is the area of this figure? Area = \_\_\_\_\_

\_\_\_\_\_ square units

**Math Talk**

**MTR 1.1**

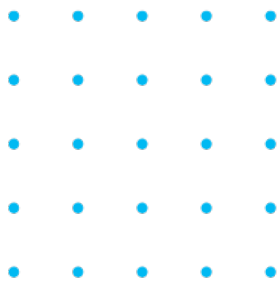
Actively participate in effortful learning.

For B, did your figure look like your classmate's figure?

**Go Online** For more help

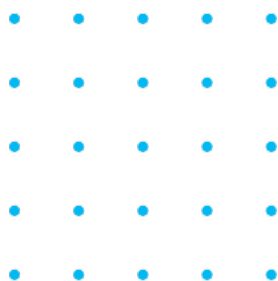
**Try This!** Draw three different figures that are each made from 4 unit squares. Find the area of each figure.

Figure 1



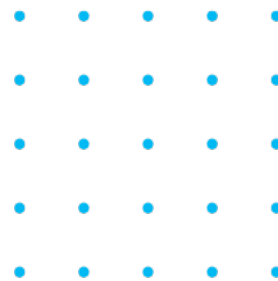
Area = \_\_\_\_\_ square units

Figure 2



Area = \_\_\_\_\_ square units

Figure 3



Area = \_\_\_\_\_ square units

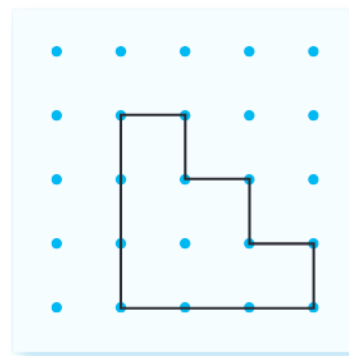
- How are the figures the same? How are the figures different?

## Share and Show

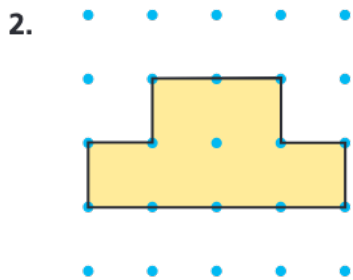
Math Board

- Shade each unit square in the figure shown. Count the unit squares to find the area.

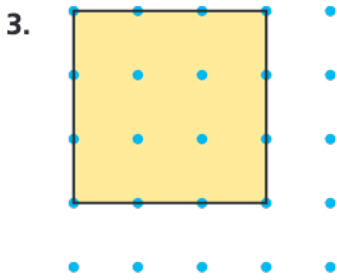
Area = \_\_\_\_\_ square units



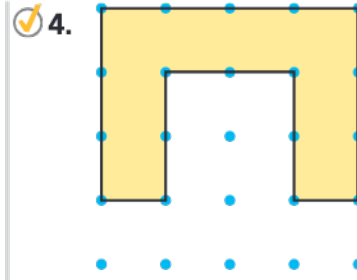
Count to find the area of the figure.



Area = \_\_\_\_\_ square units



Area = \_\_\_\_\_ square units



Area = \_\_\_\_\_ square units

Write *area* or *perimeter* for the situation.

- how big is a rug for a room

- how long is a fence around a garden

Math Talk

MTR 7.1

Apply mathematics to real-world contexts.

What are other situations where you need to find area?

## On Your Own

Count to find the area of the figure.

7. 

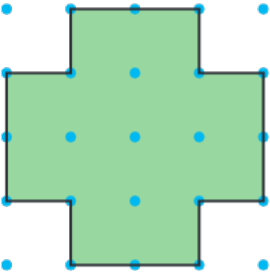
Area = \_\_\_\_\_ square units

8. 

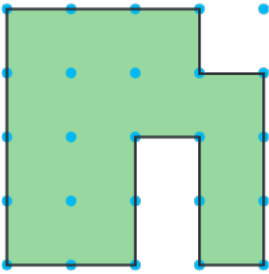
Area = \_\_\_\_\_ square units

9. 

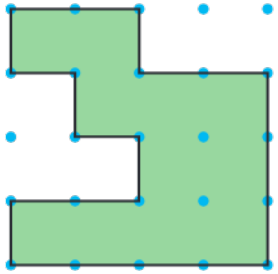
Area = \_\_\_\_\_ square units

10. 

Area = \_\_\_\_\_ square units

11. 

Area = \_\_\_\_\_ square units

12. 

Area = \_\_\_\_\_ square units

Write *area* or *perimeter* for the situation.

13. painting a wall

\_\_\_\_\_

14. covering a patio with tiles

\_\_\_\_\_

15. how long is a path around a park

\_\_\_\_\_

16. gluing a ribbon around a picture frame

\_\_\_\_\_

17. Nicole's mother put tiles on a section of their kitchen floor. The section included 5 rows with 12 tiles in each row. Each tile cost \$2. How much money did Nicole's mother spend on the tiles?

\_\_\_\_\_

# Problem Solving · Applications

Juan's dog Eli has a grass yard with the shape shown in the diagram. Use the diagram for Problems 18 and 19.

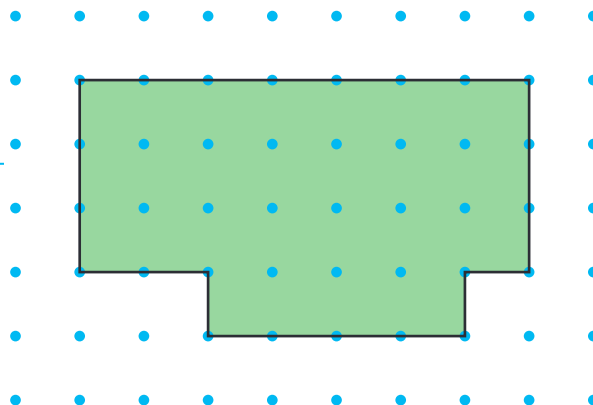
18. What is the area of Eli's yard in the diagram?

---

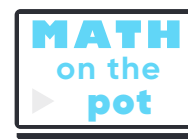
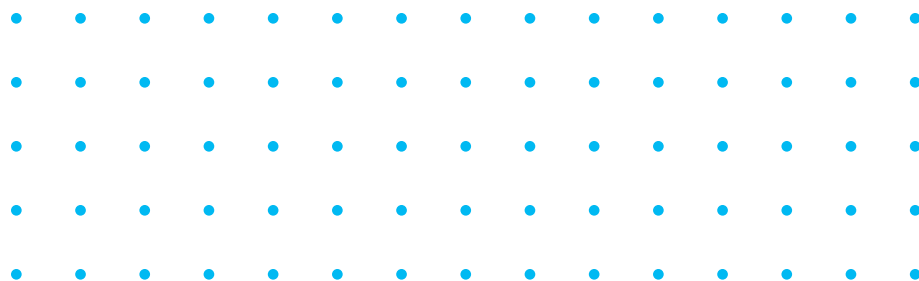
19. Juan decided to make Eli's yard larger. Change the border of Eli's yard to make it bigger. Draw your changes directly on the diagram. What is the area of the new yard?

---

Eli's Grass Yard



20. Draw two different figures, each with an area of 10 square units.



21. The diagram shows a plan for a staircase. Find the area of this figure.

Explain how you found the answer.

\_\_\_\_\_ square units

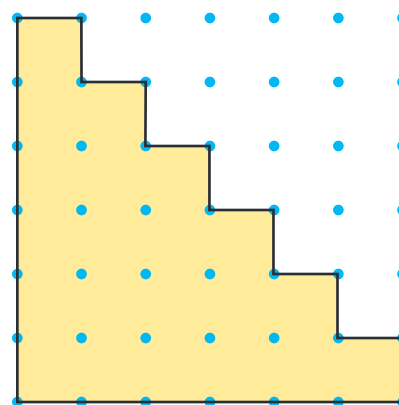
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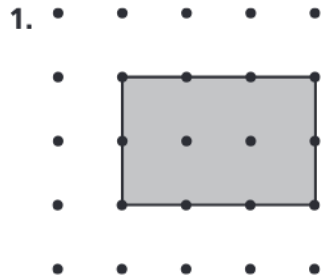
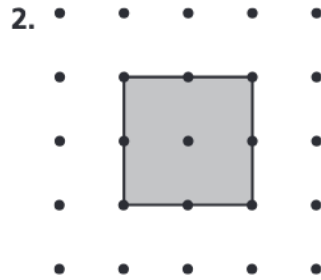
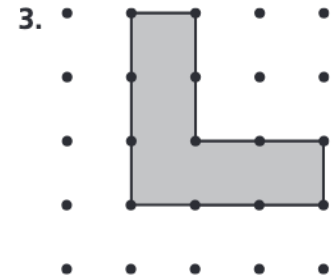


# Understand Area

Go Online

Interactive Examples

Count to find the area for the shape.

Area =   6   square unitsArea =        square unitsArea =        square unitsWrite *area* or *perimeter* for each situation.

4. size of a carpet on a floor

\_\_\_\_\_

5. length of a fence around a dog park

\_\_\_\_\_

## Problem Solving

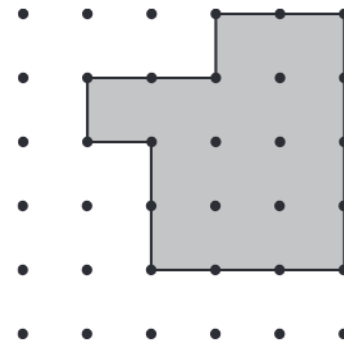
Use the diagram for Problems 6 and 7.


6. Roberto is building a platform for his model railroad. What is the area of the platform?

\_\_\_\_\_

7. Roberto changes his platform so that it has an area of 14 square units. Draw a new border on the diagram to show how he might do so.

\_\_\_\_\_

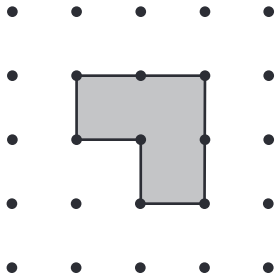


8.  *Math* Draw a rectangle using dot paper. Make one side 11 units long. Find the area, and explain how you found your answer.

\_\_\_\_\_

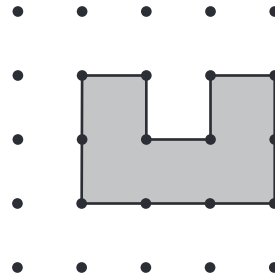
## Lesson Check

9. Ethelred used rubber bands to make the shape below on his geoboard. What is the area of the shape?




---

10. Wilma drew the shape below on dot paper. What is the area of the shape she drew?




---

## Spiral Review

11. Leonardo knows it is 42 days until summer break. How many weeks is it until Leonardo's summer break? (Hint: There are 7 days in a week.)

---

12. Nan cuts 9 submarine sandwiches into 4 equal parts. How many parts are there now?

---

13. What is ★ equal to?

$$11 \div \star = 11$$

$$\star = \underline{\hspace{2cm}}$$

---

14. Burle has 2 bags of dog food. Each bag contains 5 kilograms of food. How many kilograms of food does Burle have in all?

---

Name \_\_\_\_\_

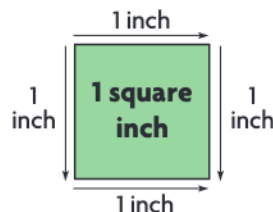
# Measure Area by Counting Unit Squares

**I Can** find the area by counting unit squares without gaps or overlap.



## UNLOCK the Problem

Jaime is measuring the area of the rectangles. He uses 1-inch as his unit length. Each side of his unit square is 1-inch long. The area of his unit square is 1 **square inch**.



### Activity 1 Materials

■ 1-inch grid paper ■ scissors

Cut out eight 1-inch squares. Use the dashed lines as guides to place the squares on A–C.

**A** Place 4 squares on Rectangle A.

- Are there any gaps? \_\_\_\_\_
- Are there any overlaps? \_\_\_\_\_
- Jaime says that the area is 4 square inches. Is Jaime's measurement correct? \_\_\_\_\_

So, when you measure area, there can be no space or gaps between the unit squares.

**B** Place 8 squares on Rectangle B.

- Are there any gaps? \_\_\_\_\_
- Are there any overlaps? \_\_\_\_\_
- Jaime says that the area is 8 square inches. Is Jaime's measurement correct? \_\_\_\_\_

So, when you measure the area, the unit squares cannot overlap.

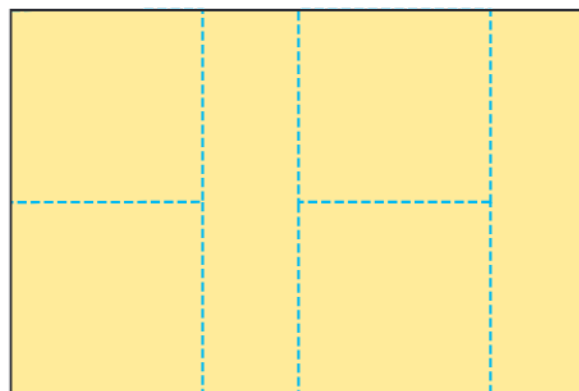
**C** Place 6 squares on Rectangle C.

- Are there any gaps? \_\_\_\_\_
- Are there any overlaps? \_\_\_\_\_
- Jaime says that the area is 6 square inches. Is Jaime's measurement correct? \_\_\_\_\_

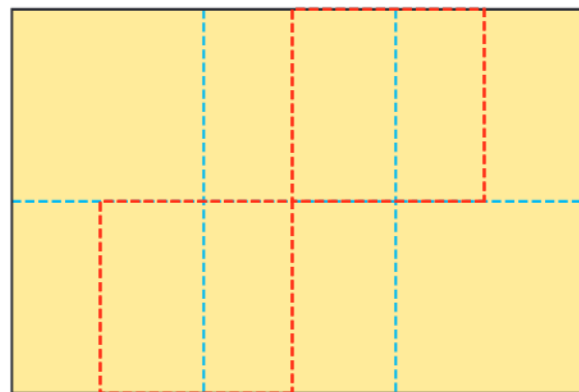
So, the area of Rectangle C is

\_\_\_\_\_ square inches.

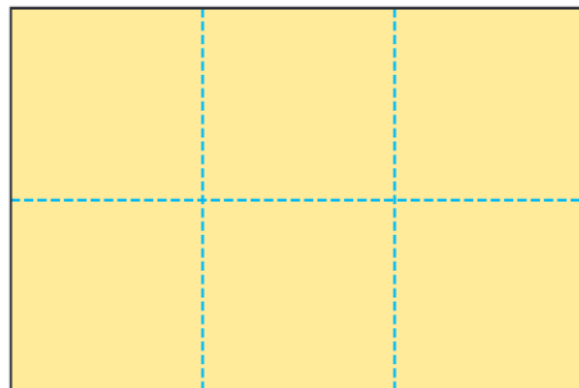
Rectangle A



Rectangle B



Rectangle C



Florida's B.E.S.T.

● Geometric Reasoning 3.GR.2.1

● Mathematical Thinking & Reasoning

MTR.1.1, MTR.2.1, MTR.4.1, MTR.6.1

## Activity 2 Materials ■ green and blue paper ■ scissors



**Common Error**

Be sure that there are no gaps or overlaps when you use square tiles to find area.

**STEP 1** Estimate the number of blue square tiles it will take to cover the gray figure.

\_\_\_\_\_ blue square tiles

**STEP 2** Estimate the number of green tiles it will take to cover the gray figure.

\_\_\_\_\_ green square tiles

**STEP 3** Trace the blue square pattern ten times and cut out the squares.

**STEP 4** Trace the green square pattern thirty-six times and cut out the squares.

**STEP 5** Cover the gray figure with blue square tiles. Count and write the number of blue square tiles you used. Record the area of the figure.

\_\_\_\_\_ blue square tiles

Area = \_\_\_\_\_ blue square units

**STEP 6** Cover the gray figure with green square tiles. Count and write the number of green square tiles you used. Record the area of the figure.

\_\_\_\_\_ green square tiles

Area = \_\_\_\_\_ green square units

**Math Talk**

**TR 6.1** Assess the reasonableness of solutions.

Explain why the number of green square tiles needed to cover the figure is different than the number of blue square tiles needed.

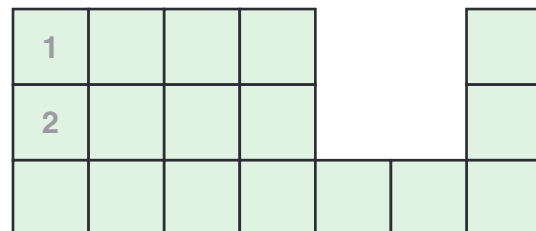
**Try This!** Count to find the area of the figure.



is 1 square centimeter.

There are \_\_\_\_\_ unit squares in the figure.

So, the area is \_\_\_\_\_ square centimeters.



# Share and Show

Math Board

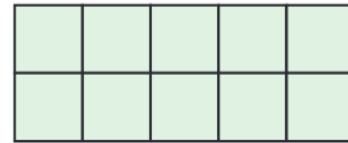
1. Count to find the area of the figure. Each unit square is 1 square centimeter.

Think: Are there any gaps? Are there any overlaps?

There are \_\_\_\_\_ unit squares in the figure.

So, the area is \_\_\_\_\_ square centimeters.

**Count to find the area of the figure.**  
**Each unit square is 1 square centimeter.**

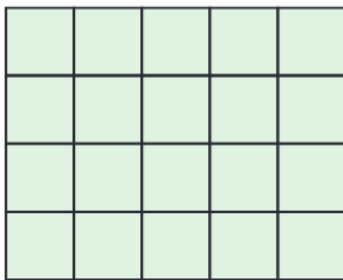


**MTR 6.1**

Assess the reasonableness of solutions.

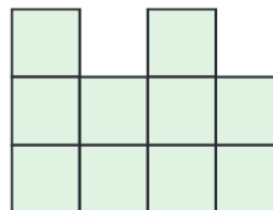
How can you use square centimeter unit squares to find the areas of different figures?

✓ 2.



Area = \_\_\_\_\_ square centimeters

✓ 3.

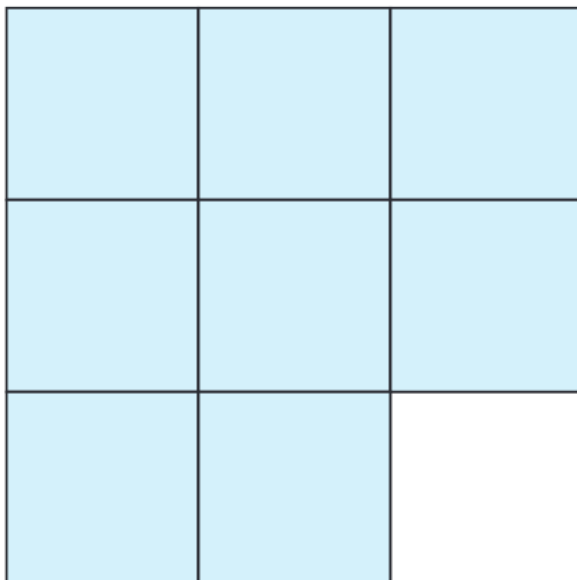


Area = \_\_\_\_\_ square centimeters

# On Your Own

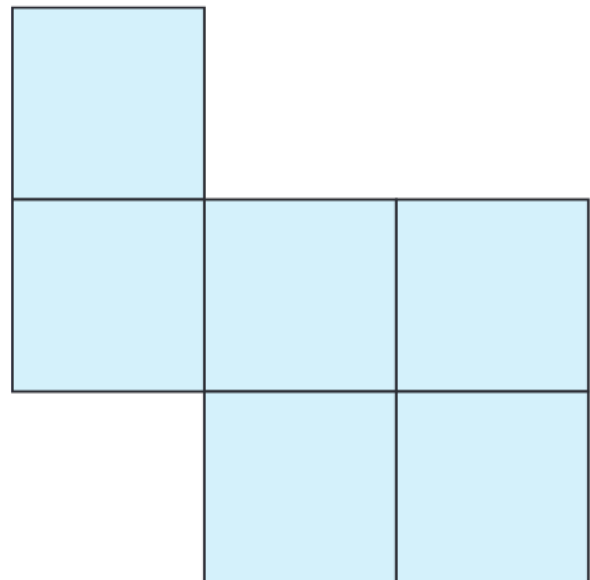
**Count to find the area of the figure.**  
**Each unit square is 1 square inch.**

4.



Area = \_\_\_\_\_ square inches

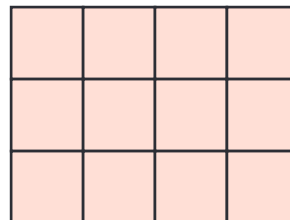
5.



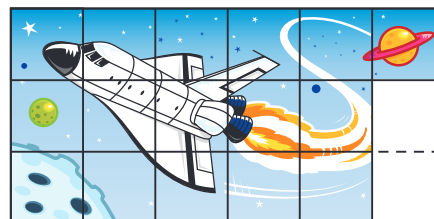
Area = \_\_\_\_\_ square inches

# Problem Solving · Applications

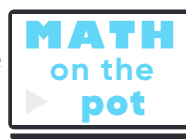
6. **TR** Konrad is placing tiles on the floor of an office lobby. Each tile represents 1 square meter. The diagram shows the lobby covered by tiles. What is the area of the lobby?



7. Angie is painting a space shuttle mural on a wall. Each square represents one square foot. The diagram shows the unfinished mural. How many more square feet has Angie painted than NOT painted on her mural?



8. You measure the area of a table top with blue unit squares and green unit squares. Which unit square will give you a greater number of square units for area? Explain.



Rectangle



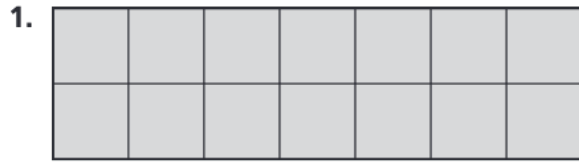
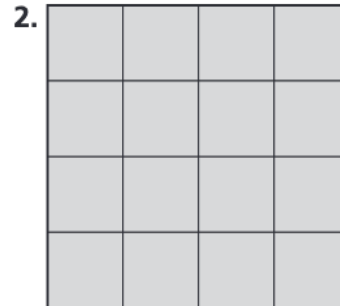
9. A large square has a side length of 5 units. It is covered by unit squares to measure its area. What is the area of the large square, measured in square units?

# Measure Area by Counting Unit Squares

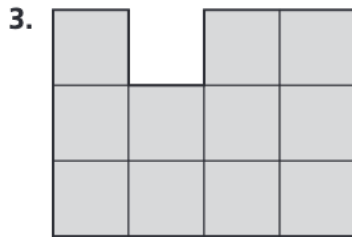
Go Online

Interactive Examples

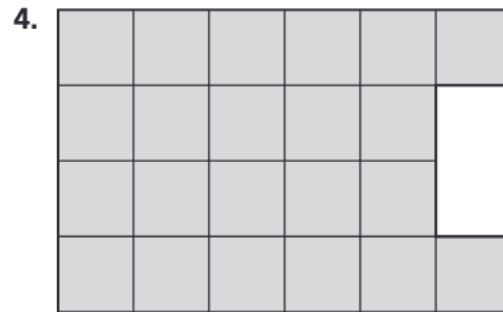
Count to find the area of the shape in square units.

Area = 14 square units

Area = \_\_\_\_\_ square units



Area = \_\_\_\_\_ square units



Area = \_\_\_\_\_ square units

## Problem Solving

Alan is painting his deck gray. The diagram shows how much of the deck he has already painted. Each unit square represents 1 square meter.

5. What is the area of the deck that Alan has already painted gray?

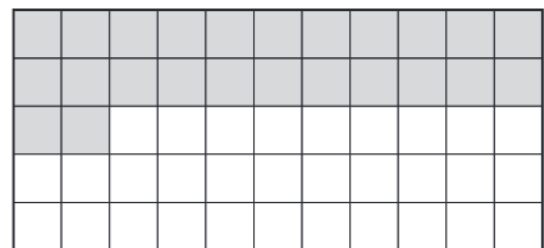
\_\_\_\_\_

6.  **WRITE** *Math* Explain how to find the area of a figure using square tiles.

\_\_\_\_\_

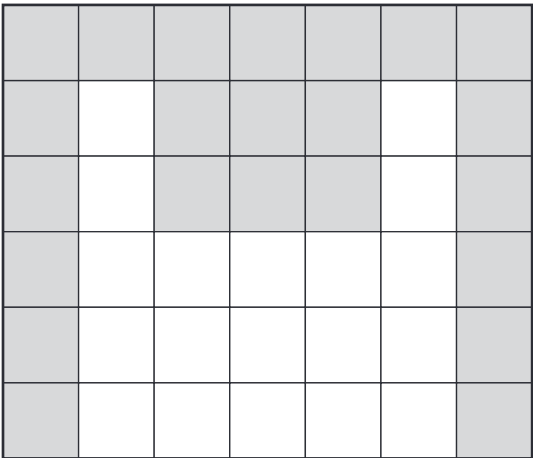
\_\_\_\_\_

Alan's Deck



Lesson Check

Use the diagram for Problems 7 and 8.



7. How many square units are shaded?

\_\_\_\_\_

8. What is the area that has NOT been shaded?

\_\_\_\_\_

Spiral Review

9. Sonya buys 6 packages of rolls.  
There are 6 rolls in each package.  
How many rolls does Sonya buy?

\_\_\_\_\_

10. Mathias mixed 6 liters of juice with 2 liters  
of soda to make fruit punch. How many  
liters of fruit punch did Mathias make?

\_\_\_\_\_

11. Franco writes a list of numbers. He says  
that all of the numbers are even. Which  
numbers in his list are *not* even?

14, 22, 31, 50, 75, 86

\_\_\_\_\_

12. Write the next 5 numbers in the pattern.

5, 12, 19, 26, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_,  
\_\_\_\_\_

Name \_\_\_\_\_

# Relate Area to Addition and Multiplication

**I Can** multiply to find the area of a rectangle.



## UNLOCK the Problem



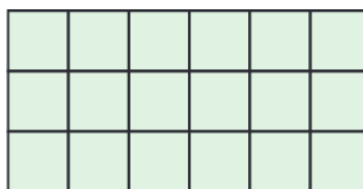
Cristina has a garden that is shaped like the rectangle below. Each unit square represents 1 square foot. What is the area of her garden?

### One Way Count unit squares.

Count the number of unit squares in all.

There are \_\_\_\_\_ unit squares.

So, the area is \_\_\_\_\_ square feet.



### Other Ways

#### A Use repeated addition.

Count the number of rows. Count the number of unit squares in each row.

\_\_\_\_\_ rows of \_\_\_\_\_ =

Write an addition equation.

So, the area is \_\_\_\_\_ square feet.

#### B Use multiplication.

Count the number of rows. Count the number of unit squares in each row.

\_\_\_\_\_ rows of \_\_\_\_\_ =

This rectangle is like an array. How do you find the total number of squares in an array?

Write a multiplication equation.

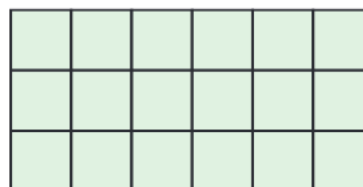
So, the area is \_\_\_\_\_ square feet.

### Florida's B.E.S.T.

- Geometric Reasoning 3.GR.2.1, 3.GR.2.2
- Mathematical Thinking & Reasoning MTR.1.1, MTR.4.1, MTR.5.1, MTR.6.1, MTR.7.1

- In the sentence, circle the shape of the garden.

- Square feet can be abbreviated as **sq ft**.



\_\_\_\_\_ unit squares

\_\_\_\_\_ unit squares

\_\_\_\_\_ unit squares

\_\_\_\_\_ + \_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_

**Math Talk**

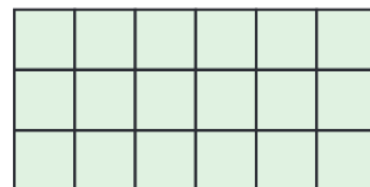
**MTR 4.1**

Engage in discussions on mathematical thinking.

Is each square shown actually 1 square foot?

\_\_\_\_\_ unit squares in each row

\_\_\_\_\_ rows



\_\_\_\_\_ × \_\_\_\_\_ = \_\_\_\_\_

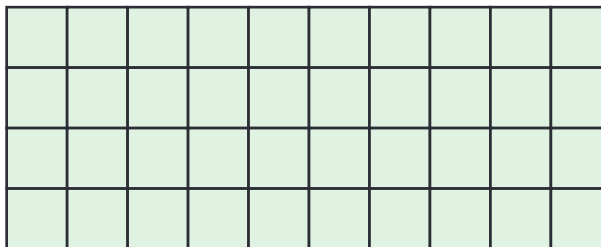
## Try This!

Find the area of the figure.

Think: There are 4 rows of 10 unit squares.

$$\underline{\hspace{1cm}} \times \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$

So, the area is  $\underline{\hspace{1cm}}$  square units.



## Share and Show



1. Look at the figure.

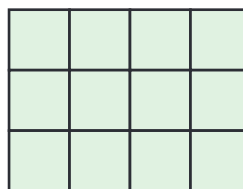
$$\underline{\hspace{1cm}} \text{ rows of } \underline{\hspace{1cm}} = \text{■}$$

$$\text{Add. } \underline{\hspace{1cm}} + \underline{\hspace{1cm}} + \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$

$$\text{Multiply. } \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$

What is the area of the figure?

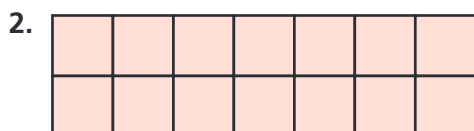
$\underline{\hspace{1cm}}$  square units



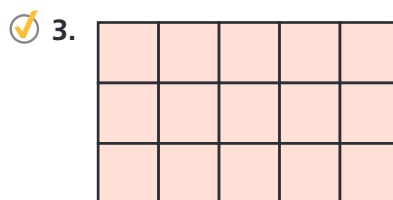
**TR**  
**4.1** Engage in discussions on mathematical thinking.

Which method do you prefer using?

Find the area of the figure.

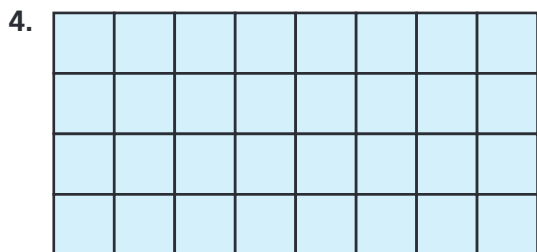


$\underline{\hspace{2cm}}$

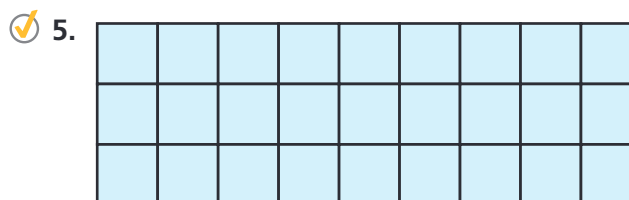


$\underline{\hspace{2cm}}$

Find the area of the figure.



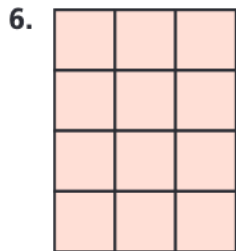
$\underline{\hspace{2cm}}$



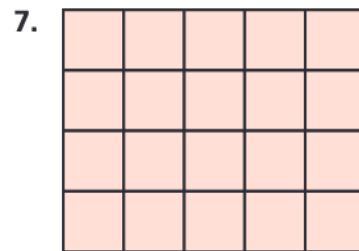
$\underline{\hspace{2cm}}$

## On Your Own

Find the area of the figure.

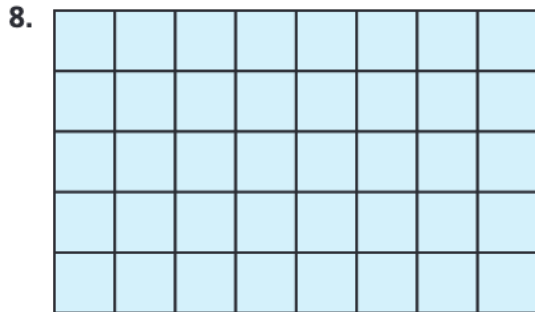


\_\_\_\_\_

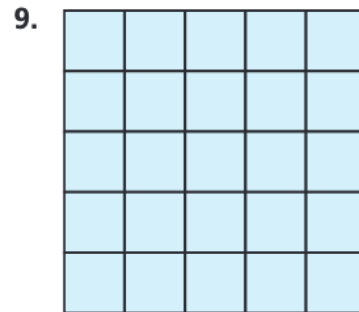


\_\_\_\_\_

Find the area of the figure.

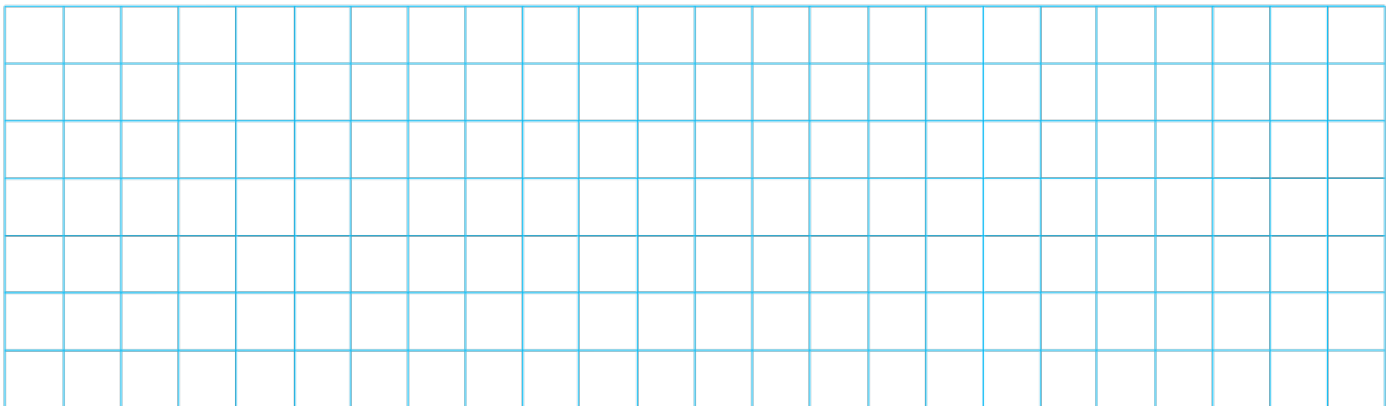


\_\_\_\_\_



\_\_\_\_\_

10. **MTR** Draw and shade three rectangles with an area of 24 square units each. Then write an addition or multiplication equation for each.

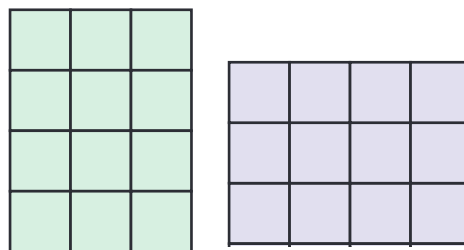


\_\_\_\_\_

\_\_\_\_\_

# Problem Solving · Applications

11. Compare the areas of the two rugs at the right. Each unit square represents 1 square foot. Which rug has the greater area? Explain.




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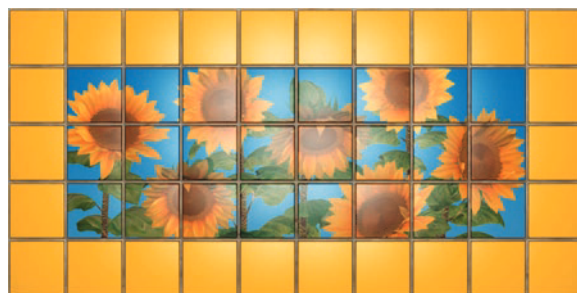


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12. A tile company tiled a wall using square tiles. A mural is painted in the center. The drawing shows the design. The area of each tile used is 1 square foot.



Write a problem that can be solved by using the drawing. Then solve your problem.

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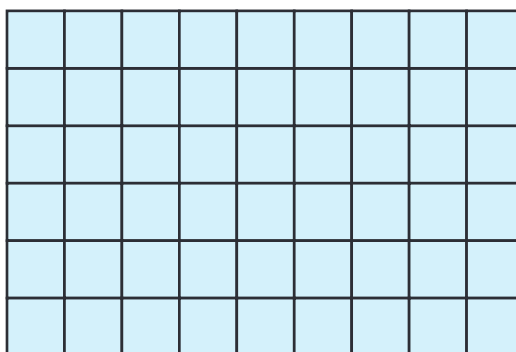


---



13. Colleen drew this rectangle. Select the equation that can be used to find the area of the rectangle. Mark all that apply.

- Ⓐ  $9 \times 6 = n$   
 Ⓑ  $9 + 9 + 9 + 9 + 9 + 9 = n$   
 Ⓒ  $9 + 6 = n$   
 Ⓓ  $6 \times 9 = n$   
 Ⓔ  $6 + 6 + 6 + 6 + 6 + 6 = n$



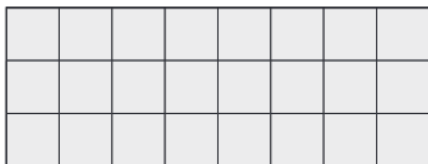
# Relate Area to Addition and Multiplication

Go Online

Interactive Examples

Find the area of each shape.

1.

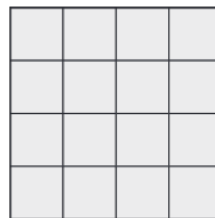


There are 3 rows of 8 unit squares.

$$3 \times 8 = 24$$

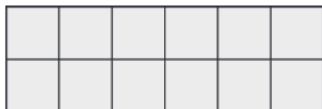
                     24 square units

2.

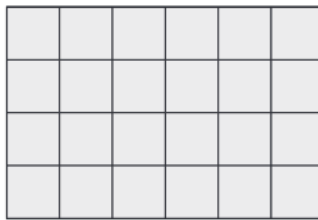


Find the area of each shape.

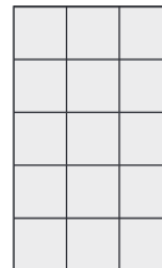
3.



4.



5.



## Problem Solving



6. Landon made a rug for the hallway. Each unit square represents 1 square foot. What is the area of the rug?



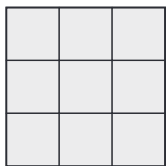
7. Eva makes a picture frame. Each unit square represents 1 square inch. What is the area of the frame?



8. **WRITE** *Math* Describe three methods you can use to find the area of a rectangle.

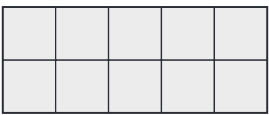
Lesson Check

9. Use a multiplication equation to find the area of the figure. Write the equation and the area.
10. Write a multiplication equation and an addition equation that can be used to find the area of the figure. What is its area?



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Spiral Review

11. Write 1,907 in word form and expanded form.
12. Claire bought 6 packs of baseball cards. Each pack had the same number of cards. If Claire bought 48 baseball cards in all, how many cards were in each pack?

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13. How many tens are equal to 400?
14. Wyatt’s room is a rectangle with a perimeter of 40 feet. The width of the room is 8 feet. What is the length of the room?

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Name \_\_\_\_\_

# Solve Problems with Area

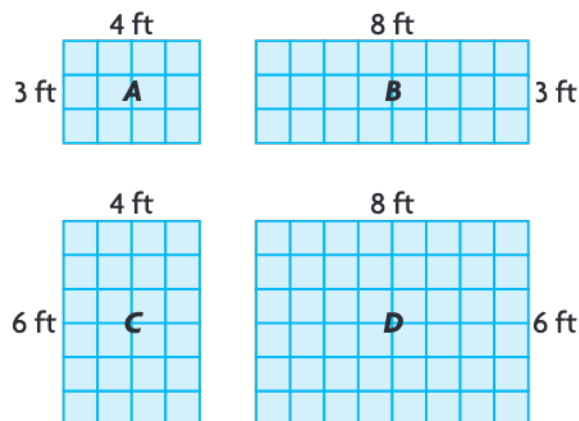
**I Can** use the strategy *find a pattern* to solve area problems.



## UNLOCK the Problem Real World

Mr. Koi wants to build storage buildings, so he drew plans for the buildings. He wants to know how the areas of the buildings are related. How does the area change from the area of Building A to the area of Building B? How does the area change from the area of Building C to the area of Building D?

Use the graphic organizer to help you solve the problem.



### Florida's B.E.S.T.

- Geometric Reasoning 3.GR.2.1, 3.GR.2.3, 3.GR.2.2
- Mathematical Thinking & Reasoning MTR.1.1, MTR.2.1, MTR.3.1, MTR.4.1, MTR.6.1, MTR.7.1

## Read the Problem

### What do I need to find?

I need to find how the areas will change from A to B and from \_\_\_\_\_ to \_\_\_\_\_.

### What information do I need to use?

I need to use the \_\_\_\_\_ and \_\_\_\_\_ of each building to find its area.

### How will I use the information?

I will record the areas in a table. Then I will look for a pattern to see how the \_\_\_\_\_ will change.

## Solve the Problem

I will complete the table to find patterns to solve the problem.

	Length	Width	Area		Length	Width	Area
Building A	3 ft			Building C		4 ft	
Building B	3 ft			Building D		8 ft	

I see that the lengths will be the same and the widths will be doubled.

The areas will change from \_\_\_\_\_ to \_\_\_\_\_ and from \_\_\_\_\_ to \_\_\_\_\_.

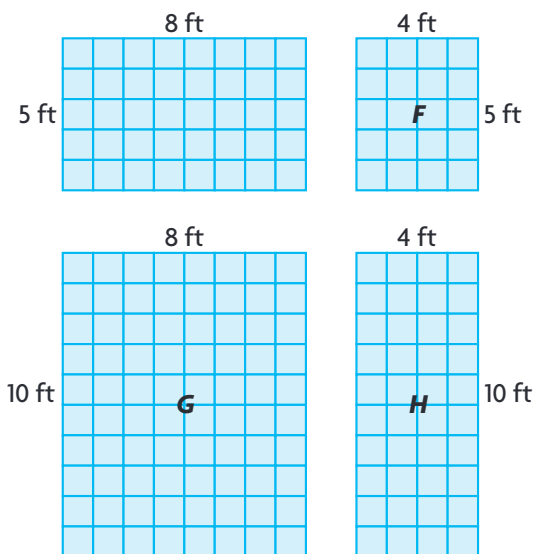
So, when the lengths are the same and the widths are doubled, the areas will be \_\_\_\_\_.

**Go Online** For more help

## Try Another Problem

Mr. Koi is building more storage buildings. He wants to know how the areas of the buildings are related. How does the area change from the area of Building *E* to the area of Building *F*? How does the area change from the area of Building *G* to the area of Building *H*?

Use the graphic organizer to help you solve the problem.



## Read the Problem

What do I need to find?

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What information do I need to use?

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How will I use the information?

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## Solve the Problem

	Length	Width	Area		Length	Width	Area
Building <i>E</i>				Building <i>G</i>			
Building <i>F</i>				Building <i>H</i>			

- How did your table help you find a pattern?

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**Math  
Talk**

**TR 4.1** Engage in discussions on mathematical thinking.

What if the length of both sides is doubled? How would the area change?

## Share and Show



Use the table for Problems 1 and 2.

- ✓ 1. Many pools come in rectangular shapes. How do the areas of the swimming pools change when the widths change?

**First**, complete the table by finding the area of each pool.

**Think:** I can find the area by multiplying the length and the width.

**Then**, find a pattern of how the lengths change and how the widths change.

Swimming Pool Sizes			
Pool	Length (in feet)	Width (in feet)	Area (in square feet)
A	8	8	
B	8	9	
C	8	10	
D	8	11	

The \_\_\_\_\_ stays the same. The widths

\_\_\_\_\_.

**Last**, describe a pattern of how the area changes.

The areas \_\_\_\_\_ by \_\_\_\_\_ square feet.

- ✓ 2. What if the length of each pool was 4 feet? Explain how the areas would change.

\_\_\_\_\_

## On Your Own

3. **MTR** If the length of each pool in the table is 10 feet, and the widths change from 5, to 6, to 7, and to 8 feet, describe the pattern of the areas.

\_\_\_\_\_

\_\_\_\_\_



4. **MTR** Jacob has a rectangular garden with a width of 7 feet. The length of the garden is 8 feet. What is the area of the garden?

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5. A diagram of Paula's bedroom is at the right. Her bedroom is in the shape of a rectangle. First, find the area of her bedroom floor. Then find what the area would be if the wall that is 6 feet long were 7 feet long instead.

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6. Elizabeth built a sandbox that is 4 feet long and 4 feet wide. She also built a flower garden that is 4 feet long and 6 feet wide and a vegetable garden that is 4 feet long and 8 feet wide. How much do the areas change from the sandbox to the flower garden to the vegetable garden?

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7. Find the pattern and complete the chart.

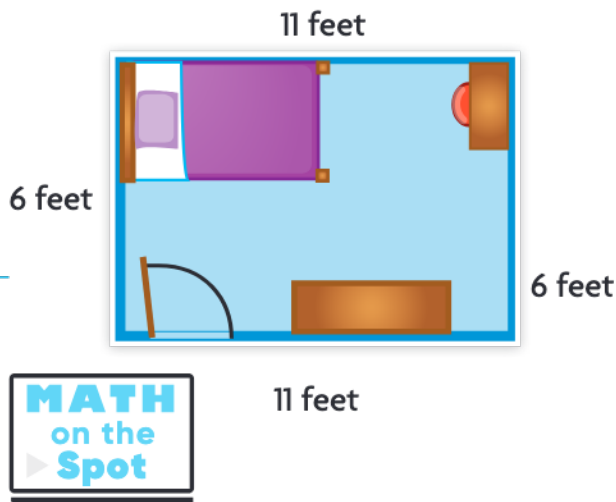
Total area (in square feet)	16	20		28	
Length (in feet)	4	4	4	4	4
Width (in feet)	4	5	6	7	8

How can you use the chart to find the area of a figure with a length of 4 feet and a width of 9 feet?

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# Solve Problems with Area

Go Online

Interactive Examples

## Use the information for Problems 1 and 2

An artist makes rectangular murals in different sizes. Below are the available sizes. Each unit square represents 1 square meter.

**A****B****C****D**

1. Complete the table to find the area of each mural.

Mural	Length (in meters)	Width (in meters)	Area (in square meters)
<b>A</b>	2	1	<b>2</b>
<b>B</b>	2	2	<b>4</b>
<b>C</b>	2	4	
<b>D</b>	2	8	

2. First, say whether or not the length of each mural changes. Then, describe how the width and area change from mural to mural. What do you notice about the change in width and the change in area?

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3. If the length of each mural is increased to 6 meters, what is the area of each mural? Describe the pattern.

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4. **WRITE** *Math* Write and solve an area problem that illustrates the use of the *find a pattern* strategy.

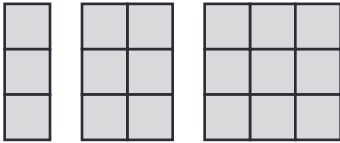
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## Lesson Check

5. Lauren drew the designs below. If the pattern continues, what will be the area of the fourth figure, measured in square units?



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6. Arjun built one garden that is 3 feet wide and 3 feet long. He also built a garden that is 3 feet wide and 6 feet long, and a garden that is 3 feet wide and 9 feet long. How do the areas change?

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## Spiral Review

7. Joe, Juan, and Jafari share 27 football cards equally. How many cards does each boy get?

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8. There are 48 eggs in 12 cartons. Each carton holds the same number of eggs. How many eggs are in each carton?

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9. Brenda made 8 necklaces. Each necklace has 10 large beads. How many large beads did Brenda use to make the necklaces?

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10. Neal is tiling his kitchen floor. Each square tile is 1 square foot. Neal uses 6 rows of tiles with 9 tiles in each row. What is the area of the floor?

---

Name \_\_\_\_\_

# Find Area of Combined Rectangles

**I Can** break apart a figure to find the area.



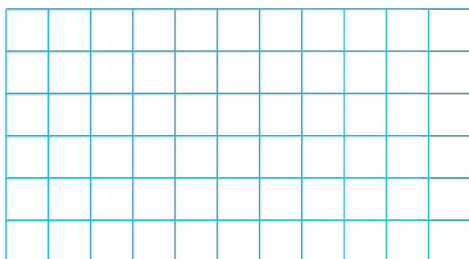
## UNLOCK the Problem Real World

Anna's rug has side lengths of 4 feet and 9 feet.  
What is the area of Anna's rug?

**Activity Materials** ■ square tiles

**STEP 1** Use square tiles to model  $4 \times 9$ .

**STEP 2** Draw a rectangle on the grid paper to show your model.



**STEP 3** Draw a vertical line to break apart the model to make two smaller rectangles.

The side length 9 is broken into \_\_\_\_ plus \_\_\_\_.

**STEP 4** Find the area of each of the two smaller rectangles.

Rectangle 1: \_\_\_\_  $\times$  \_\_\_\_ = \_\_\_\_

Rectangle 2: \_\_\_\_  $\times$  \_\_\_\_ = \_\_\_\_

**STEP 5** Add the products to find the total area.

\_\_\_\_ + \_\_\_\_ = \_\_\_\_ square feet

**STEP 6** Check your answer by counting the number of square feet.

\_\_\_\_ square feet

So, the area of Anna's rug is \_\_\_\_ square feet.

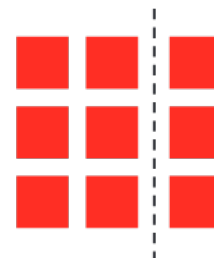
Florida's B.E.S.T.

- Geometric Reasoning 3.GR.2.4, 3.GR.2.2
- Mathematical Thinking & Reasoning  
MTR.1.1, MTR.2.1, MTR.4.1, MTR.5.1, MTR.7.1

### Remember

You can use the Distributive Property to break apart an array.

$$3 \times 3 = 3 \times (2 + 1)$$



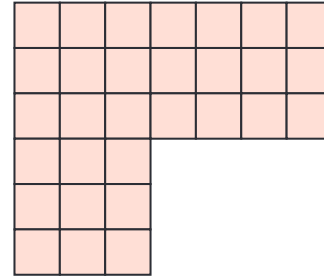
**Math Talk**

**MTR 4.1** Engage in discussions on mathematical thinking.

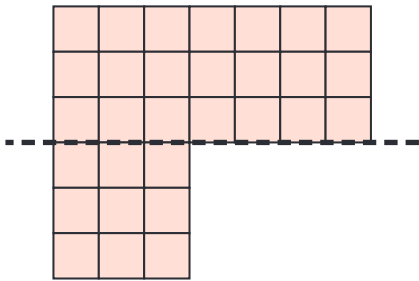
Did you draw a line in the same place as your classmates? Explain why you found the same total area.

**ONNE T** Using the Distributive Property, you found that you could break apart a rectangle into smaller rectangles, and add the area of each smaller rectangle to find the total area.

How can you break apart this figure into rectangles to find its area?



### One Way Use a horizontal line.



**STEP 1** Write a multiplication equation for each rectangle.

Rectangle 1:  $\underline{\quad} \times \underline{\quad} = \underline{\quad}$

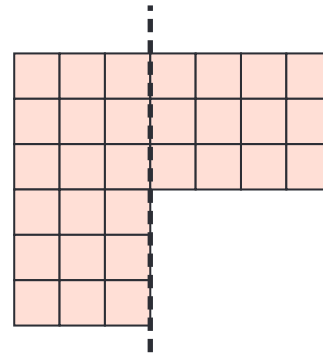
Rectangle 2:  $\underline{\quad} \times \underline{\quad} = \underline{\quad}$

**STEP 2** Add the products to find the total area.

$\underline{\quad} + \underline{\quad} = \underline{\quad}$  square units

So, the area is  $\underline{\quad}$  square units.

### Another Way Use a vertical line.



**STEP 1** Write a multiplication equation for each rectangle.

Rectangle 1:  $\underline{\quad} \times \underline{\quad} = \underline{\quad}$

Rectangle 2:  $\underline{\quad} \times \underline{\quad} = \underline{\quad}$

**STEP 2** Add the products to find the total area.

$\underline{\quad} + \underline{\quad} = \underline{\quad}$  square units

**Math Talk**

**TR 4.1** Engage in discussions on mathematical thinking.

How can you check your answer?

## Share and Show

**Math Board**

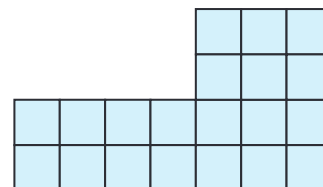
1. Draw a line to break apart the figure into rectangles. Find the total area of the figure.

**Think:** I can draw a vertical or horizontal line to break apart the figure to make rectangles.

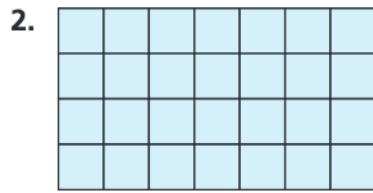
Rectangle 1:  $\underline{\quad} \times \underline{\quad} = \underline{\quad}$

Rectangle 2:  $\underline{\quad} \times \underline{\quad} = \underline{\quad}$

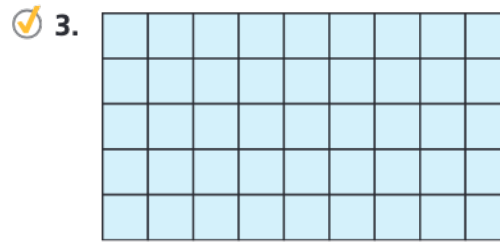
$\underline{\quad} + \underline{\quad} = \underline{\quad}$  square units



**Use the Distributive Property to find the area. Show your multiplication and addition equations.**



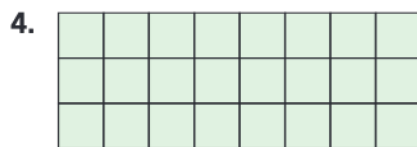
\_\_\_\_\_ square units



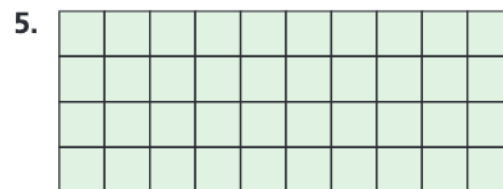
\_\_\_\_\_ square units

## On Your Own

**Use the Distributive Property to find the area. Show your multiplication and addition equations.**

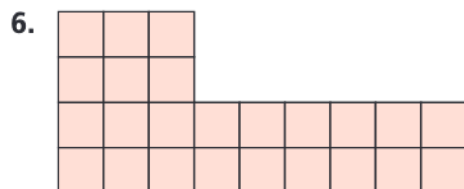


\_\_\_\_\_ square units



\_\_\_\_\_ square units

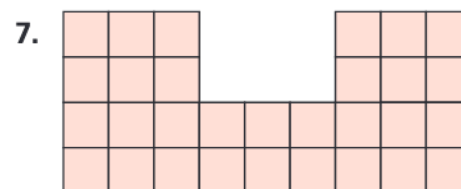
**Draw a line to break apart the figure into rectangles. Find the area of the figure.**



Rectangle 1: \_\_\_\_\_  $\times$  \_\_\_\_\_ = \_\_\_\_\_

Rectangle 2: \_\_\_\_\_  $\times$  \_\_\_\_\_ = \_\_\_\_\_

\_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_ square units



Rectangle 1: \_\_\_\_\_  $\times$  \_\_\_\_\_ = \_\_\_\_\_

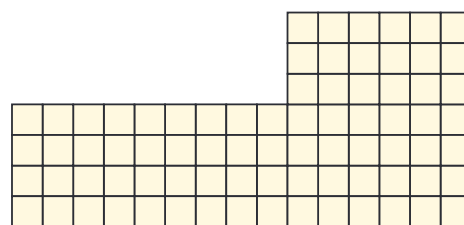
Rectangle 2: \_\_\_\_\_  $\times$  \_\_\_\_\_ = \_\_\_\_\_

Rectangle 3: \_\_\_\_\_  $\times$  \_\_\_\_\_ = \_\_\_\_\_

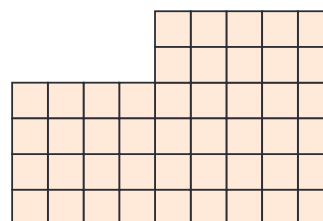
\_\_\_\_\_ + \_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_ square units

# Problem Solving • Applications

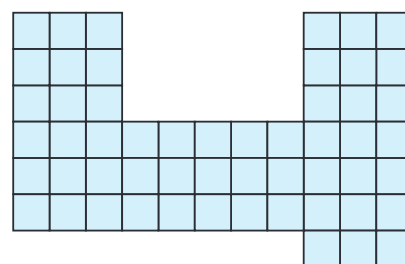
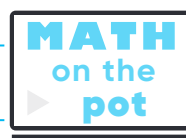
8. A model of Ms. Lee's classroom is at the right. Each unit square represents 1 square foot. Draw a line to break apart the figure into rectangles. What are the areas of the two rectangles? What is the total area of Ms. Lee's classroom?



9. David has a rectangular bedroom with a rectangular closet. Draw a line to break apart the figure into rectangles. What is the total area of David's bedroom?

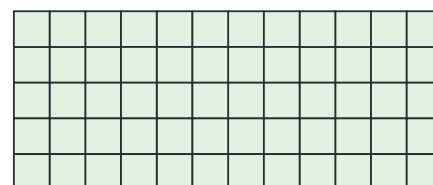


10. Explain how to break apart the figure to find its area.



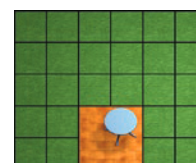
1 unit square    1 square meter

11. **TR** The figure shows a floor plan for a living room. Use the Distributive Property to find its area. Write your multiplication and addition equations.



1 unit square    1 square centimeter

12. Pete drew a diagram of his backyard on grid paper. The brown figure shows a patio. The green unit squares show a grass yard. Each unit square represents 1 square meter. How much more of the backyard is grass than patio? \_\_\_\_\_ more square meters

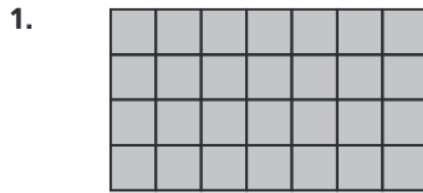


# Find Area of Combined Rectangles

Go Online

Interactive Examples

Use the Distributive Property to find the area. Show your multiplication and addition equations.



$$4 \times 2 = 8; 4 \times 5 = 20$$

$$8 + 20 = 28$$

28 square units

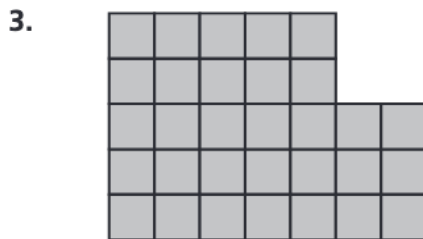


\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_ square units

Draw a line to break apart the shape into rectangles. Find the area of the shape.



Rectangle 1: \_\_\_\_\_  $\times$  \_\_\_\_\_ = \_\_\_\_\_

Rectangle 2: \_\_\_\_\_  $\times$  \_\_\_\_\_ = \_\_\_\_\_

\_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_ square units


## Problem Solving

A diagram of Frank's room is at right.  
Each unit square represents 1 square foot.

4. Draw a line to divide the shape of Frank's room into rectangles.

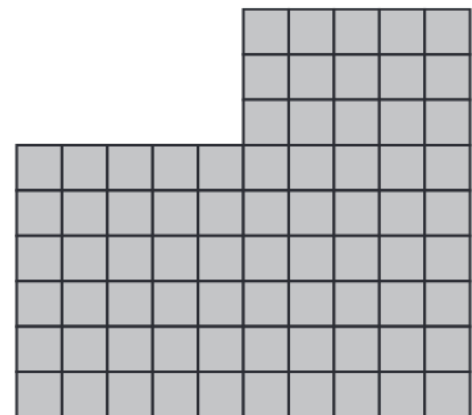
5. What is the total area of Frank's room?

\_\_\_\_\_ square feet

6.  **WRITE** *Math* Draw a figure that is not a rectangle and find its area. Use grid paper and show each step.

\_\_\_\_\_

\_\_\_\_\_



Lesson Check

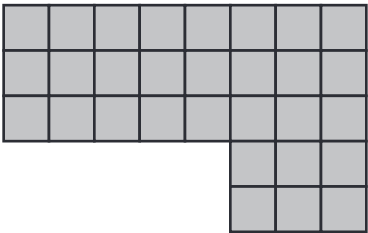
7. The equation  $3 \times 6$  can be used to find the area of the figure. Use the distributive property to write two other multiplication equations that can be added together to also find the figure’s area.



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- 8 The diagram shows the floor plan of a room in an art gallery. Each unit square represents 1 square meter. What is the area of the floor?



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Spiral Review

9. Agnes needs to solve  $28 \div 7 = \blacksquare$ . What related multiplication fact can she use to find the unknown number?

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10. Alisha drew a triangle with side lengths 3 centimeters, 4 centimeters, and 5 centimeters. What is the perimeter of the triangle?

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11. The rectangle is divided into equal parts. What is the name of the equal parts?



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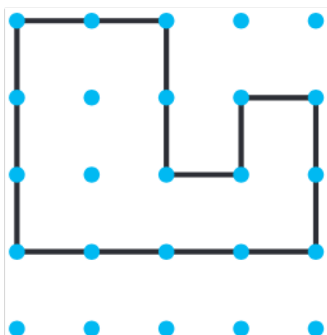
12. Use an inch ruler. To the nearest inch, how long is this line segment?



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## Chapter 14 Review

1. Eduardo wants to create a garden for his grandmother. He drew this figure. What is the area of the figure he drew?



8

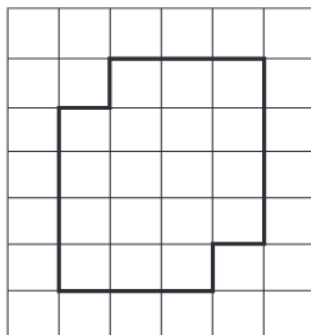
9

11

12

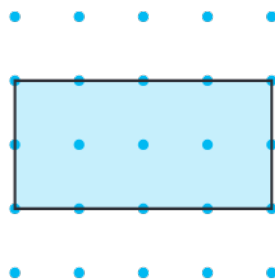
square units

2. Aaliyah drew this figure on grid paper. What is the area of the figure?



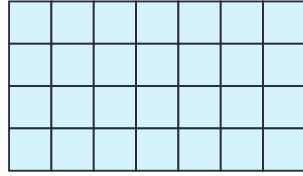
\_\_\_\_\_ square units

3. Sophia drew this rectangle on dot paper. What is the area of the rectangle?



\_\_\_\_\_ square units

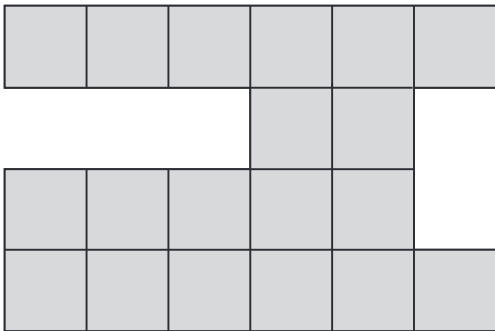
4. The drawing shows Seth's plan for a fort in his backyard.



Which equations can Seth use to find the area of the fort? Mark all that apply.

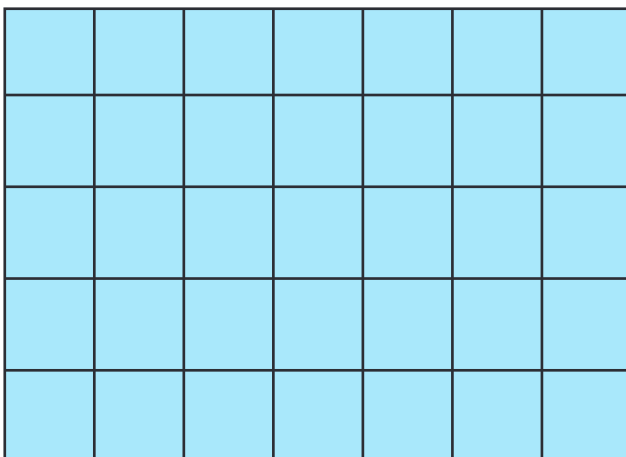
- ☒ A  $4 + 4 + 4 + 4 = 16$       ☒ D  $4 \times 4 = 16$   
☒ B  $7 + 4 + 7 + 4 = 22$       ☒ E  $7 \times 7 = 49$   
☒ C  $7 + 7 + 7 + 7 = 28$       ☒ F  $4 \times 7 = 28$

5. Count to find the area of the figure.



\_\_\_\_\_ square units

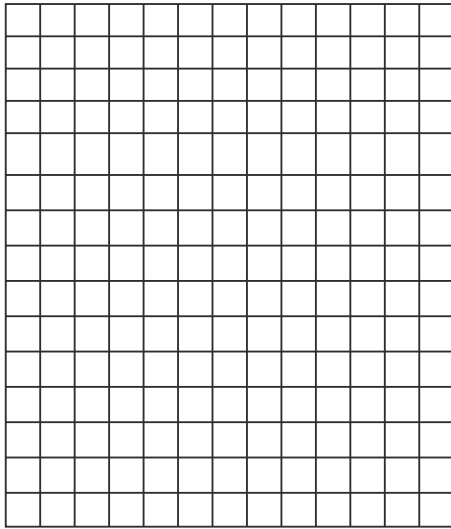
6. Find the area of the figure.



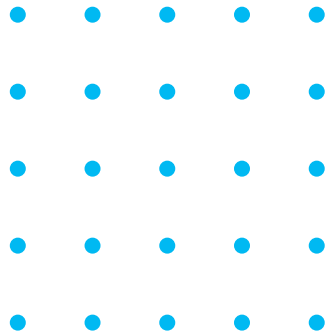
- ☐ 25 square units  
☐ 35 square units  
☐ 40 square units  
☐ 45 square units

Name \_\_\_\_\_

7. Draw and shade four rectangles that each have an area of 12 square units. Then write an addition or multiplication equation for the area of each rectangle.

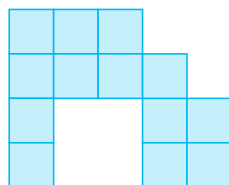


8. Mrs. Juarez's student drew this figure on dot paper. What is the area of the figure?



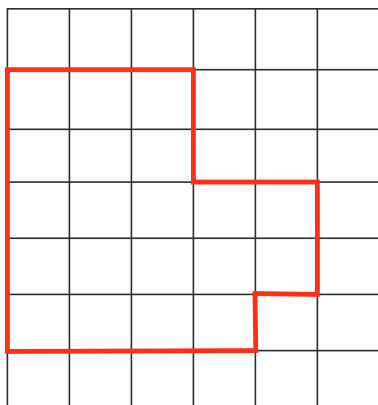
\_\_\_\_\_ square units

9. What is the area of the figure shown?



\_\_\_\_\_ square units

10. What is the area of the figure?



\_\_\_\_\_ square units

11. Germaine is tiling his pantry floor with square tiles. Each square tile has side lengths of 1 square unit. Germaine uses 5 rows of tiles with 6 tiles in each row. What is the area of the floor?

\_\_\_\_\_

12. Elizabeth has two gardens in her yard. The first garden is 8 feet long and 6 feet wide. The second garden is the same length as the first garden. The width of the second garden is twice the width of the first garden. For Problems 12a–12d, select True or False.

- |   |                            |                             |
|---|----------------------------|-----------------------------|
| 12a. The area of the first garden is 48 square feet.                      | <input type="radio"/> True | <input type="radio"/> False |
| 12b. The area of the second garden is 24 square feet.                     | <input type="radio"/> True | <input type="radio"/> False |
| 12c. The width of the second garden is 12 feet.                           | <input type="radio"/> True | <input type="radio"/> False |
| 12d. The area of the second garden is twice the area of the first garden. | <input type="radio"/> True | <input type="radio"/> False |

Name \_\_\_\_\_

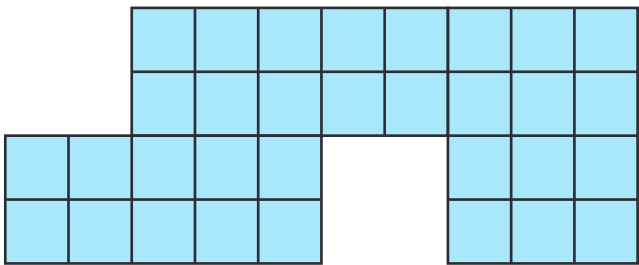
13. Ms. Fromm is a carpenter. She built a table that is 3 feet long and 4 feet wide. She also built an outdoor treehouse platform that is 3 feet long and 6 feet wide and a little stage that is 3 feet long and 8 feet wide. How do the areas of the objects she built change from the tabletop to the platform to the stage?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

14. How many squares need to be added to this figure so that it has the same area as a square with a side length of 6 units?



\_\_\_\_\_ squares

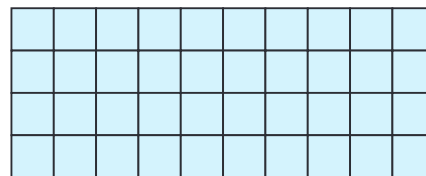
15. Many gardens are rectangular shapes. The four neighbors listed in the table have gardens that are each 12 feet long. How do the areas of the four gardens change when the widths change? Write the area of each garden to complete the table.

Garden Sizes			
Garden	Length (in feet)	Width (in feet)	Area (in square feet)
Mr. Mills	12	4	
Mrs. Prado	12	6	
Mr. Zhao	12	8	
Mrs. Pratt	12	10	

\_\_\_\_\_

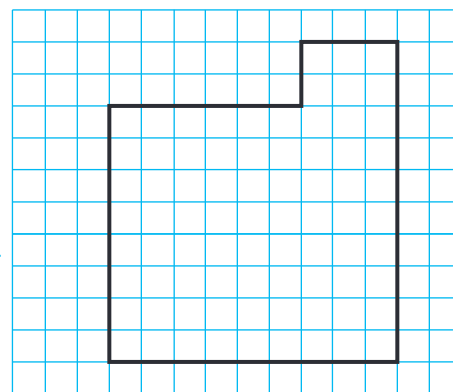
\_\_\_\_\_

16. Keisha draws a sketch of her living room on grid paper. Write and solve a multiplication equation that can be used to find the area of the living room in square units.

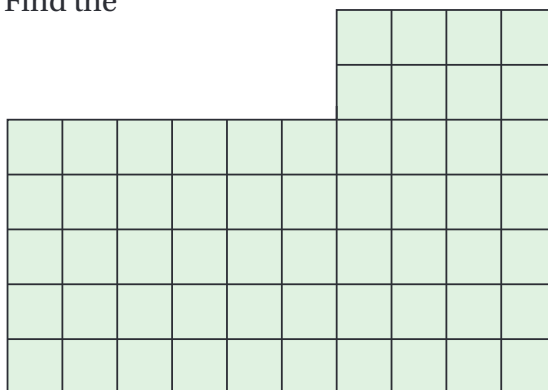


\_\_\_\_\_ square units

17. Mr. Wicks designs houses. He uses grid paper to plan a new house design. One figure he draws is shown below. What is the area of the figure?

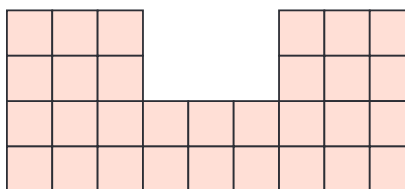


18. Draw a line to break the figure apart into two rectangles. Find the area of the figure.



19. Which equation can be used to find the area of the figure?

- ☐ A  $(2 \times 3) + (2 \times 3) + (2 \times 6)$
- ☐ B  $(4 \times 3) + (4 \times 3) + (4 \times 9)$
- ☐ C  $(4 \times 3) + (4 \times 3) + (4 \times 3)$
- ☐ D  $(2 \times 3) + (2 \times 3) + (2 \times 9)$



20. When you cover the surface of a figure with unit squares to find its area, why must the squares be next to each other with no space or gaps between them? Explain.

\_\_\_\_\_

\_\_\_\_\_