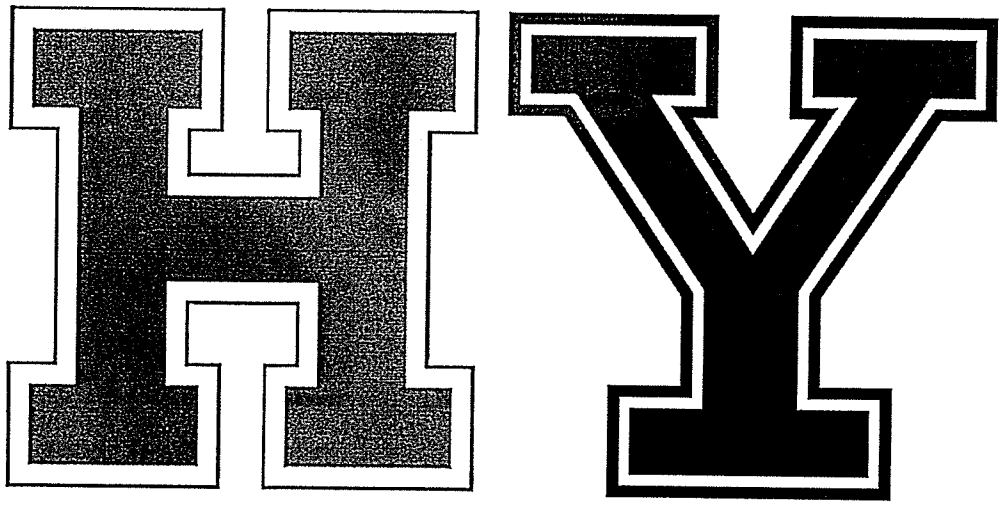
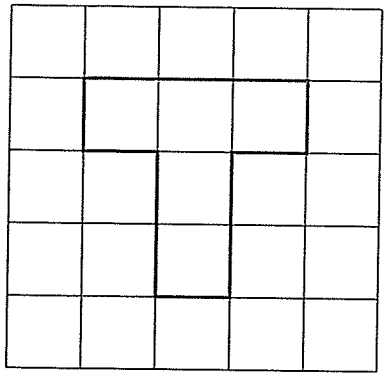
3rd Grade GoMath & Extra Practice



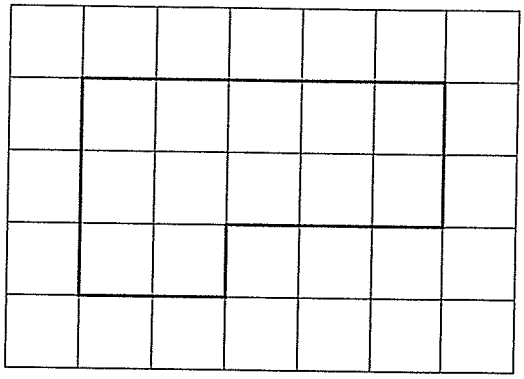
Name _____

Share and Show MATH BOARD

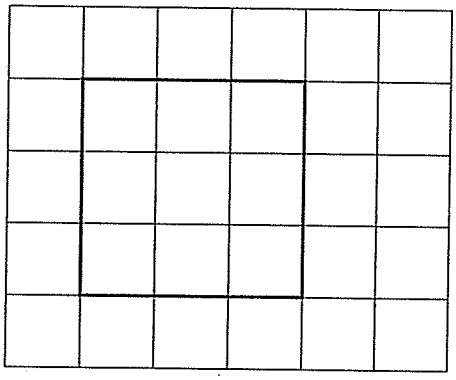
Find the perimeter of the figure. Each unit is 1 centimeter.

1. 

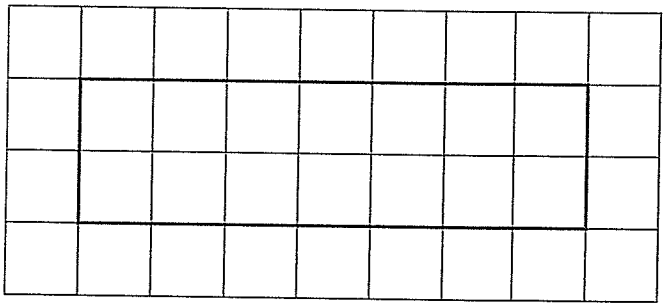
_____ centimeters

2. 

_____ centimeters

3. 

_____ centimeters

4. 

_____ centimeters

Find the perimeter.

5. A figure with four sides that measure 4 centimeters, 6 centimeters, 5 centimeters, and 1 centimeter

_____ centimeters

6. A figure with two sides that measure 10 inches, one side that measures 8 inches, and one side that measures 4 inches

_____ inches

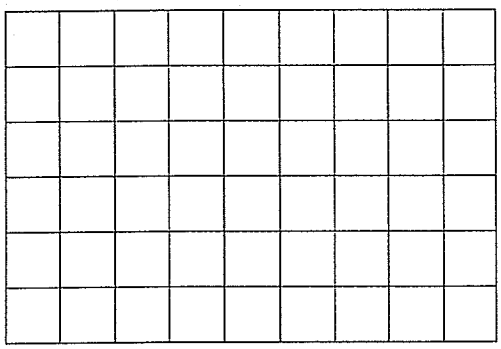
Problem Solving • Applications Real World

7. MATHEMATICAL PRACTICE 6 **Explain** how to find the length of each side of a triangle with sides of equal length and a perimeter of 27 inches.

_____

_____

8. THINK SMARTER Luisa drew a rectangle with a perimeter of 18 centimeters. Select the rectangles that Luisa could have drawn. Mark all that apply. Use the grid to help you.



Ⓐ 9 centimeters long and 2 centimeters wide

Ⓑ 6 centimeters long and 3 centimeters wide

Ⓒ 4 centimeters long and 4 centimeters wide

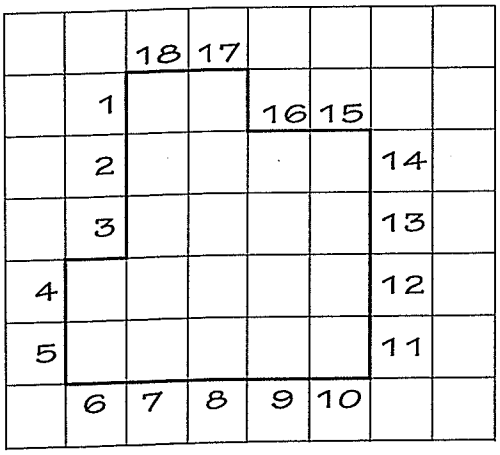
Ⓓ 5 centimeters long and 4 centimeters wide

Ⓔ 7 centimeters long and 2 centimeters wide

9. THINK SMARTER **What's the Error?** Kevin is solving perimeter problems. He counts the units and says that the perimeter of this figure is 18 units.

Look at Kevin's solution.

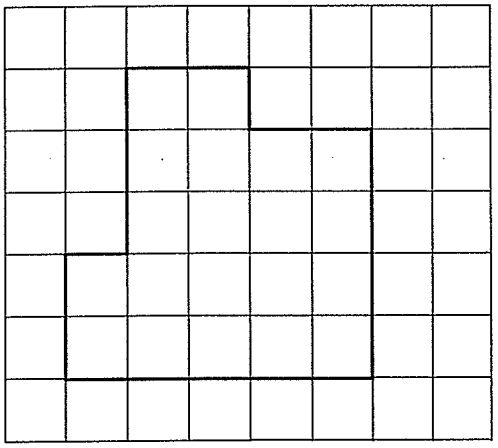
Ⓐ



Perimeter = ____ units

Find Kevin's error.

Ⓑ



Perimeter = ____ units

• GO DEEPER Describe the error Kevin made. Circle the places in the drawing of Kevin's solution where he made an error.

_____

_____

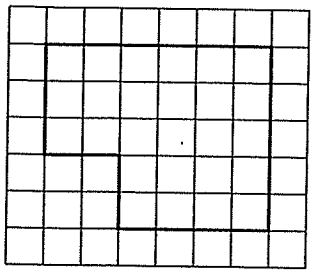
Name _____

Model Perimeter

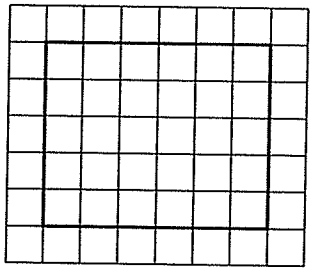
Common Core

COMMON CORE STANDARD—3.MD.D.8
Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.

Find the perimeter of the shape. Each unit is 1 centimeter.

1. 

22 centimeters

2. 

_____ centimeters

Problem Solving Real World

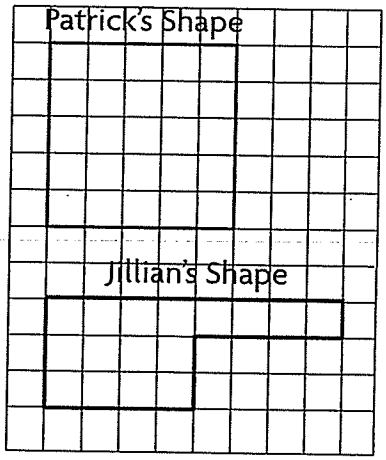
Use the drawing for 3–4. Each unit is 1 centimeter.

3. What is the perimeter of Patrick's shape?

_____

4. How much greater is the perimeter of Jillian's shape than the perimeter of Patrick's shape?

_____



5. WRITE ▸ *Math* Draw a rectangle and another figure that is not a rectangle by tracing lines on grid paper. Describe how to find the perimeter of both figures.

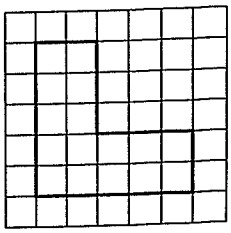
_____

_____

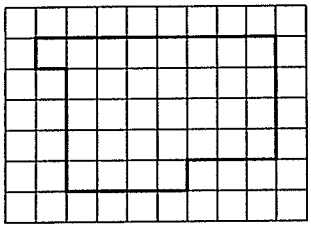
_____

Lesson Check (3.MD.D.8)

1. Find the perimeter of the shape. Each unit is 1 centimeter.



2. Find the perimeter of the shape. Each unit is 1 centimeter.

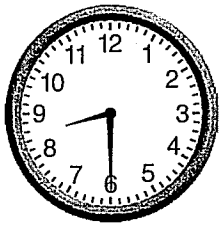


Spiral Review (3.NF.A.3d, 3.MD.A.1, 3.MD.A.2)

3. Order the fractions from least to greatest.

$$\frac{2}{4}, \frac{2}{3}, \frac{2}{6}$$

4. Kasey's school starts at the time shown on the clock. What time does Kasey's school start?



5. Compare. Write $<$, $>$, or $=$.

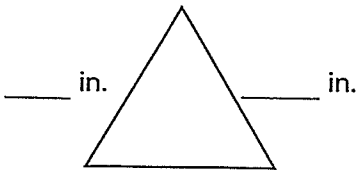
$$\frac{4}{8} \bigcirc \frac{3}{8}$$

6. Aiden wants to find the mass of a bowling ball. Which unit should he use?

Share and Show

MATH BOARD

1. Find the perimeter of the triangle in inches.



Think: How long is each side?

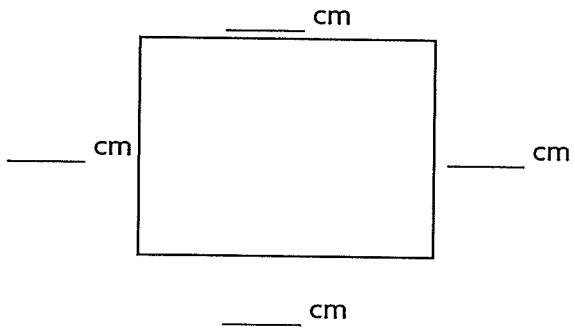
_____ inches

Math Talk MATHEMATICAL PRACTICES 2

Reason Abstractly How do you use addition to find the perimeter of a figure?

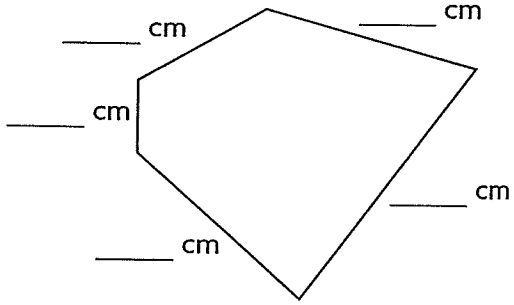
Use a centimeter ruler to find the perimeter.

2.



_____ centimeters

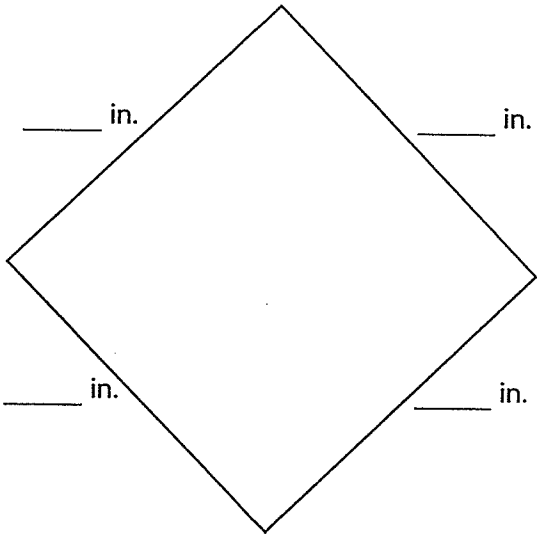
3.



_____ centimeters

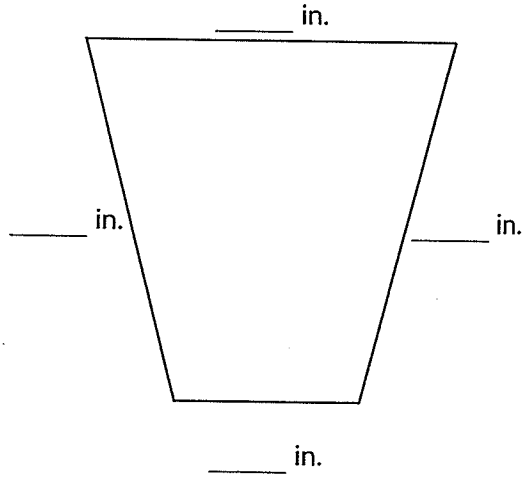
Use an inch ruler to find the perimeter.

4.



_____ inches

5.



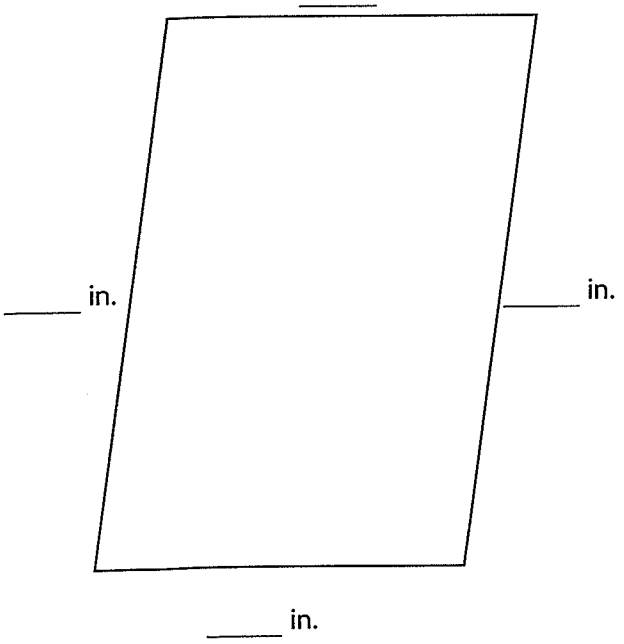
_____ inches

Name _____

On Your Own

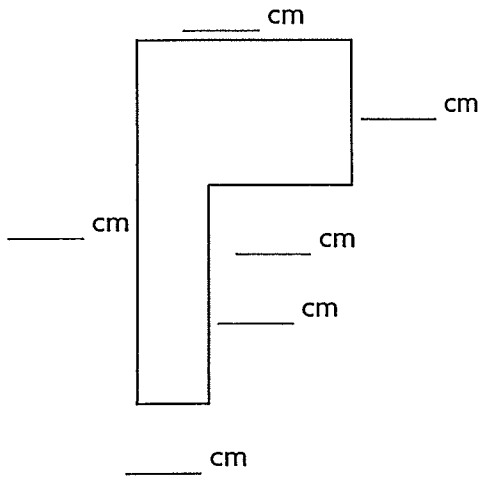
Use a ruler to find the perimeter.

6.



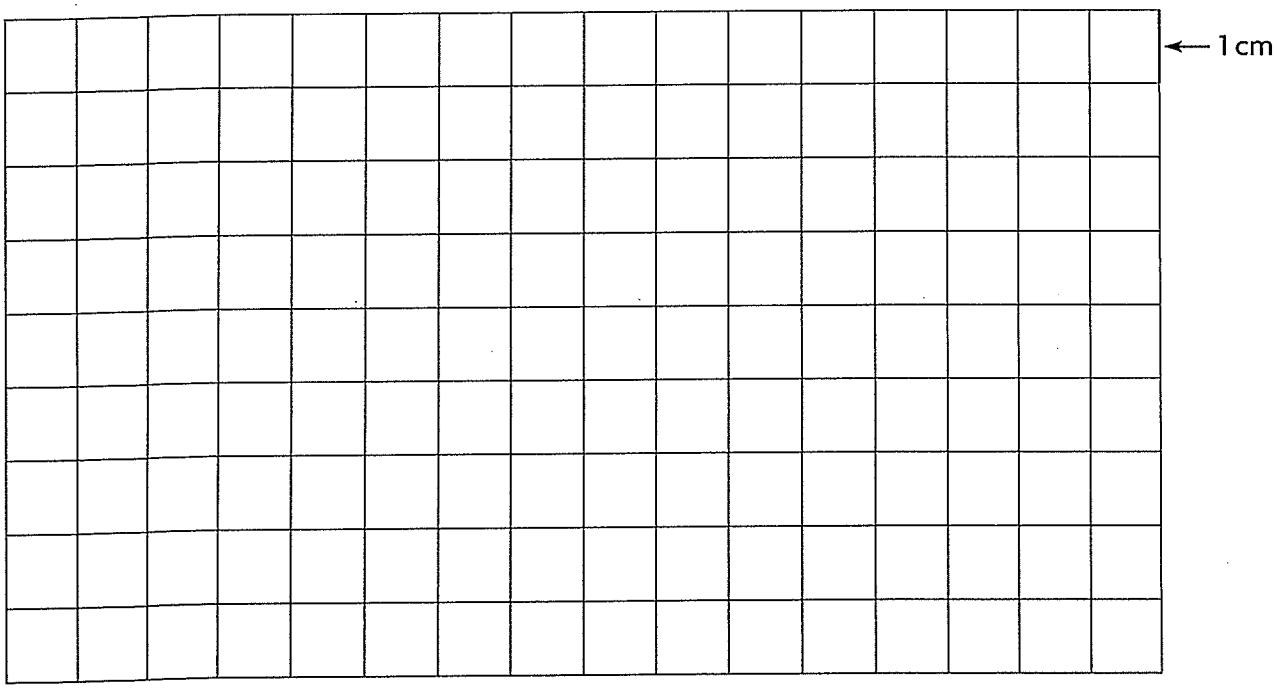
_____ inches

7.



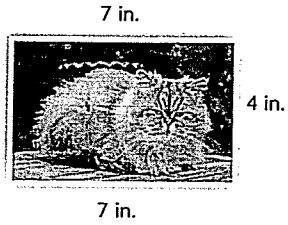
_____ centimeters

8. MATHEMATICAL PRACTICE 4 **Model Mathematics** Use the grid paper to draw a figure that has a perimeter of 24 centimeters. Label the length of each side.



Problem Solving • Applications (Real World)

Use the photos for 9–10.



9. Which of the animal photos has a perimeter of 26 inches?

_____

10. GO DEEPER How much greater is the perimeter of the bird photo than the perimeter of the cat photo?

_____

WRITE Math • Show Your Work

11. THINK SMARTER Erin is putting a fence around her square garden. Each side of her garden is 3 meters long. The fence costs $5 for each meter. How much will the fence cost?

_____

12. WRITE Math Gary's garden is shaped like a rectangle with two pairs of sides of equal length, and it has a perimeter of 28 feet. Explain how to find the lengths of the other sides if one side measures 10 feet.

_____

_____

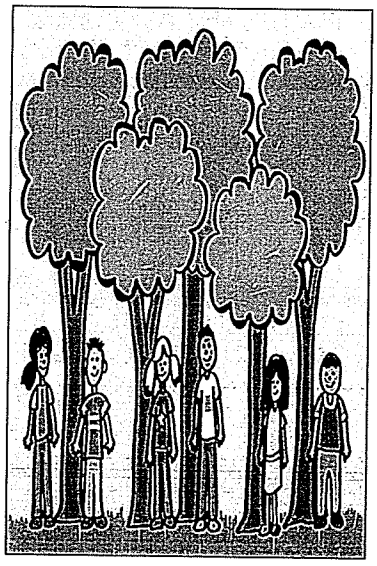
_____

_____

_____

13. THINK SMARTER Use an inch ruler to measure this sticker to the nearest inch. Then write an equation you can use to find its perimeter.

_____



Name _____

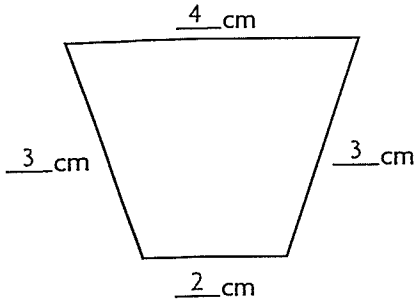
Find Perimeter

Common Core

COMMON CORE STANDARD—3.MD.D.8
Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.

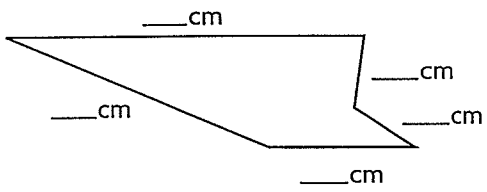
Use a ruler to find the perimeter.

1.



12 centimeters

2.



_____ centimeters

Problem Solving Real World

Draw a picture to solve 3–4.

3. Evan has a square sticker that measures 5 inches on each side. What is the perimeter of the sticker?

_____

4. Sophie draws a shape that has 6 sides. Each side is 3 centimeters. What is the perimeter of the shape?

_____

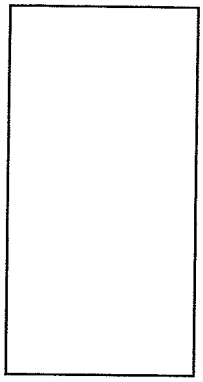
5. WRITE ▸ *Math* Draw two different figures that each have a perimeter of 20 units.

_____

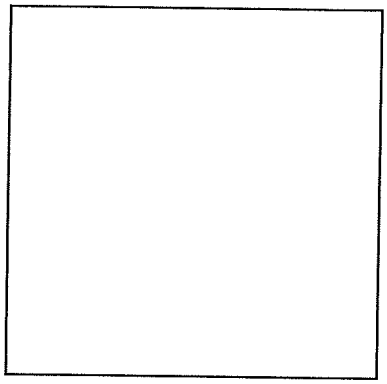
Lesson Check (3.MD.D.8)

Use an inch ruler for 1–2.

1. Ty cut a label the size of the shape shown. What is the perimeter, in inches, of Ty's label?

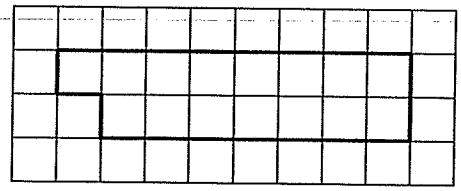


2. Julie drew the shape shown below. What is the perimeter, in inches, of the shape?



Spiral Review (3.NF.A.3d, 3.MD.A.1, 3.MD.A.2, 3.MD.D.8)

3. What is the perimeter of the shape below?



4. Vince arrives for his trumpet lesson after school at the time shown on the clock. What time does Vince arrive for his trumpet lesson?

5. Matthew's small fish tank holds 12 liters. His large fish tank holds 25 liters. How many more liters does his large fish tank hold?

6. Compare. Write <, >, or =.

$\frac{1}{6} \bigcirc \frac{1}{4}$

FOR MORE PRACTICE GO TO THE Personal Math Trainer

Name _____

Share and Show MATH BOARD

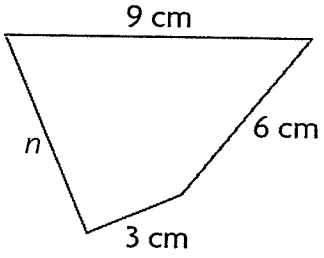
Find the unknown side lengths.

1. Perimeter = 25 centimeters

$9 + \_\_\_\_ + \_\_\_\_ + n = 25$

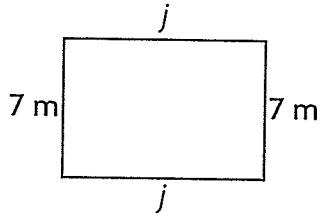
$\_\_\_\_ + n = 25$

$\_\_\_\_ = \_\_\_\_ - \_\_\_\_$



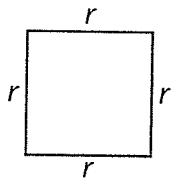
$n =$ _____ centimeters

2. Perimeter = 34 meters



$j =$ _____ meters

3. Perimeter = 12 feet

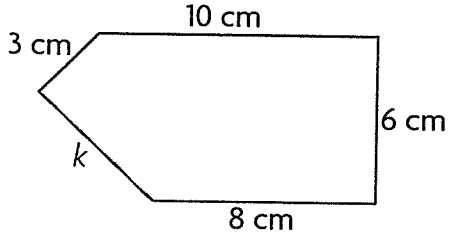


$r =$ _____ feet

On Your Own

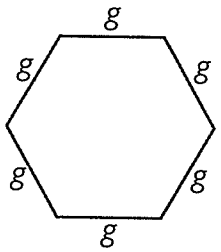
Find the unknown side lengths.

4. Perimeter = 32 centimeters



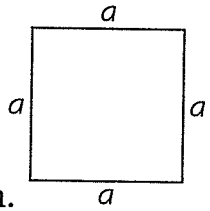
$k =$ _____ centimeters

5. THINK SMARTER Perimeter = 42 feet



$g =$ _____ feet

6. MATHEMATICAL PRACTICE 4 **Use a Diagram** Eleni wants to put up a fence around her square garden. The garden has a perimeter of 28 meters. How long will each side of the fence be? Explain.



_____

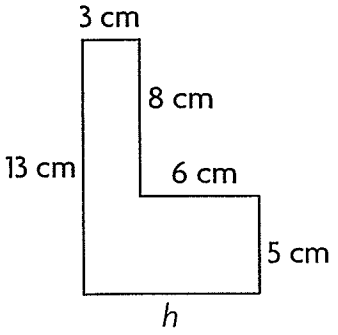
_____

Math Talk MATHEMATICAL PRACTICES 3

Apply How can you use division to find the length of a side of a square?

Unlock the Problem Real World

7. GO DEEPER Latesha wants to make a border with ribbon around a figure she made and sketched at the right. She will use 44 centimeters of ribbon for the border. What is the unknown side length?



a. What do you need to find?

_____

b. How will you use what you know about perimeter to help you solve the problem?

_____

_____

c. Write an equation to solve the problem.

_____

d. So, the length of side h is _____ centimeters.

8. THINK SMARTER A rectangle has a perimeter of 34 inches. The left side is 6 inches long. What is the length of the top side?

_____

Math on the Spot

Personal Math Trainer

9. THINK SMARTER+ Michael has 40 feet of fencing to make a rectangular dog run for his dog, Buddy. One side of the run will be 5 feet long. For numbers 9a–9d, choose Yes or No to show what the length of another side will be.

9a. 20 feet	○ Yes	○ No
9b. 15 feet	○ Yes	○ No
9c. 10 feet	○ Yes	○ No
9d. 8 feet	○ Yes	○ No

Name _____

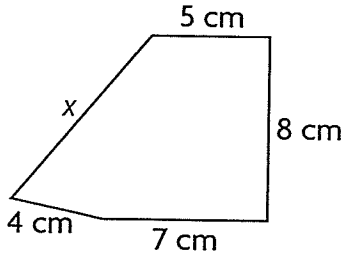
Find Unknown Side Lengths

Common Core

COMMON CORE STANDARD—3.MD.D.8
Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.

Find the unknown side lengths.

1. Perimeter = 33 centimeters



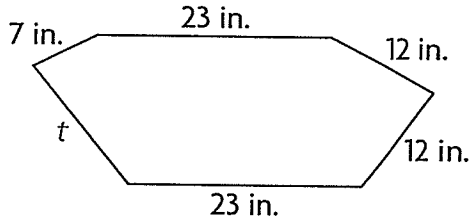
$5 + 8 + 7 + 4 + x = 33$

$24 + x = 33$

$x = 9$

$x =$ 9 centimeters

2. Perimeter = 92 inches



$t =$ _____ inches

Problem Solving Real World

3. Steven has a rectangular rug with a perimeter of 16 feet. The width of the rug is 5 feet. What is the length of the rug?

_____

4. Kerstin has a square tile. The perimeter of the tile is 32 inches. What is the length of each side of the tile?

_____

5. WRITE Math Explain how to write and solve an equation to find an unknown side length of a rectangle when given the perimeter.

_____

_____

_____

Lesson Check (3.MD.D.8)

1. Jesse is putting a ribbon around a square frame. He uses 24 inches of ribbon. How long is each side of the frame?

2. Davia draws a shape with 5 sides. Two sides are each 5 inches long. Two other sides are each 4 inches long. The perimeter of the shape is 27 inches. What is the length of the fifth side?

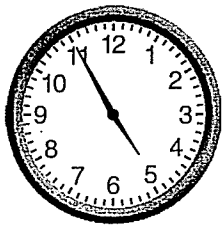
Spiral Review (3.OA.A.1, 3.OA.D.8, 3.NF.A.3c, 3.MD.A.1)

3. What multiplication expression represents $7 + 7 + 7 + 7$?

4. Bob bought 3 packs of model cars. He gave 4 cars to Ann. Bob has 11 cars left. How many model cars were in each pack?

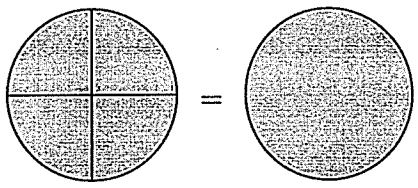
5. Randy read a book in the afternoon. He looked at his watch when he started and finished reading. How long did Randy read?

Start



End

6. What fraction and whole number does the model represent?



_____ = _____

FOR MORE PRACTICE GO TO THE Personal Math Trainer

Name _____

Understand Area

Essential Question How is finding the area of a figure different from finding the perimeter of a figure.

Common Core **Measurement and Data—** **3.MD.C.5, 3.MD.C.5a** *Also 3.MD.C.5b, 3.MD.C.6, 3.MD.D.8*

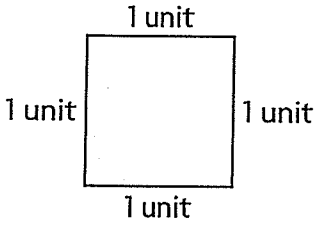
MATHEMATICAL PRACTICES **MP2, MP4, MP5, MP6**

Unlock the Problem (Real World)

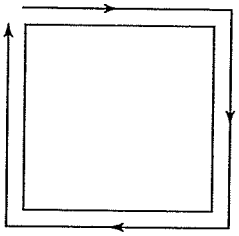
CONNECT You learned that perimeter is the distance around a figure. It is measured in linear units, or units that are used to measure the distance between two points.

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 (sq un)**.

Unit Square

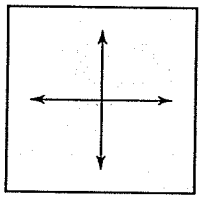


Perimeter



1 unit + 1 unit + 1 unit + 1 unit = 4 units

Area



1 square unit

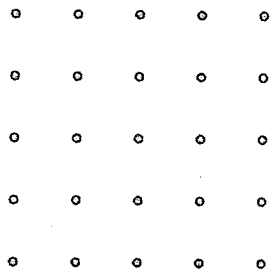
Math Idea

You can count the number of units on each side of 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

Hands On

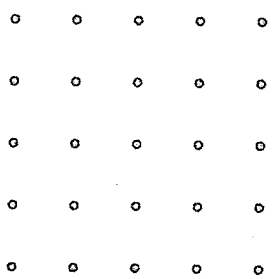
A Use your geoboard to form a figure made from 2 unit squares. Record the figure on this dot paper.



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?

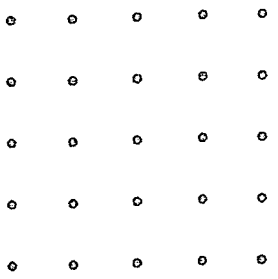
Area = _____ square units

Math Talk MATHEMATICAL PRACTICES 3

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

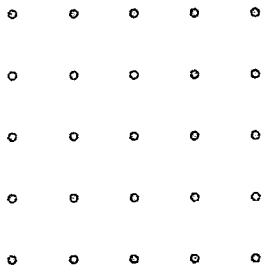
Try This! **Draw three different figures that are each made from 4 unit squares. Find the area of each figure.**

Figure 1



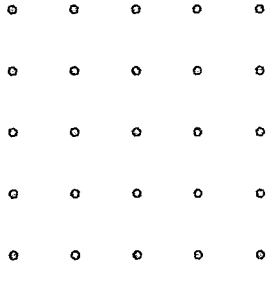
Area = _____ square units

Figure 2



Area = _____ square units

Figure 3



Area = _____ square units

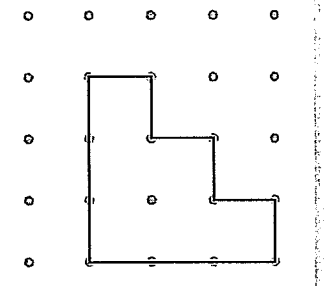
- How are the figures the same? How are the figures different?

Share and Show

MATH BOARD

Hands On

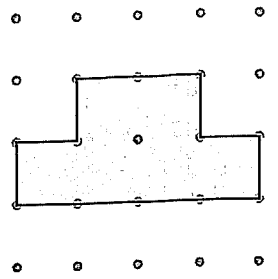
1. Shade each unit square in the figure shown. Count the unit squares to find the area.



Area = _____ square units

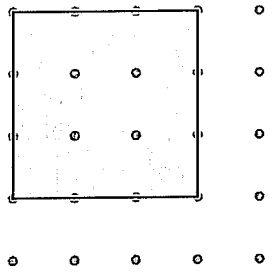
Count to find the area of the figure.

2.



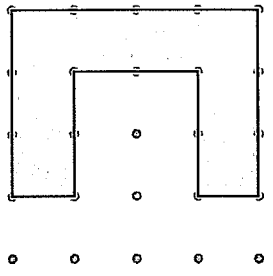
Area = _____ square units

3.



Area = _____ square units

✓4.



Area = _____ square units

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

5. buying a rug for a room

_____

✓6. putting a fence around a garden

_____

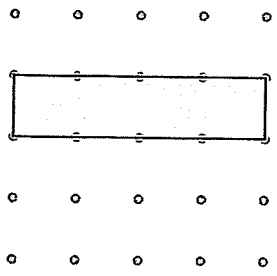
Math Talk MATHEMATICAL PRACTICES 8

Generalize What are other situations where you need to find area?

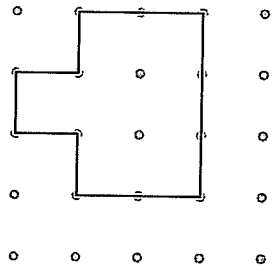
Name _____

On Your Own

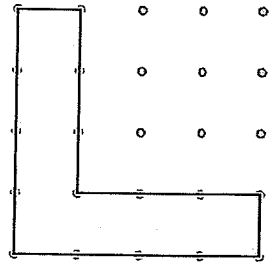
Count to find the area of the figure.

7. 

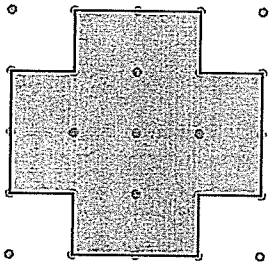
Area = _____ square units

8. 

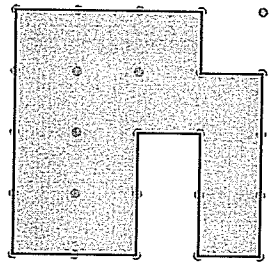
Area = _____ square units

9. 

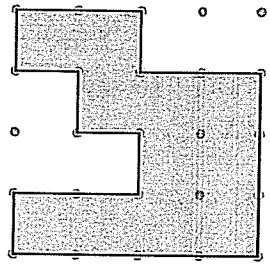
Area = _____ square units

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. putting a wallpaper border around a room

_____

16. gluing a ribbon around a picture frame

_____

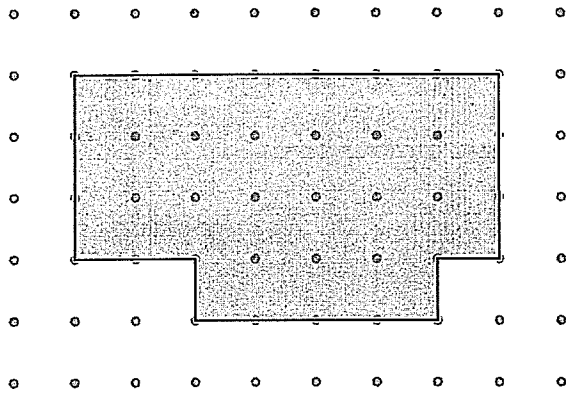
17. GO DEEPER Nicole's mother put tiles on a section of their kitchen floor. The section included 5 rows with 4 tiles in each row. Each tile cost $2. How much money did Nicole's father spend on the tiles?

_____

Problem Solving • Applications (Real World)

Juan is building an enclosure for his small dog, Eli. Use the diagram for 18–19.

Eli's Enclosure



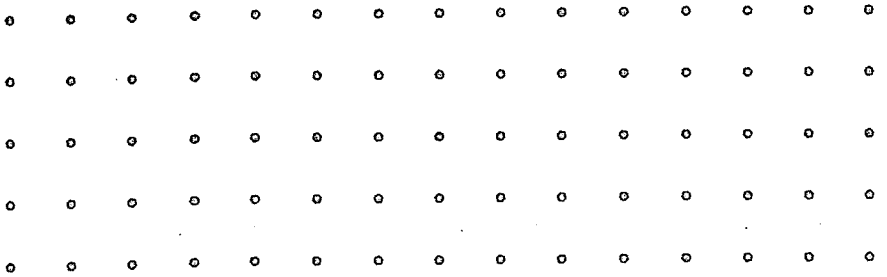
18. Juan will put fencing around the outside of the enclosure. How much fencing does he need for the enclosure?

_____

19. MATHEMATICAL PRACTICE 5 **Use Appropriate Tools** Juan will use grass sod to cover the ground in the enclosure. How much grass sod does Juan need?

_____

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



21. THINK SMARTER What is the perimeter and area of this figure? Explain how you found the answer.

Perimeter _____ units

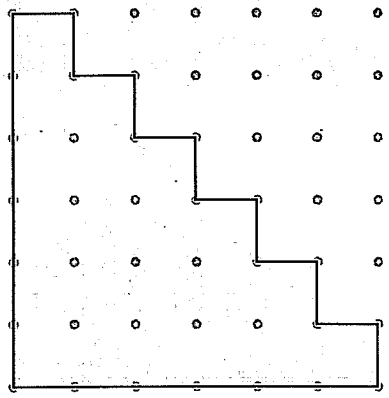
Area _____ square units

_____

_____

_____

_____



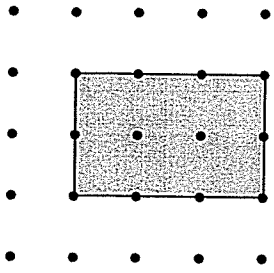
Name _____

Understand Area

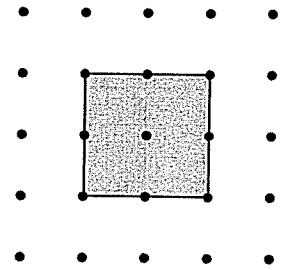
Common Core

COMMON CORE STANDARDS—3.MD.C.5, 3.MD.C.5a *Geometric measurement: understand concepts of area and relate area to multiplication and to addition.*

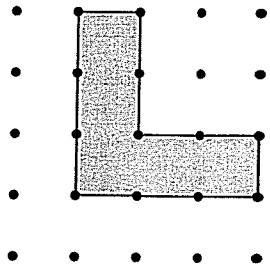
Count to find the area for the shape.

1. 

Area = 6 square units

2. 

Area = _____ square units

3. 

Area = _____ square units

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

4. carpeting a floor

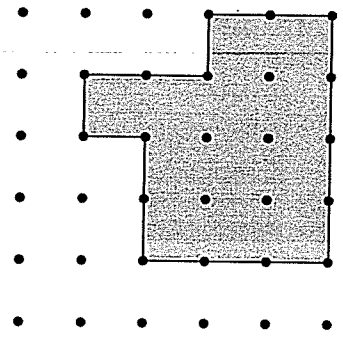
_____

5. fencing a garden

_____

Problem Solving Real World

Use the diagram for 6–7.



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

_____

7. Roberto will put a border around the edges of the platform. How much border will he need?

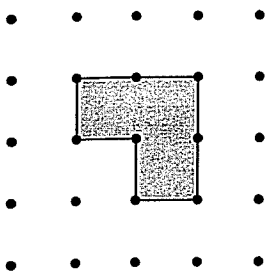
_____

8. WRITE ▸ *Math* Draw a rectangle using dot paper. Find the area, and explain how you found your answer.

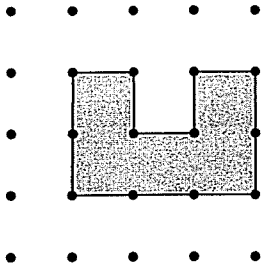
_____

Lesson Check (3.MD.C.5, 3.MD.C.5a)

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



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



Spiral Review (3.OA.C.7, 3.NF.A.1, 3.MD.A.1, 3.MD.A.2)

3. 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.)

4. Nan cut a submarine sandwich into 4 equal parts and ate one part. What fraction represents the part of the sandwich Nan ate?

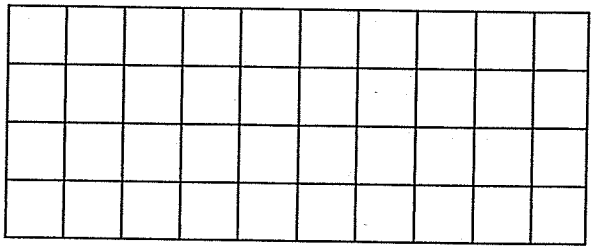
5. Wanda is eating breakfast at fifteen minutes before eight. What time is this? Use A.M. or P.M.

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

FOR MORE PRACTICE GO TO THE Personal Math Trainer

Try This!

Find the area of the figure.
Each unit square is 1 square foot.



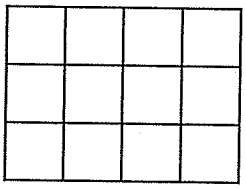
Think: There are 4 rows of 10 unit squares.

_____ × _____ = _____

So, the area is _____ square feet.

Share and Show MATH BOARD

1. Look at the figure.



_____ rows of _____ = ▢

Add. _____ + _____ + _____ = _____

Multiply. _____ × _____ = _____

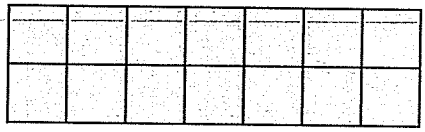
What is the area of the figure?

_____ square units

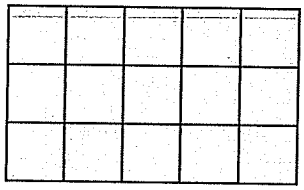
Math Talk MATHEMATICAL PRACTICES 6

Compare Which method do you prefer using?

Find the area of the figure.
Each unit square is 1 square foot.

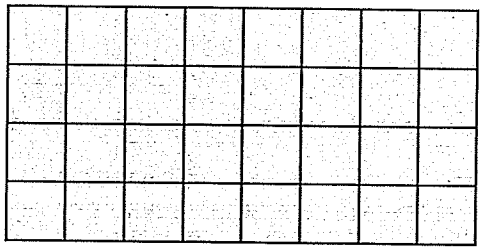
2. 

_____

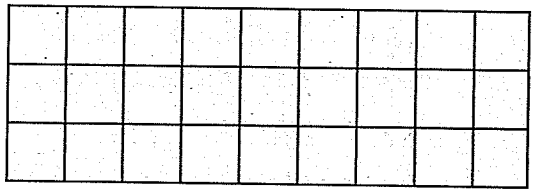
3. 

_____

Find the area of the figure.
Each unit square is 1 square meter.

4. 

_____

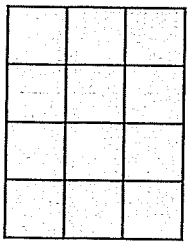
5. 

_____

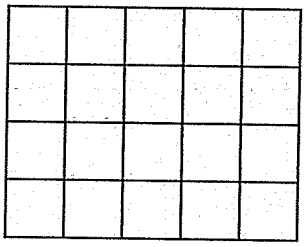
Name _____

On Your Own

Find the area of the figure.
Each unit square is 1 square foot.

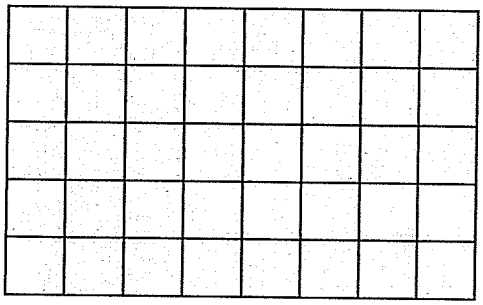
6. 

_____

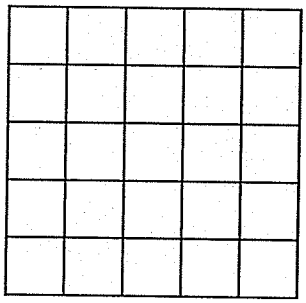
7. 

_____

Find the area of the figure.
Each unit square is 1 square meter.

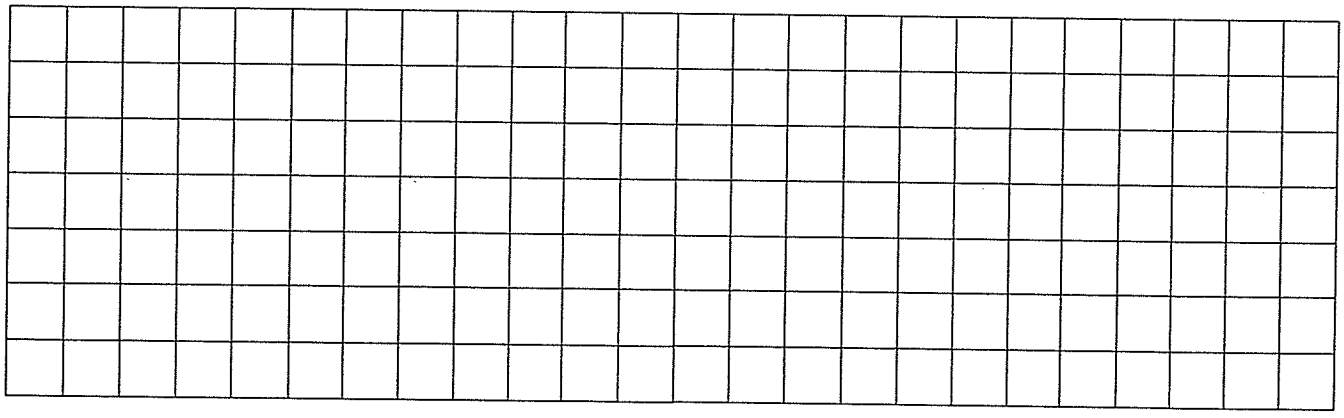
8. 

_____

9. 

_____

10. MATHEMATICAL PRACTICE 4 **Use Diagrams** Draw and shade three rectangles with an area of 24 square units. Then write an addition or multiplication equation for each.

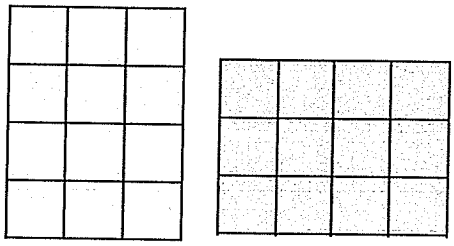


_____

_____

Problem Solving • Applications (Real World)

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

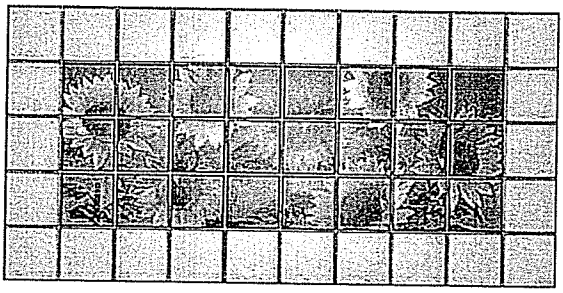


_____

_____

_____

12. THINK SMARTER 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.



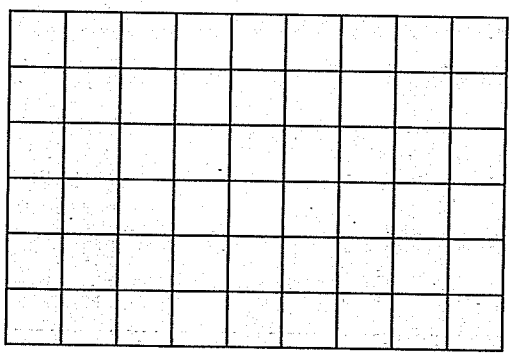
Write a problem that can be solved by using the drawing. Then solve your problem.

_____

_____

_____

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



Ⓐ $9 \times 6 = n$

Ⓑ $9 + 9 + 9 + 9 + 9 + 9 = n$

Ⓒ $9 + 6 = n$

Ⓓ $6 \times 9 = n$

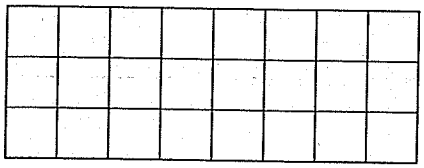
Ⓔ $6 + 6 + 6 + 6 + 6 + 6 = n$

Name _____

Use Area Models

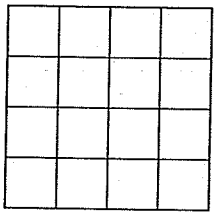
Common Core **COMMON CORE STANDARDS—** **3.MD.C.7, 3.MD.C.7a** *Geometric measurement: understand concepts of area and relate area to multiplication and to addition.*

Find the area of each shape. Each unit square is 1 square foot.

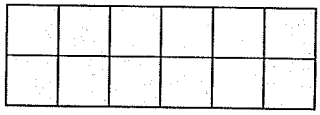
1. 

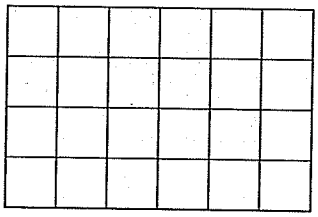
There are 3 rows of 8 unit squares.
$3 \times 8 = 24$

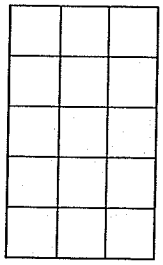
24 square feet

2. 

Find the area of each shape.
Each unit square is 1 square meter.

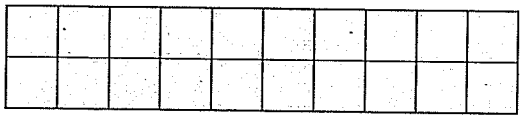
3. 

4. 

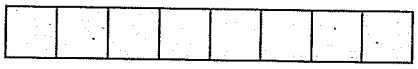
5. 

Problem Solving Real World

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



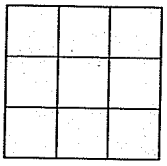
7. Eva makes a border at the top of a picture frame. Each unit square is 1 square inch. What is the area of the border?



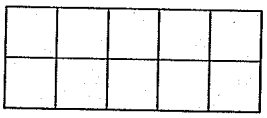
8. WRITE Math Describe each of the three methods you can use to find the area of a rectangle.

Lesson Check (3.MD.C.7, 3.MD.C.7a)

1. The entrance to an office has a tiled floor. Each square tile is 1 square meter. What is the area of the floor?



2. Ms. Burns buys a new rug. Each unit square is 1 square foot. What is the area of the rug?



Spiral Review (3.OA.A.4, 3.NF.A.3d, 3.MD.A.1, 3.MD.D.8)

3. Compare the fractions. Write $<$, $>$, or $=$.

$\frac{1}{3} \bigcirc \frac{2}{3}$

4. 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?

5. Austin left for school at 7:35 A.M. He arrived at school 15 minutes later. What time did Austin arrive at school?

6. 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?

FOR MORE PRACTICE GO TO THE Personal Math Trainer

Name _____

Share and Show MATH BOARD

Use the table for 1–2.

Swimming Pool Sizes			
Pool	Length (in feet)	Width (in feet)	Area (in square feet)
A	8	20	
B	8	30	
C	8	40	
D	8	50	

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.

   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 16 feet? Explain how the areas would change.

   _____

On Your Own

3. MATHEMATICAL PRACTICE 7 **Look for a Pattern** If the length of each pool in the table is 20 feet, and the widths change from 5, to 6, to 7, and to 8 feet, describe the pattern of the areas.

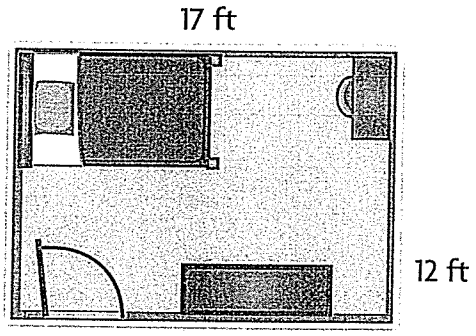
   _____

   _____

4. MATHEMATICAL PRACTICE 1 **Analyze Relationships** Jacob has a rectangular garden with an area of 56 square feet. The length of the garden is 8 feet. What is the width of the garden?

_____

5. GO DEEPER A diagram of Paula's bedroom is at the right. Her bedroom is in the shape of a rectangle. Write the measurements for the other sides. What is the perimeter of the room? (Hint: The two pairs of opposite sides are equal lengths.)



_____

_____

6. THINK SMARTER 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 do the areas change?

_____

_____

_____

_____

7. THINK SMARTER Find the pattern and complete the chart.

Total Area (in square feet)	50	60	70	80	
Length (in feet)	10	10		10	
Width (in feet)	5	6	7		

How can you use the chart to find the length and width of a figure with an area of 100 square feet?

_____

_____

Name _____

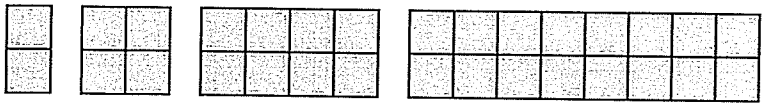
Problem Solving • Area of Rectangles

Common Core

COMMON CORE STANDARD—3.MD.C.7b
Geometric measurement: understand concepts of area and relate area to multiplication and to addition.

Use the information for 1–3.

An artist makes rectangular murals in different sizes. Below are the available sizes. Each unit square is 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)
A	2	1	2
B	2	2	4
C	2		
D	2		

2. Find and describe a pattern of how the length changes and how the width changes for murals A through D.

_____

_____

3. How do the areas of the murals change when the width changes?

_____

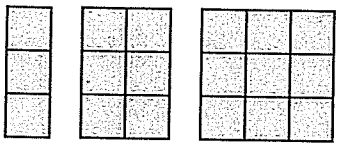
4. WRITE ▷Math Write and solve an area problem that illustrates the use of the *find a pattern* strategy.

_____

_____

Lesson Check (3.MD.C.7b)

1. Lauren drew the designs below. Each unit square is 1 square centimeter. If the pattern continues, what will be the area of the fourth shape?

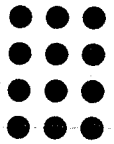


2. Henry built one garden that is 3 feet wide and 3 feet long. He also built a garden that is 3 feet wide and 6 feet long, and a garden that is 3 feet wide and 9 feet long. How do the areas change?

Spiral Review (3.OA.A.3, 3.NBT.A.3, 3.NF.A.1, 3.MD.C.5b, 3.MD.C.6)

3. Joe, Jim, and Jack share 27 football cards equally. How many cards does each boy get?

4. Nita uses $\frac{1}{3}$ of a carton of 12 eggs. How many eggs does she use?



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

6. 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?

FOR MORE PRACTICE GO TO THE Personal Math Trainer

Name _____

Area of Combined Rectangles

Essential Question How can you break apart a figure to find the area?

Common Core **Measurement and Data—**
3.MD.C.7c, 3.MD.C.7d
Also 3.MD.C.5, 3.MD.C.5a, 3.MD.C.5b, 3.MD.C.7b, 3.OA.A.3, 3.OA.B.5, 3.OA.C.7, 3.NBT.A.2

MATHEMATICAL PRACTICES
MP1, MP3, MP4, MP6, MP7

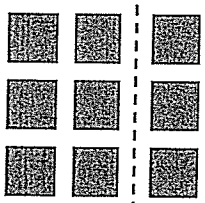
Unlock the Problem (Real World)

Hands On

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

Remember

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

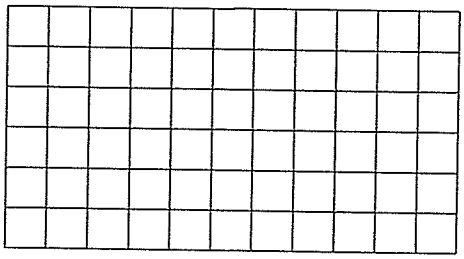


$3 \times 3 = 3 \times (2 + 1)$

Activity Materials ■ square tiles

STEP 1 Use square tiles to model 4×9.

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: _____ × _____ = _____

Rectangle 2: _____ × _____ = _____

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

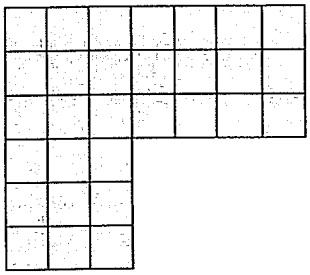
So, the area of Anna's rug is _____ square feet.

Math Talk **MATHEMATICAL PRACTICES 6**

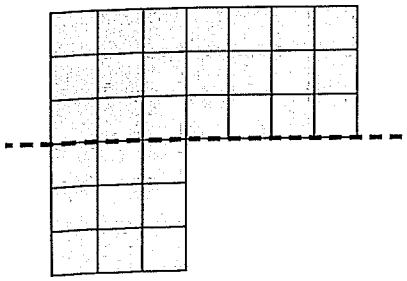
Compare Did you draw a line in the same place as your classmates? Explain why you found the same total area.

CONNECT 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: ___ × ___ = ___

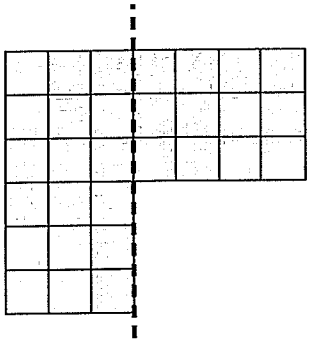
Rectangle 2: ___ × ___ = ___

STEP 2 Add the products to find the total area.

___ + ___ = ___ square units

So, the area is _____ square units.

Another Way Use a vertical line.



STEP 1 Write a multiplication equation for each rectangle.

Rectangle 1: ___ × ___ = ___

Rectangle 2: ___ × ___ = ___

STEP 2 Add the products to find the total area.

___ + ___ = ___ square units

Math Talk MATHEMATICAL PRACTICES 1

Evaluate 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 vertical or horizontal lines to break apart the figure to make rectangles.

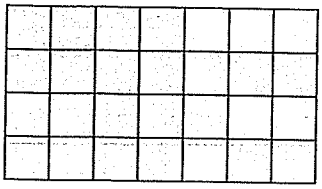
Rectangle 1: ___ × ___ = ___

Rectangle 2: ___ × ___ = ___

___ + ___ = ___ square units

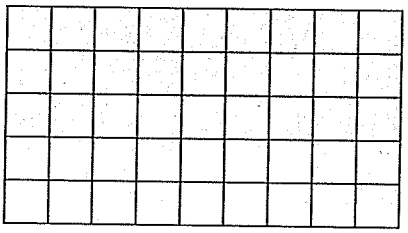
Name _____

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

2. 

_____

_____ square units

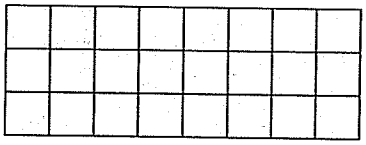
3. 

_____

_____ square units

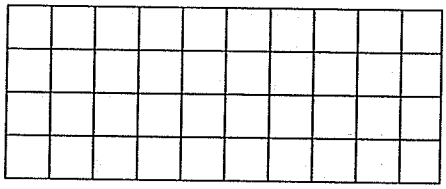
On Your Own

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

4. 

_____

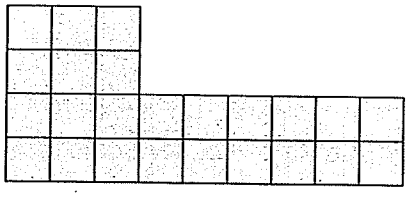
_____ square units

5. 

_____

_____ square units

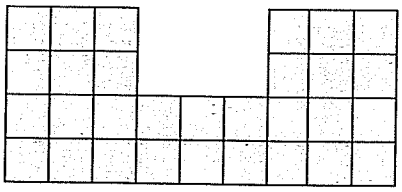
Draw a line to break apart the figure into rectangles. Find the area of the figure.

6. 

Rectangle 1: ___ × ___ = ___

Rectangle 2: ___ × ___ = ___

___ + ___ = ___ square units

7. GO DEEPER 

Rectangle 1: ___ × ___ = ___

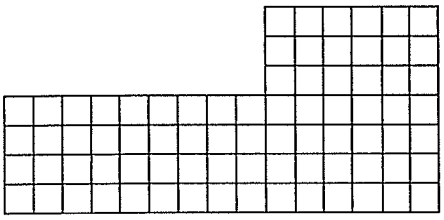
Rectangle 2: ___ × ___ = ___

Rectangle 3: ___ × ___ = ___

___ + ___ + ___ = ___ square units

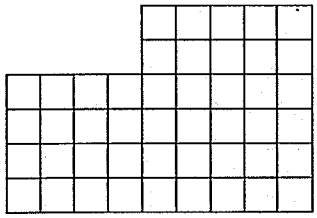
Problem Solving • Applications (Real World)

8. GO DEEPER A model of Ms. Lee's classroom is at the right. Each unit square is 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?



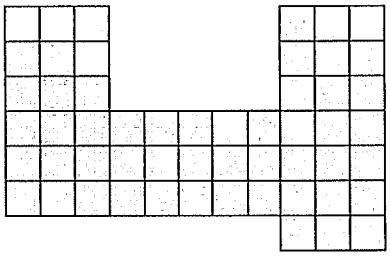
_____

9. David has a rectangular bedroom with a rectangular closet. Each unit square is 1 square foot. Draw a line to break apart the figure into rectangles. What is the total area of David's bedroom?



_____

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



1 unit square = 1 square meter

_____

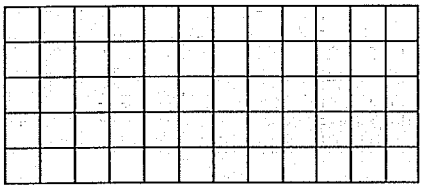
_____

_____

_____

_____

11. MATHEMATICAL PRACTICE 4 **Interpret a Result** Use the Distributive Property to find the area of the figure at the right. Write your multiplication and addition equations.



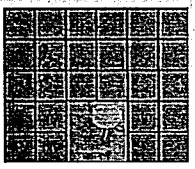
1 unit square = 1 square centimeter

_____

_____

Personal Math Trainer

12. THINK SMARTER+ Pete drew a diagram of his backyard on grid paper. Each unit square is 1 square meter. The area surrounding the patio is grass.



How much more of the backyard is grass than patio? Show your work.

_____ more square meters

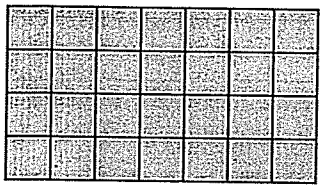
Name _____

Area of Combined Rectangles

Common Core

COMMON CORE STANDARDS—3.MD.C.7c, 3.MD.C.7d *Geometric measurement: understand concepts of area and relate area to multiplication and to addition.*

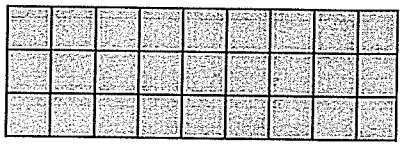
Use the Distributive Property to find the area. Show your multiplication and addition equations.

1. 

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

$8 + 20 = 28$

28 square units

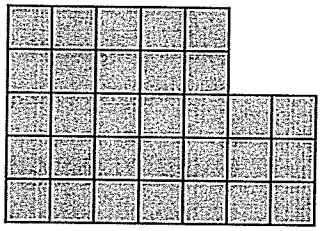
2. 

_____

_____

_____ square units

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

3. 

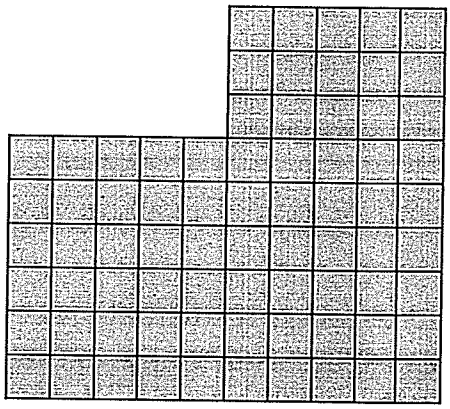
Rectangle 1: _____ × _____ = _____

Rectangle 2: _____ × _____ = _____

_____ + _____ = _____ square units

Problem Solving (Real World)

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

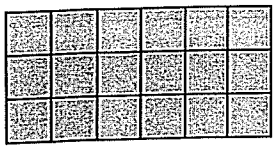
6. WRITE ▷ Math Draw a figure that is not a rectangle and find its area. Use grid paper and show each step.

_____

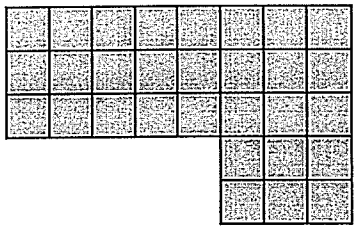
_____

Lesson Check (3.MD.C.7c, 3.MD.C.7d)

1. The diagram shows Ben's backyard. Each unit square is 1 square yard. What is the area of Ben's backyard?



2. The diagram shows a room in an art gallery. Each unit square is 1 square meter. What is the area of the room?



Spiral Review (3.OA.B.6, 3.NF.A.1, 3.MD.B.4, 3.MD.D.8)

3. Naomi needs to solve $28 \div 7 = \square$. What related multiplication fact can she use to find the unknown number?

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

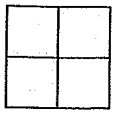
5. The rectangle is divided into equal parts. What is the name of the equal parts?

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

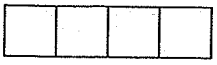
Name _____

Find the perimeter and the area. Tell which rectangle has a greater perimeter.

✓ 6.



A



B

A: Area = _____; Perimeter = _____

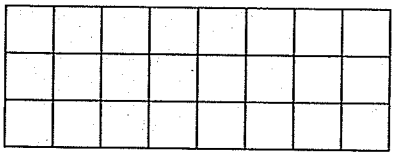
B: Area = _____; Perimeter = _____

Rectangle _____ has a greater perimeter.

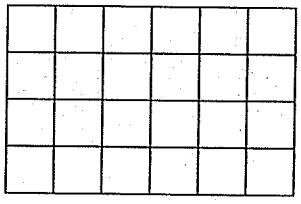
On Your Own

Find the perimeter and the area. Tell which rectangle has a greater perimeter.

7.



A



B

A: Area = _____;

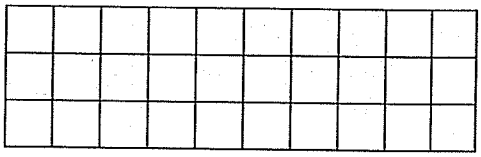
Perimeter = _____

B: Area = _____;

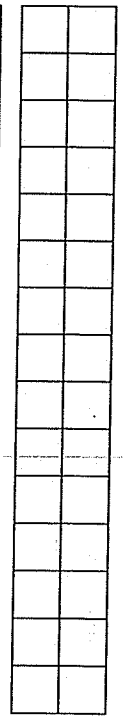
Perimeter = _____

Rectangle ____ has a greater perimeter.

8.



A



B

A: Area = _____;

Perimeter = _____

B: Area = _____;

Perimeter = _____

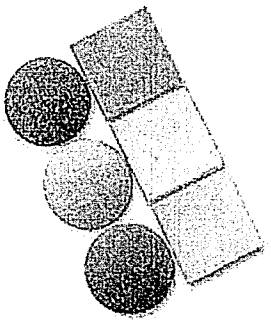
Rectangle ____ has a greater perimeter.

9. THINK SMARTER **Sense or Nonsense?** Dora says that of all the possible rectangles with the same area, the rectangle with the largest perimeter will have two side lengths that are 1 unit. Does her statement make sense? Explain.

Math on the Spot

_____

Unlock the Problem Real World



10. Roberto has 12 tiles. Each tile is 1 square inch. He will arrange them into a rectangle and glue 1-inch stones around the edge. How can Roberto arrange the tiles so that he uses the least number of stones?

a. MATHEMATICAL PRACTICE 6 **Explain a Method** How will you use what you know about area and perimeter to help you solve the problem? _____

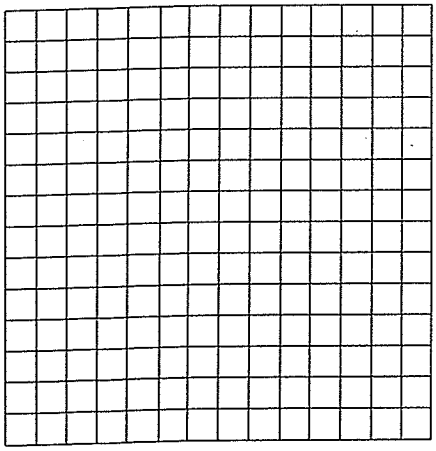
_____

_____

b. GO DEEPER Draw possible rectangles to solve the problem, and label them *A*, *B*, and *C*.

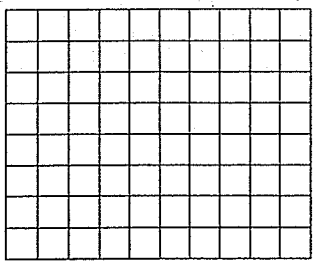
_____

_____



c. So, Roberto should arrange the tiles like Rectangle _____.

11. THINK SMARTER Draw 2 different rectangles with an area of 20 square units. What is the perimeter of each rectangle you drew?



Area = 20 square units

Perimeter = _____ units

Perimeter = _____ units

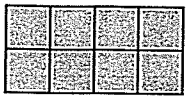
Name _____

Same Area, Different Perimeters

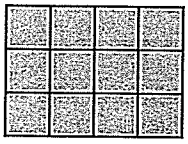
Common Core **COMMON CORE STANDARD—3.MD.D.8**
Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.

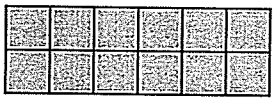
Find the perimeter and the area. Tell which rectangle has a greater perimeter.

1. 
A


B

A: Area = 8 square units;
Perimeter = 18 units
B: Area = _____;
Perimeter = _____
Rectangle ____ has a greater perimeter.

2. 
A

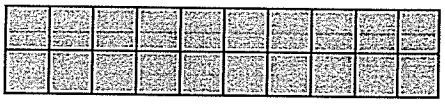

B

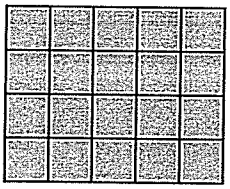
A: Area = _____;
Perimeter = _____
B: Area = _____;
Perimeter = _____
Rectangle ____ has a greater perimeter.

Problem Solving Real World

Use the tile designs for 3–4.

Beth's Tile Designs


A


B

3. Compare the areas of Design A and Design B.

_____

_____

4. Compare the perimeters. Which design has the greater perimeter?

_____

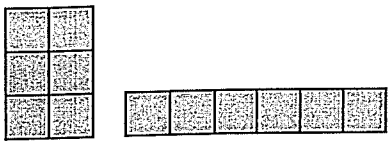
5. WRITE ▸ *Math* Draw two rectangles with different perimeters but the same area.

_____

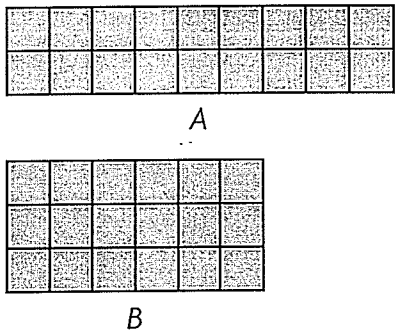
_____

Lesson Check (3.MD.D.8)

1. Jake drew two rectangles. Which rectangle has the greater perimeter?



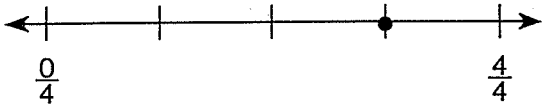
2. Alyssa drew two rectangles. Which rectangle has the greater perimeter?



Spiral Review (3.OA.D.8, 3.NF.A.2a, 3.NF.A.2b, 3.NF.A.3b)

3. Marsha was asked to find the value of $8 - 3 \times 2$. She wrote a wrong answer. What is the correct answer?

4. What fraction names the point on the number line?



5. Kyle drew three line segments with these lengths: $\frac{2}{4}$ inch, $\frac{2}{3}$ inch, and $\frac{2}{6}$ inch. List the fractions in order from least to greatest?

6. On Monday, $\frac{3}{8}$ inch of snow fell. On Tuesday, $\frac{5}{8}$ inch of snow fell. Write a statement that correctly compares the snow amounts.

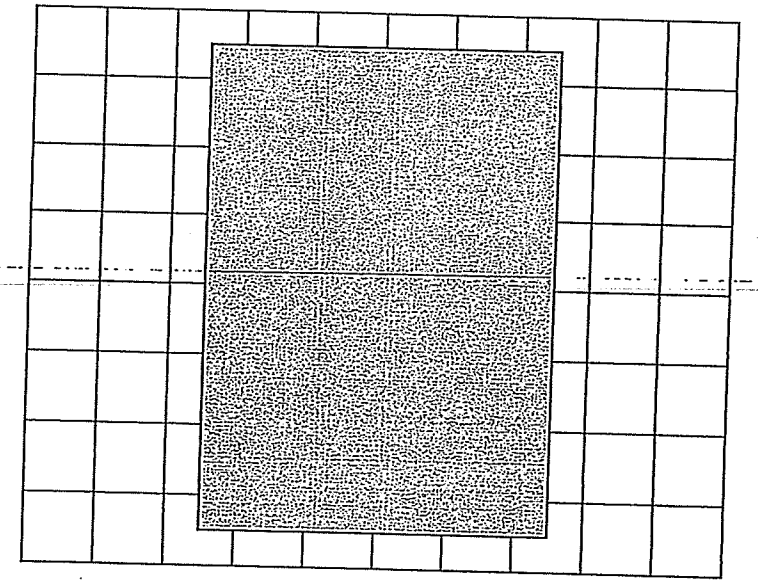
Lesson 6
G:3 M:4

EXIT TICKET

Name: _____ Date: _____

Complete: ☐ Class: _____

1. The tiled floor in Cayden's dining room has a rug on it as shown below. How many square tiles are on the floor, including the tiles under the rug?

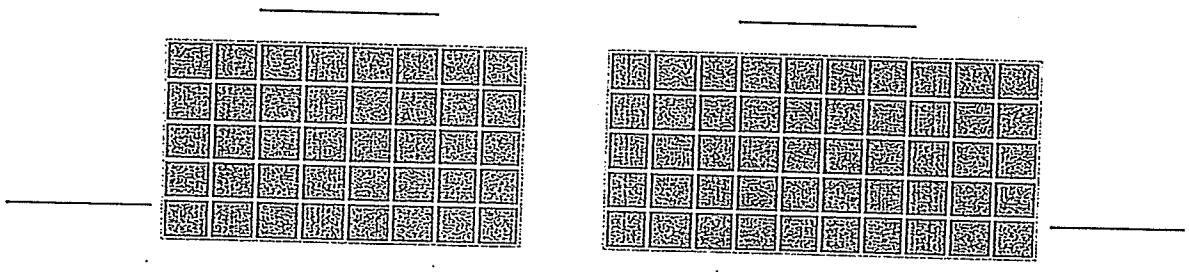


Lesson 9 G:3 M:4	Area Awareness
	ZEARN STUDENT NOTES

Name: _____ Date: _____

Complete: ☐ Class: _____

1 Label the side lengths. Then find the area.



A = _____ × _____ A = _____ × _____

= _____ sq. units = _____ sq. units

Write an equation to show the total area of the 2 rectangles.

_____ + _____ = _____ sq. units

2 Draw an area model to show the two rectangles from Problem 1 combined. Then, find the area.

DRAW

SOLVE

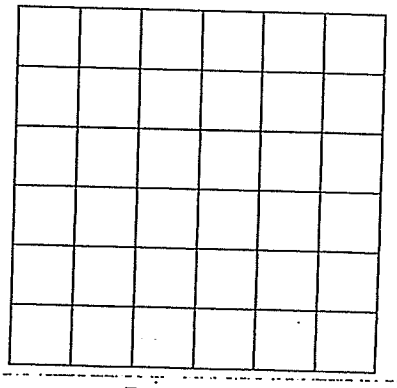
The total area is _____ square units

Lesson 9 G3 M4 EXIT TICKET

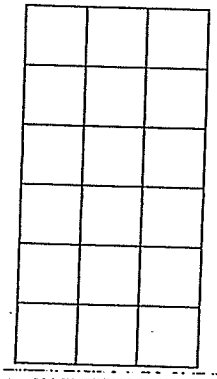
Name: _____ Date: _____

Complete: ☐ Class: _____

1. Lamar uses square tiles to make the 2 rectangles shown below.



Rectangle A



Rectangle B

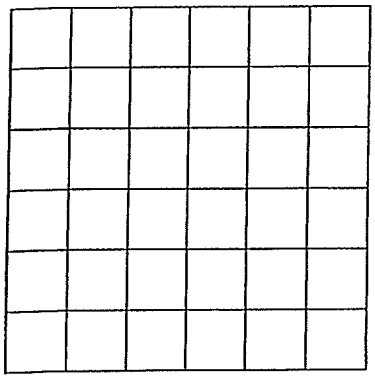
a. Label the side lengths of the 2 rectangles.

b. Write equations to find the areas of the rectangles.

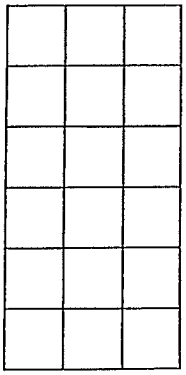
Area of Rectangle A: _____

Area of Rectangle B: _____

2. Lamar pushes Rectangle A next to Rectangle B to make a bigger rectangle. What is the area of the bigger rectangle? How do you know?



Rectangle A



Rectangle B

Lesson 12 G:3 M:4	A Space Odyssey
	ZEARN STUDENT NOTES

Name:_____ Date:_____

Complete: ☐ Class:_____

1 The area of Theo's banner is 32 square feet.

If the length of the banner measures four feet, how wide is his banner?

DRAW

SOLVE

The width of Theo's banner is _____ feet.

2

Amir is getting carpet in his bedroom which measures 7 by 15 feet.

How many square feet of carpet will Amir need?

DRAW

SOLVE

Amir will need _____ square feet of carpet.

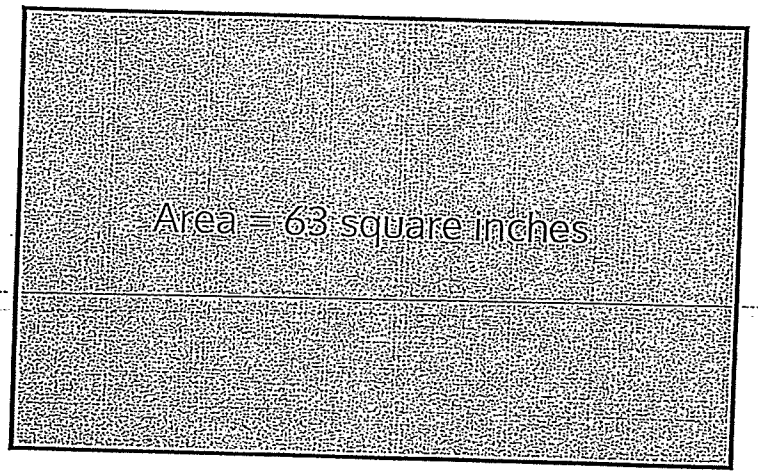
Lesson 12
G3 M4

EXIT TICKET

Name:_____ Date:_____

Complete: ☐ Class:_____

1. A painting has an area of 63 square inches. One side length is 9 inches. What is the other side length?



2. Judy's mini dollhouse has one floor and measures 4 inches by 16 inches. What is the total area of the dollhouse floor?

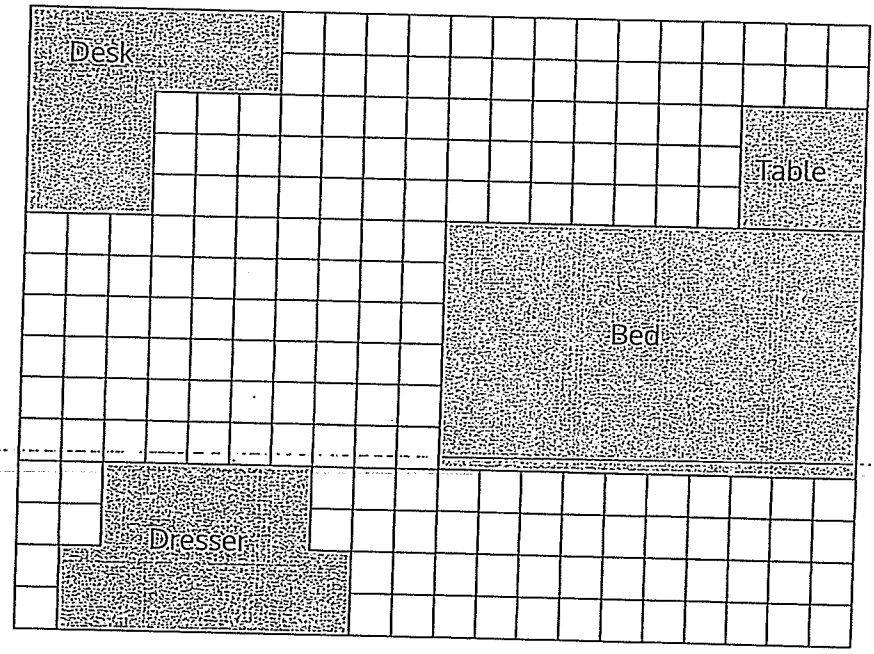
SHOW YOUR WORK

Lesson 15 G3 M4 EXIT TICKET

Name: _____ Date: _____

Complete: ☐ Class: _____

1. Jack uses grid paper to create a floor plan of his room. Label the unknown measurements, and find the area of the items listed below.



	Name	Equations	Total Area
a.	Jack's Room		_____ sq units
b.	Bed		_____ sq units
c.	Table		_____ sq units
d.	Dresser		_____ sq units
e.	Desk		_____ sq units

Lesson 16 G3 M4 | EXIT TICKET

Name: _____ Date: _____

Complete: ☐ Class: _____

1. Find the area of the shaded figure. Then, draw and label a rectangle with the same area.