

Apply Multiplication to Perimeter and Area



Show What You Know

▶ Missing Factors Find the missing factor.



$$\underline{\quad} \times 6 = 24$$



$$3 \times \underline{\quad} = 27$$

▶ Add Whole Numbers Find the sum.

3. $17 + 153 + 67 = \underline{\quad}$

4. $8 + 78 + 455 = \underline{\quad}$

5. $211 + 52 + 129 + 48 = \underline{\quad}$

6. $42 + 9 + 336 + 782 = \underline{\quad}$

▶ Multiply Whole Numbers Find the product.

7.
$$\begin{array}{r} 78 \\ \times 6 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 29 \\ \times 7 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 42 \\ \times 5 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 57 \\ \times 9 \\ \hline \end{array}$$

MATH in the Real World

Native Americans once lived near Cartersville, Georgia, in an area that is now a state park. They constructed burial mounds that often contained artifacts, such as beads, feathers, and copper ear ornaments. One of the park's mounds is 63 feet in height. If the top of the mound is rectangular in shape with a perimeter of 322 yards, what could be the side lengths of the rectangle?



Name _____

Apply the Perimeter Formula

I Can use a formula to find the perimeter of a rectangle.

Florida's B.E.S.T.

- Geometric Reasoning 4.GR.2.1
- Mathematical Thinking & Reasoning
MTR 1.1, MTR 2.1, MTR 4.1, MTR 6.1



UNLOCK the Problem Real World

Kendrick is putting padding along the edges of his ping-pong table. The length of the table is 9 feet. The width of the table is 5 feet. How many feet of padding does Kendrick need?

Perimeter is the distance around a shape.

To find how many feet of padding Kendrick needs, find the perimeter of the table.

Use addition.

Perimeter of a Rectangle = length + width + length + width

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

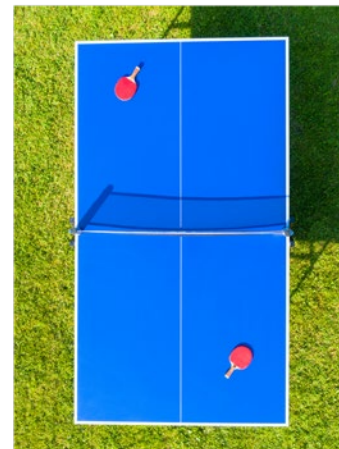
The perimeter is feet.

Use multiplication.

Perimeter = $(2 \times \text{length}) + (2 \times \text{width})$

$$\begin{aligned} \text{Perimeter} &= (2 \times 9) + (2 \times 5) \\ &= 18 + 10 \\ &= \underline{\hspace{2cm}} \end{aligned}$$

So, Kendrick needs feet of padding.

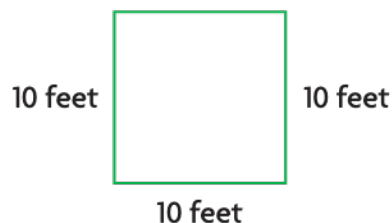


9 ft

5 ft

You can also use multiplication to find the perimeter of a square.

Perimeter = $4 \times \text{one side}$
10 feet



Perimeter = 4×10
=

So, the perimeter is feet.

Math Talk

MTR 4.1 Engage in discussions on mathematical thinking.

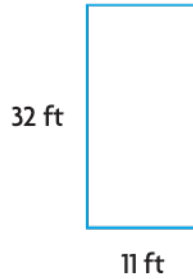
Why are there two different ways to calculate the perimeter of a rectangle?

Share and Show



1. Find the perimeter of the rectangle.

$$\begin{aligned}
 P &= 2 \times (\underline{\quad} + \underline{\quad}) \\
 &= 2 \times (\underline{\quad} + \underline{\quad}) \\
 &= 2 \times (\underline{\quad}) \\
 &= \underline{\quad}
 \end{aligned}$$



The perimeter is _____ feet.

Formulas for Perimeter

Rectangle:
 $P = (2 \times l) + (2 \times w)$ or
 $P = 2 \times (l + w)$

Square:
 $P = 4 \times s$

Find the perimeter of the rectangle or square.

2.



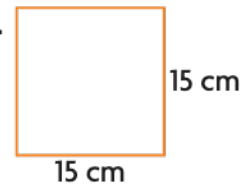
_____ yards

3.



_____ meters

4.



_____ centimeters



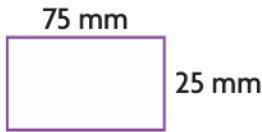
MTR 6.1 Assess the reasonableness of solutions.

When could you use the formula for perimeter of a square to estimate the perimeter of a rectangle?

On Your Own

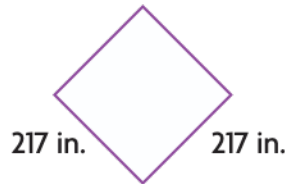
Find the perimeter of the rectangle or square.

5.



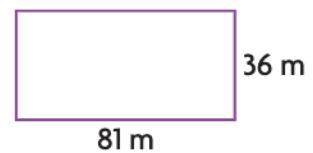
_____ millimeters

6.



_____ inches

7.



_____ meters

8. Abed wants to put a rail around his rectangular patio. The patio is 15 yards long and 12 yards wide. How many yards of railing does he need?

9. **MTR** What is the side length of a square with a perimeter of 284 meters?

Problem Solving • Applications

10. For safety, Lucien is putting up a fence that follows the edge of his rectangular pool. The pool is 36 feet long. The width is one-half the length. How much fencing does Lucien need?



a. Draw a picture of the pool, and label the given measurements on your drawing.

b. What do you need to find?

d. Show the steps you use to solve the problem.

c. What formula will you use?

e. Complete.

The length of the pool is _____ feet.

The width is one-half the length,

or _____ \div 2 = _____ feet.

So, the perimeter is _____ \times (_____ + _____) = _____ feet.

f. Lucien needs _____ of fencing.

11. Stellen is putting ribbon around a poster that is four times as long as it is wide. The length of the poster is 44 inches. How much ribbon does he need for the poster?

12. Hana is building a planter that is 30 inches wide. The length is five times the width. What is the perimeter of the planter? Show your work. Explain.

Name _____

Apply the Area Formula

I Can use a formula to find the area of a rectangle.

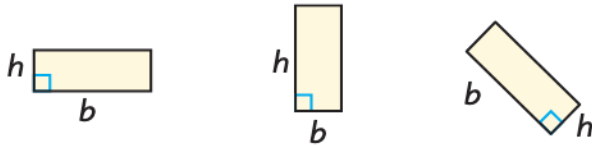
Florida's B.E.S.T.

- Geometric Reasoning 4.GR.2.1
- Mathematical Thinking & Reasoning MTR 1.1, MTR 2.1, MTR 3.1, MTR 4.1



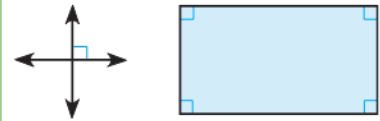
UNLOCK the Problem Real World

The **base, b** , of a two-dimensional figure can be any side. The **height, h** , is the measure of a perpendicular line segment from the base to the top of the figure.



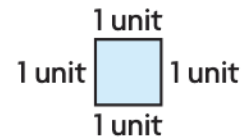
Remember

Perpendicular lines and perpendicular line segments form right angles.



Area is the measure of the number of unit squares needed to cover a flat surface without gaps or overlaps. A **square unit** is a square that is 1 unit long and 1 unit wide. To find the area of a figure, count the number of unit squares inside the figure.

How are the base, height, and area of a rectangle related?



Complete the table to find the area.

Figure	Base	Height	Area
	5 units		

1. What relationship do you see among the base, height, and area?

2. Write a formula for the area of a rectangle. Use the letter A for area. Use the letter b for base. Use the letter h for height.

Formula: _____



MTR 4.1 Engage in discussions on mathematical thinking.

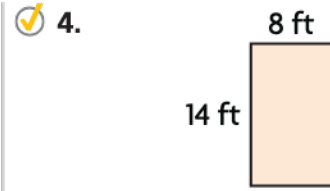
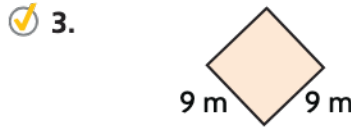
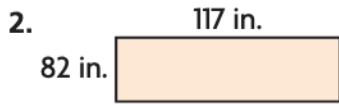
How do you decide which side of a rectangle to use as the base?

Formulas for Area

Rectangle:
 $A = b \times h$

Square:
 $A = s \times s$

Find the area of the rectangle or square.

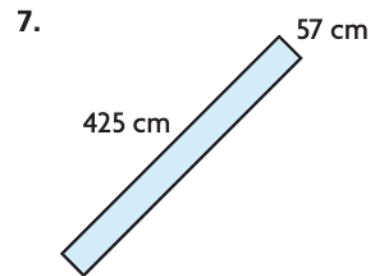
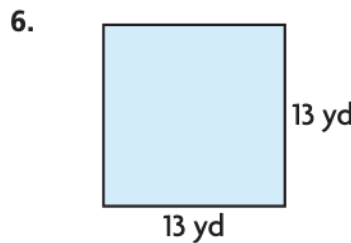
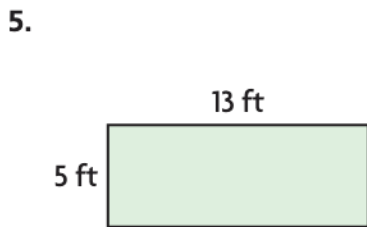


MTR 3.1 Complete tasks with mathematical fluency.

Explain how to find the area of a square if you only know the length of one side is 23 feet.

On Your Own

Find the area of the rectangle or square.



Find the area of the rectangle.

8. base: 267 feet
height: 98 feet

9. base: 9 yards
height: 17 yards

10. base: 14 centimeters
height: 11 centimeters

11. Carter's rectangular yard is 15 meters by 18 meters. Ivan's rectangular yard is 20 meters by 9 meters. How much greater is the area of Carter's yard than Ivan's yard?

12. **MTR** Malia sewed a square baby quilt that measures 36 inches on each side. What is the area of the quilt?

Problem Solving · Applications



13. Nancy and Luke are drawing plans for rectangular flower gardens. In Nancy's plan, the garden is 18 feet by 12 feet. In Luke's plan, the garden is 15 feet by 15 feet. Who drew the garden plan with the greater area? What is the area?



- a. What do you need to find? _____

- b. What formula will you use? _____
- c. What units will you use to write the answer? _____
- d. Show the steps to solve the problem.

- e. Complete the sentences.

The area of Nancy's garden is

_____.

The area of Luke's garden is

_____.

_____ garden has the greater area.

14. Hasan wants to buy fertilizer for his yard. The yard is 35 feet by 55 feet. The directions on the bag of fertilizer say that one bag will cover 1,250 square feet. How many bags of fertilizer should Hasan buy to be sure that he covers the entire yard?

15. Tuan is an artist. He is painting on a large canvas that is 45 inches wide. The height of the canvas is 9 inches less than the width. What is the area of Tuan's canvas?

_____ square inches

Name _____

Same Perimeter, Different Areas

I Can use area to compare rectangles with the same perimeter.

Florida's B.E.S.T.

- Geometric Reasoning 4.GR.2.2
- Mathematical Thinking & Reasoning MTR 1.1, MTR 2.1, MTR 4.1



UNLOCK the Problem Real World

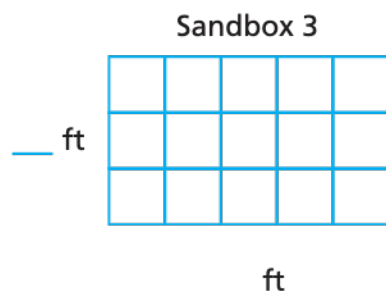
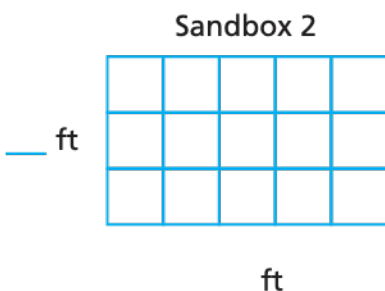
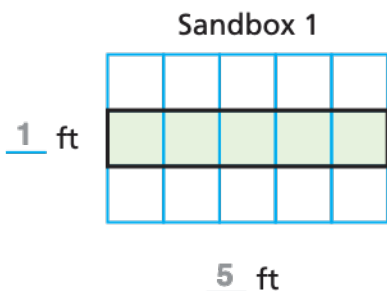
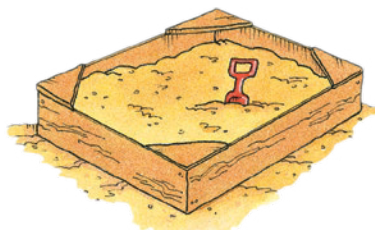
Yuri has 12 feet of boards to put around a rectangular sandbox. How long should he make each side so that the area of the sandbox is as large as possible?

- What is the greatest perimeter Yuri can make for his sandbox?

Activity

Materials ■ square tiles

Use square tiles to make all the rectangles you can that have a perimeter of 12 units. Draw and label the sandboxes. Then find the area of each.



Find the perimeter and area of each rectangle.

	Perimeter	Area
Sandbox 1	$5 + 1 + 5 + 1 = 12$ feet	$1 \times 5 =$ __ square feet
Sandbox 2	$__ + __ + __ + __ =$ __ feet	$__ \times __ =$ __ square feet
Sandbox 3	$__ + __ + __ + __ =$ __ feet	$__ \times __ =$ __ square feet

The area of Sandbox ____ is the greatest.

So, Yuri should build a sandbox that is ____ feet wide and ____ feet long.



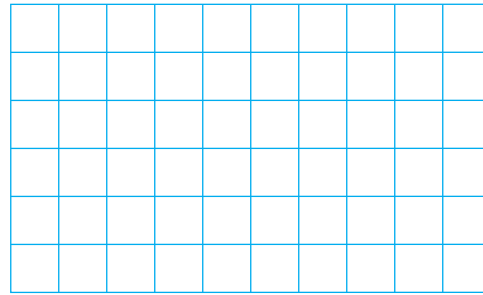
MTR 4.1 Engage in discussions on mathematical thinking.

How are the sandboxes alike? How are the sandboxes different?

Examples Draw rectangles with the same perimeter and different areas.

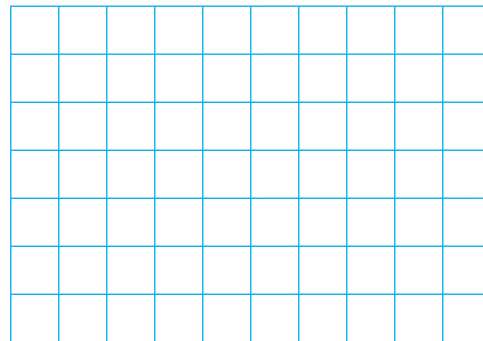
- A** Draw a rectangle that has a perimeter of 20 units and an area of 24 square units.

The sides of the rectangle measure _____ units and _____ units.



- B** Draw a rectangle that has a perimeter of 20 units and an area of 25 square units.

The sides of the rectangle measure _____ units and _____ units.



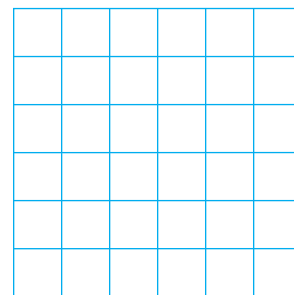
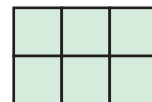
TR 4.1 Engage in discussions on mathematical thinking.

Explain how the perimeters of Example A and Example B are related. Explain how the areas are related.

Share and Show

- The perimeter of the rectangle at the right is _____ units. The area is _____ square units.
- Draw a rectangle that has the same perimeter as the rectangle in Problem 1 but with a different area.
- The area of the rectangle in Problem 2 is _____ square units.
- Which rectangle has the greater area?

- If you were given a rectangle with a certain perimeter, how would you draw it so that it has the greatest area?



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

6.



A



B

A: Perimeter = _____; Area = _____

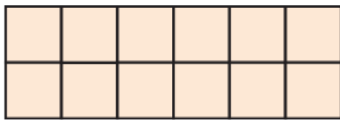
B: Perimeter = _____; Area = _____

Rectangle _____ has a greater area.

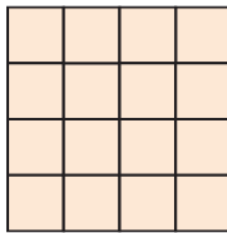
On Your Own

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

7.



A



B

A: Perimeter = _____;

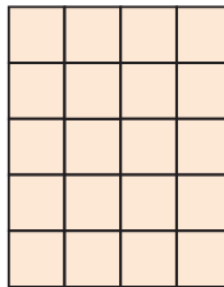
Area = _____

B: Perimeter = _____;

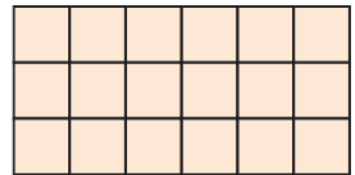
Area = _____

Rectangle ___ has a greater area.

8.



A



B

A: Perimeter = _____;

Area = _____

B: Perimeter = _____;

Area = _____

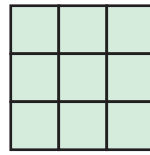
Rectangle ___ has a greater area.

9. **MTR** Moussa's flower garden is 4 feet wide and 8 feet long. If the answer is 32 square feet, what is the question?

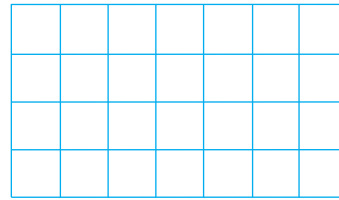
10. Draw a rectangle with the same perimeter as Rectangle *C*, but with a smaller area.

What is the area?

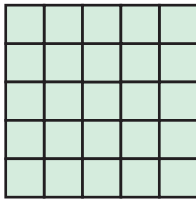
Area = _____



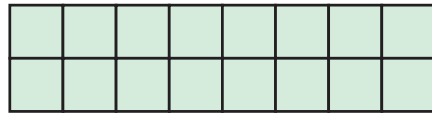
C



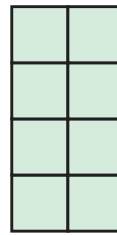
11. Which figure has a perimeter of 20 units and an area of 16 square units?



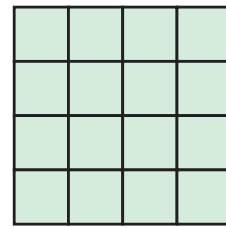
(A)



(B)



(C)



(D)

Connect to Reading

Cause and Effect

Sometimes one action has an effect on another action. The *cause* is the reason something happens. The *effect* is the result.

12. Heechul wanted to print a digital photo that is 3 inches wide and 5 inches long. What if Heechul accidentally printed a photo that is 4 inches wide and 6 inches long?

Heechul can make a table to understand cause and effect.



Cause	Effect
The wrong size photo was printed.	Each side of the photo is a greater length.

Use the information and the strategy to solve the problems.

- a. What effect did the mistake have on the perimeter of the photo?

- b. What effect did the mistake have on the area of the photo?

Name _____

Same Area, Different Perimeters

I Can use perimeter to compare rectangles with the same area.

Florida's B.E.S.T.

- Geometric Reasoning 4.GR.2.2
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MTR 2.1, MTR 3.1, MTR 4.1



UNLOCK the Problem



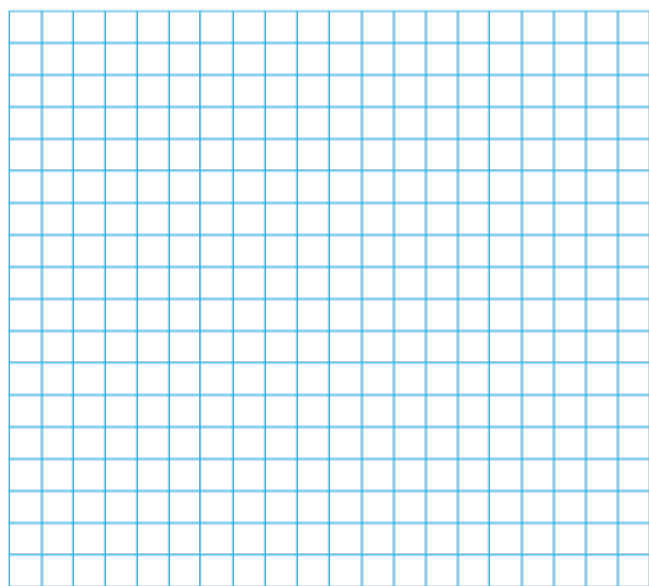
Tam is making a rectangular pen to hold her rabbits. The area of the pen should be 16 square meters with side lengths that are whole numbers. What is the least amount of fencing she needs?

- What does the least amount of fencing represent?

Activity Materials

■ square tiles

Use 16 square tiles to make rectangles. Make as many different rectangles as you can with 16 tiles. Record the rectangles on the grid, write the multiplication equation for the area shown by the rectangle, and find the perimeter of each rectangle.



Math Talk

MTR 3.1 Complete tasks with mathematical fluency.

How did you determine what rectangles to draw?

Area: $\underline{\quad} \times \underline{\quad} = 16$ square meters

Perimeter: $\underline{\quad}$ meters

Area: $\underline{\quad} \times \underline{\quad} = 16$ square meters

Perimeter: $\underline{\quad}$ meters

Area: $\underline{\quad} \times \underline{\quad} = 16$ square meters

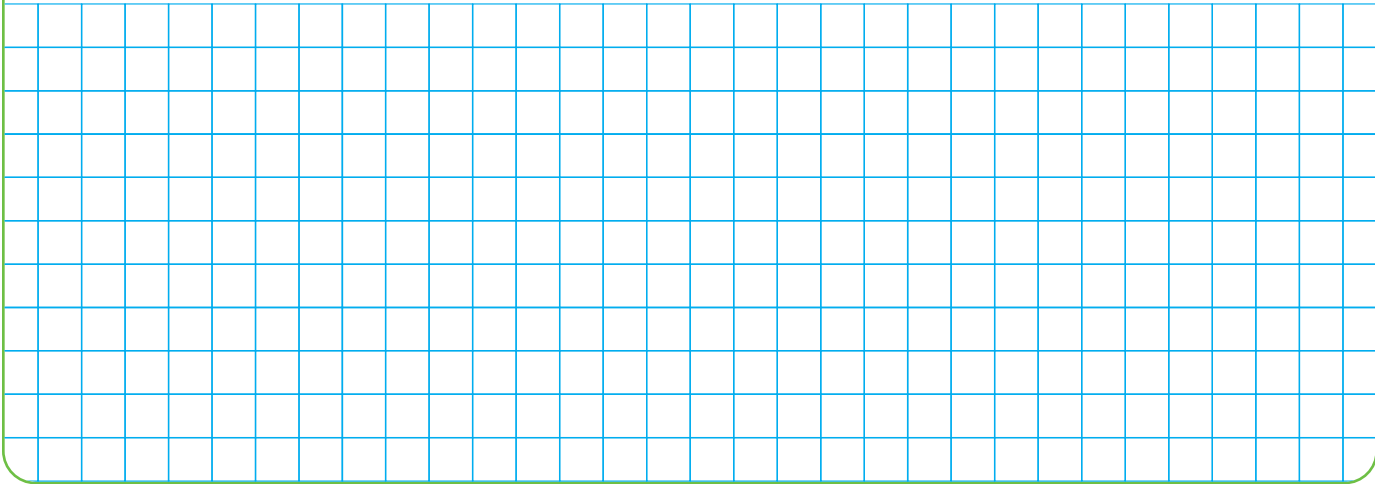
Perimeter: $\underline{\quad}$ meters

To use the least amount of fencing, Tam should make a rectangular pen with side lengths of $\underline{\quad}$ meters and $\underline{\quad}$ meters.

So, $\underline{\quad}$ meters is the least amount of fencing Tam needs.

Try This!

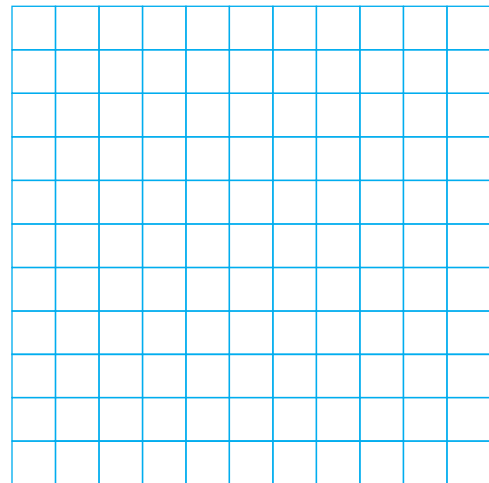
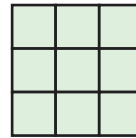
Draw three rectangles that have an area of 18 square units on the grid. Find the perimeter of each rectangle. Shade the rectangle that has the greatest perimeter.



Share and Show



1. The area of the rectangle at the right is _____ square units. The perimeter is _____ units.
2. Draw a rectangle that has the same area as the rectangle in Problem 1 but with a different perimeter.
3. The perimeter of the rectangle in Problem 2 is _____ units.
- ✓ 4. Which rectangle has the greater perimeter?



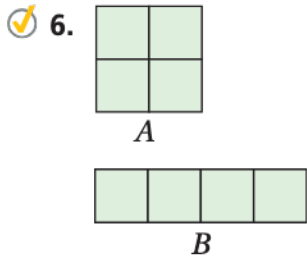
5. If you were given a rectangle with a certain area, how would you draw it so that it had the greatest perimeter?

Math
Talk

TR Engage in discussions on
4.1 mathematical thinking.

Did you and your classmate draw the same rectangle for Exercise 2?

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



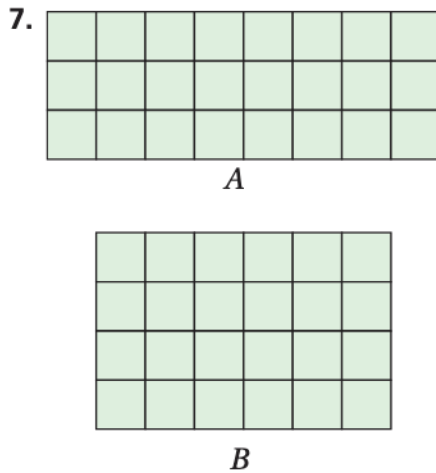
A: Area = _____; Perimeter = _____

B: Area = _____; Perimeter = _____

Rectangle _____ has a greater perimeter.

On Your Own

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



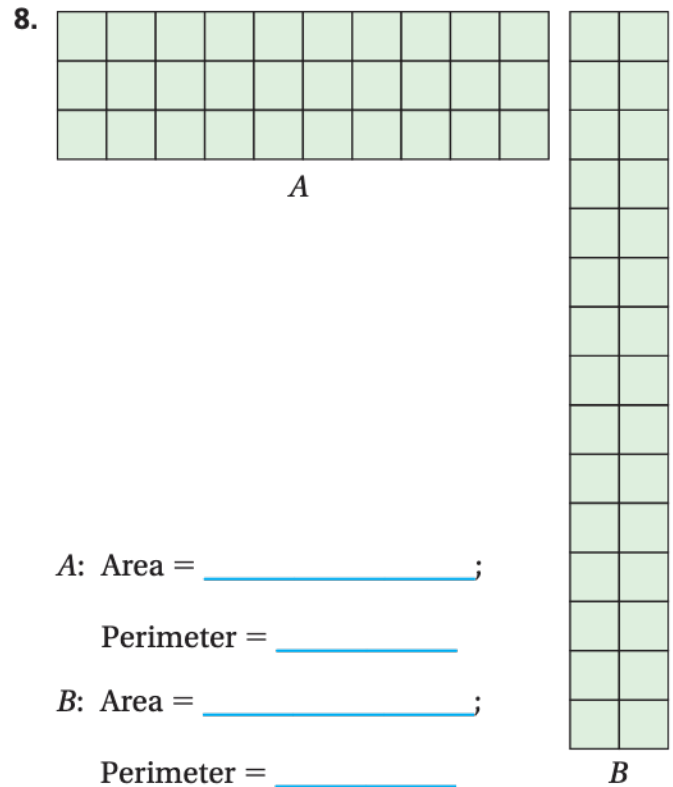
A: Area = _____;

Perimeter = _____

B: Area = _____;

Perimeter = _____

Rectangle _____ has a greater perimeter.



A: Area = _____;

Perimeter = _____

B: Area = _____;

Perimeter = _____

Rectangle _____ has a greater perimeter.

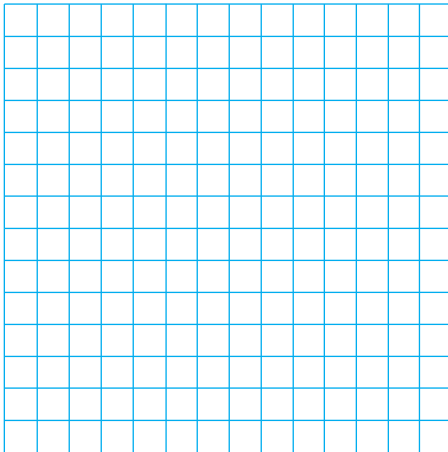
9. Dora says that of all the possible rectangles with the same area, the rectangle with the largest perimeter will have two side lengths that are 1 unit. Does her statement make sense? Explain.



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. **TR** How will you use what you know about area and perimeter to help you solve the problem?

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



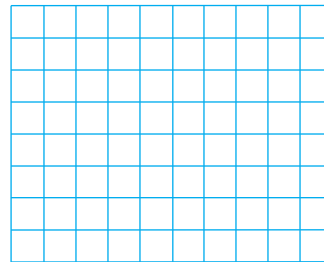
c. So, Roberto should arrange the tiles like Rectangle _____.

11. 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 _____

Find Unknown Measures

I Can find an unknown measure of a rectangle given its area or perimeter.

Florida's B.E.S.T.

- Geometric Reasoning 4.GR.2.1
- Mathematical Thinking & Reasoning MTR 2.1, MTR 3.1, MTR 4.1



UNLOCK the Problem Real World

Tanisha is painting a mural that is in the shape of a rectangle. The mural covers an area of 54 square feet. The base of the mural measures 9 feet. What is its height?

Use a formula for area.

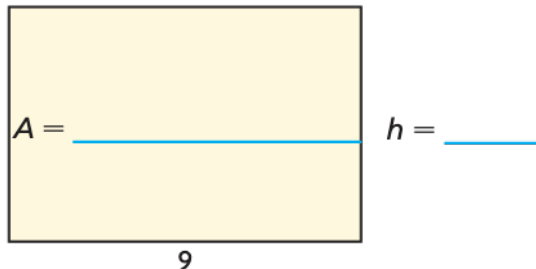
- What do you need to find?

- What information do you know?

Example 1 Find an unknown measure given the area.

MODEL

Think: Label the measures you know.
Use n for the unknown.



So, the height of the mural is _____ feet.

RECORD

Use the model to write an equation and solve.

_____ = _____ _____ Write the formula for area.

_____ = _____ _____ Use the model to write an equation.

54 = 9 × _____ What times 9 equals 54?

The value of n is _____.

Think: n is the height of the mural.

Math Talk

MTR 4.1 Engage in discussions on mathematical thinking.

How can you use division to find an unknown factor?

1. What if the mural were in the shape of a square with an area of 81 square feet? What would the height of the mural be? Explain.

2. Explain how you can find an unknown side length of any square, when given only the area of the square.

Example 2 Find an unknown measure given the perimeter.

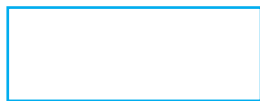
Gary is building an outdoor pen in the shape of a rectangle for his dog. He will use 24 meters of fencing. The pen will be 3 meters wide. How long will the pen be?



Use a formula for perimeter.

MODEL

Think: Label the measures you know. Use n for the unknown.



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

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

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

RECORD

Use the model to write an equation and solve.

$$P = (2 \times l) + (2 \times w)$$

$$\underline{\hspace{2cm}} = (\underline{\hspace{1cm}} \times \underline{\hspace{1cm}}) + (\underline{\hspace{1cm}} \times \underline{\hspace{1cm}})$$

$$\underline{\hspace{2cm}} = (\underline{\hspace{1cm}} \times \underline{\hspace{1cm}}) + \underline{\hspace{1cm}}$$

Think: $(2 \times n)$ is an unknown addend.

$$24 = \underline{\hspace{1cm}} + 6 \quad \text{Think: What is } 24 - 6?$$

The value of $(2 \times n)$ is 18.

To find the value of n , find the unknown factor.

$$2 \times \underline{\hspace{1cm}} = 18$$

The value of n is $\underline{\hspace{1cm}}$.

Think: n is the length of the pen.

So, the pen will be $\underline{\hspace{2cm}}$ long.

! Common Error
Check that you are using the correct formula. Are you given the area or the perimeter?

Try This! The perimeter of a square is 24 feet. Find the side length.

Draw a model.

Write an equation.

$$P = 4 \times s$$

Share and Show

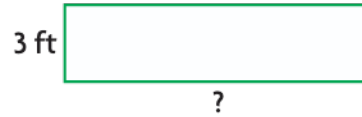


1. Find the unknown measure. The area of the rectangle is 36 square feet.

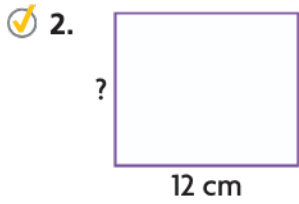
$$A = b \times h$$

$$\underline{\hspace{2cm}} = b \times \underline{\hspace{2cm}}$$

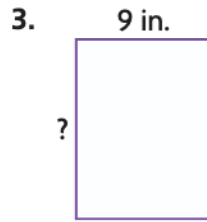
The base of the rectangle is _____.



Find the unknown measure of the rectangle.



Perimeter = 44 centimeters
width = _____



Area = 108 square inches
height = _____



Area = 90 square meters
base = _____



MTR 4.1 Engage in discussions on mathematical thinking.

Explain how using the area formula helps you find the base of a rectangle when you know its area and height.

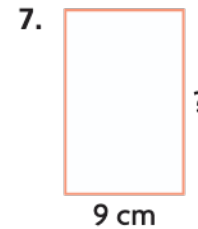
On Your Own



Perimeter = 34 yards
length = _____



Area = 96 square feet
base = _____



Area = 126 square centimeters
height = _____

8. A square has an area of 49 square inches. Explain how to find the perimeter of the square.

Problem Solving · Applications

9. **MTR** The area of a swimming pool is 120 square meters. The width of the pool is 8 meters. What is the length of the pool in centimeters?



10. An outdoor deck is 7 feet wide. The perimeter of the deck is 64 feet. What is the length of the deck? Use the numbers to write an equation and solve. A number may be used more than once.

7 9 5 14 25 50 64

$$P = (2 \times l) + (2 \times w)$$

$$\boxed{} = (2 \times l) + (2 \times \boxed{})$$

$$\boxed{} = 2 \times l + \boxed{}$$

$$\boxed{} = \boxed{} + 14$$

$$\text{Since } 2 \times l = 50, l = \boxed{}$$

So, the length of the deck is _____ feet.

Connect to Science

Mountain Lions

Mountain lions are also known as cougars, panthers, or pumas. Their range once was from coast to coast in North America and from Argentina to Alaska. Hunting and habitat destruction now restricts their range to mostly mountainous, unpopulated areas.

Mountain lions are solitary animals. A male's territory often overlaps two females' territories but never overlaps another male's. The average size of a male's territory is 108 square miles, but it may be smaller or larger depending on how plentiful food is.



11. A male mountain lion has a rectangular territory with an area of 96 square miles. If his territory is 8 miles wide, what is the length of his territory? _____



Name _____

Find the Area

I Can solve real-world problems involving the area of a rectangle.

Florida's B.E.S.T.

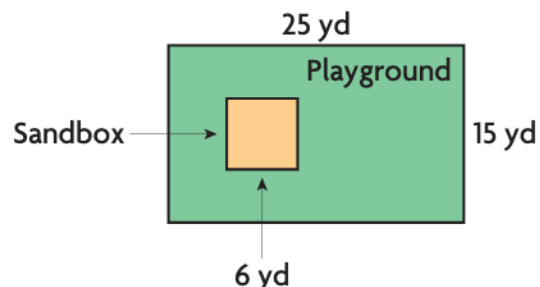
- Geometric Reasoning 4.GR.2.1
- Mathematical Thinking & Reasoning MTR 1.1, MTR 2.1, MTR 4.1



UNLOCK the Problem Real World

A landscaper is laying grass for a rectangular playground. The grass will cover the whole playground except for a square sandbox. The diagram shows the playground and sandbox. How many square yards of grass will the landscaper use?

Use the graphic organizer below to solve the problem.



Read the Problem

What do I need to find?

I need to find how many _____ the landscaper will use.

What information do I need to use?

The grass will cover the _____.

The grass will not cover the _____.

The length and width of the playground are _____ and _____.

The side length of the square sandbox is _____.

How will I use the information?

I can solve simpler problems.

Find the area of the _____.

Find the area of the _____.

Then _____ the area of the _____ from the area of the _____.

Solve the Problem

First, find the area of the playground.

$$\begin{aligned} A &= b \times h \\ &= \underline{\quad} \times \underline{\quad} \\ &= \underline{\quad} \text{ square yards} \end{aligned}$$

Next, find the area of the sandbox.

$$\begin{aligned} A &= s \times s \\ &= \underline{\quad} \times \underline{\quad} \\ &= \underline{\quad} \text{ square yards} \end{aligned}$$

Last, subtract the area of the sandbox from the area of the playground.

$$\begin{array}{r} 375 \\ - 36 \\ \hline \end{array} \text{ square yards}$$

So, the landscaper will use _____ of grass to cover the playground.

Math Talk

MTR 4.1 Engage in discussions on mathematical thinking.

How did the strategy help you solve the problem?

Share and Show



1. Lila is wallpapering one wall of her bedroom, as shown in the diagram. She will cover the whole wall except for the doorway. How many square feet of wall does Lila need to cover?

First, find the area of the wall.

$$A = b \times h$$

$$= \underline{\quad} \times \underline{\quad}$$

$$= \underline{\quad} \text{ square feet}$$

Next, find the area of the door.

$$A = b \times h$$

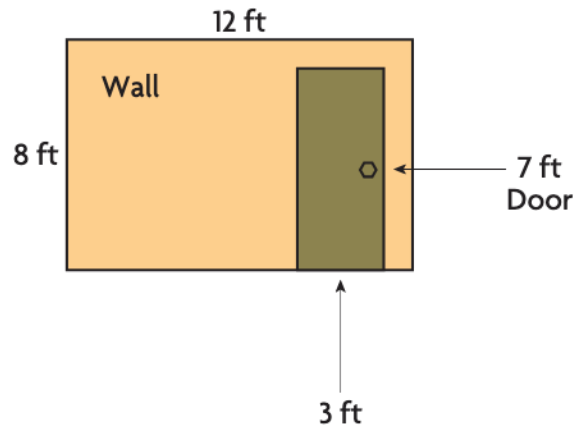
$$= \underline{\quad} \times \underline{\quad}$$

$$= \underline{\quad} \text{ square feet}$$

Last, subtract the area of the door from the area of the wall.

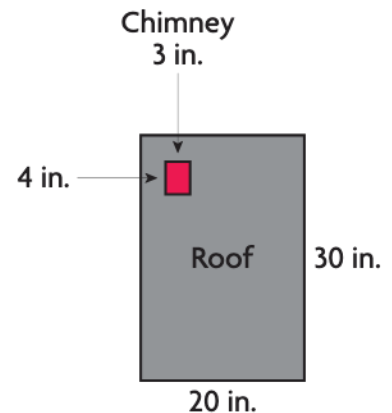
$$\underline{\quad} - \underline{\quad} = \underline{\quad} \text{ square feet}$$

So, Lila needs to cover _____ of wall.



2. What if there was a square window on the wall with a side length of 2 feet? How much wall would Lila need to cover then? Explain.

3. Ed is building a model of a house with a flat roof, as shown in the diagram. There is a chimney through the roof. Ed will cover the roof with square tiles. If the area of each tile is 1 square inch, how many tiles will he need? Explain.



On Your Own

4. **TR** Lia has a dog and a cat. Together, the pets weigh 28 pounds. The dog weighs 3 times as much as the cat. How much does each pet weigh?

5. Mr. Foster is covering two rectangular pictures with glass. One is 6 inches by 4 inches and the other one is 5 inches by 5 inches. Does he need the same number of square inches of glass for each picture? Explain.

6. Claire says the area of a square with a side length of 100 centimeters is greater than the area of a square with a side length of 1 meter. Is she correct? Explain.

7. A rectangular floor is 12 feet long and 11 feet wide. Janine places a rug that is 9 feet long and 7 feet wide and covers part of the floor in the room. Select the word(s) to complete the sentence.

To find the number of square feet of the floor that is NOT covered by the rug,

add

area of the rug

from

subtract

the

length of the rug

by

the area of the floor.

multiply

area of the floor

to



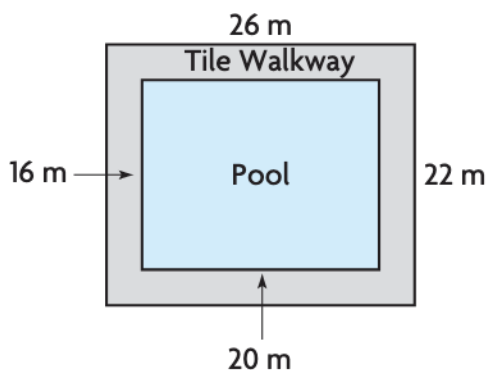
Show the Math

Demonstrate Your Thinking

Name _____

Chapter Review

- For problems 1a–1e, select Yes or No to indicate if a rectangle with the given dimensions would have a perimeter of 50 inches.
 - length: 25 inches width: 2 inches Yes No
 - length: 20 inches width: 5 inches Yes No
 - length: 17 inches width: 8 inches Yes No
 - length: 15 inches width: 5 inches Yes No
 - length: 15 inches width: 10 inches Yes No
- The swimming club's indoor pool is in a rectangular building. Marco is laying tile around the rectangular pool.



Part A

What is the area of the pool and the area of the pool and the walkway? Show your work.

Part B

How many square meters of tile will Marco need for the walkway? Explain how you found your answer.

3. Match the dimensions of the rectangles in the top row with the correct area or perimeter in the bottom row.

length: 5 cm width: 9 cm	length: 6 cm width: 6 cm	length: 6 cm width: 5 cm	length: 9 cm width: 6 cm
•	•	•	•
•	•	•	•
area = 36 sq cm	perimeter = 22 cm	perimeter = 30 cm	area = 45 sq cm

4. Kyleigh put a large rectangular sticker on her notebook. The height of the sticker measures 18 centimeters. The base is half as long as the height. What area of the notebook does the sticker cover?

_____ square centimeters

5. A rectangular flower garden in Samantha's backyard has 100 feet around its edge. The width of the garden is 20 feet. What is the length of the garden? Use the numbers to write an equation and solve. A number may be used more than once.

10 20 50 30 40 60 100

$$P = (2 \times \ell) + (2 \times w)$$

$$\boxed{} = (2 \times \ell) + (2 \times \boxed{})$$

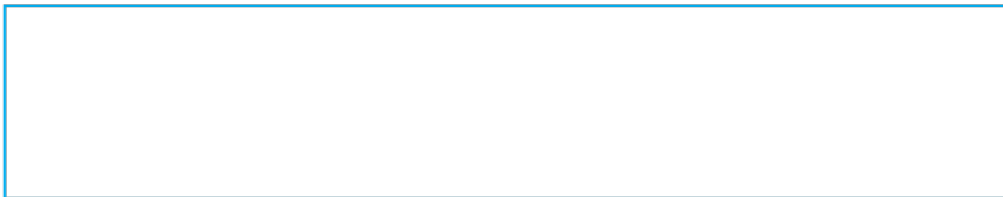
$$\boxed{} = (2 \times \ell) + \boxed{}$$

$$\boxed{} = \boxed{} + 40$$

$$\text{Since } 2 \times \ell = 60, \ell = \boxed{}$$

So, the length of the garden is $\boxed{}$ feet.

6. Mateo drew a rectangle and a square, each with a perimeter of 20 inches. Draw the rectangle and square Mateo could have drawn, and compare the areas. Which has the greater area?



Name _____

7. Ami and Bert are drawing plans for rectangular vegetable gardens. In Ami's plan, the garden is 13 feet by 10 feet. In Bert's plan, the garden is 12 feet by 12 feet. For problems 7a–7d, select True or False for each statement.

7a. The area of Ami's garden is 130 square feet. True False

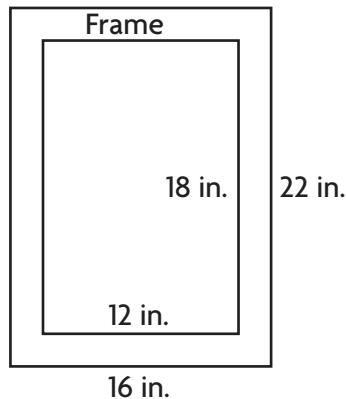
7b. The area of Bert's garden is 48 square feet. True False

7c. Ami's garden has a greater area than Bert's garden. True False

7d. The area of Bert's garden is 14 square feet greater than Ami's. True False

8. A farmer planted corn in a square field. One side of the field measures 32 yards. What is the area of the cornfield? Show your work.

9. Harvey bought a frame in which he put his family's picture.



What is the area of the frame not covered by the picture?

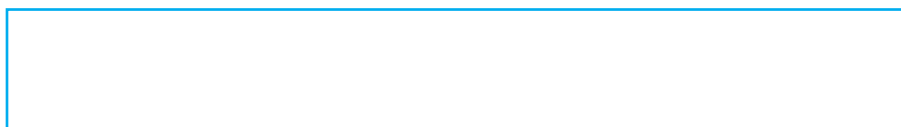
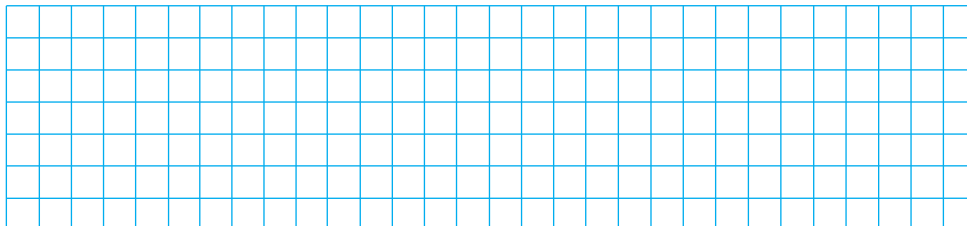
_____ square inches

10. Kelly has 236 feet of fence to use to enclose a rectangular space for her dog. She wants the width to be 23 feet. Draw a rectangle that could be the space for Kelly's dog. Label the length and the width.

11. Anthony wants to make two different rectangular flower beds, each with an area of 24 square feet. He will build a wooden frame around each flower bed. The flower beds will have side lengths that are whole numbers.

Part A

Each unit square on the grid below is 1 square foot. Draw two possible flower beds. Label each with a letter.



Part B

Which of the flower beds will take more wood to frame? Explain how you know.

12. Chad's bedroom floor is 12 feet long and 10 feet wide. He has an area rug on his floor that is 7 feet long and 5 feet wide. Which statements tell how to find the amount of the floor that is not covered by the rug? Mark all that apply.
- A Add 12×10 and 7×5 .
 - B Subtract 35 from 12×10 .
 - C Subtract 10×5 from 12×7 .
 - D Add $12 + 10 + 7 + 5$.
 - E Subtract 7×5 from 12×10 .
 - F Subtract 12×10 from 7×5 .

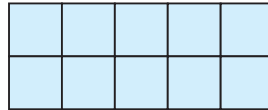
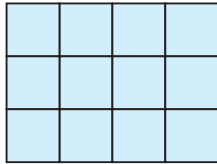
Name _____

13. A row of plaques covers 120 square feet of space along a wall. If the plaques are 3 feet tall, what length of the wall do they cover?

_____ feet

14. Tomas drew two rectangles on grid paper.

Circle the words that make the sentence true.



B

Rectangle *A* has an area that is

less than
the same as
greater than

the area of Rectangle *B* and a perimeter that is

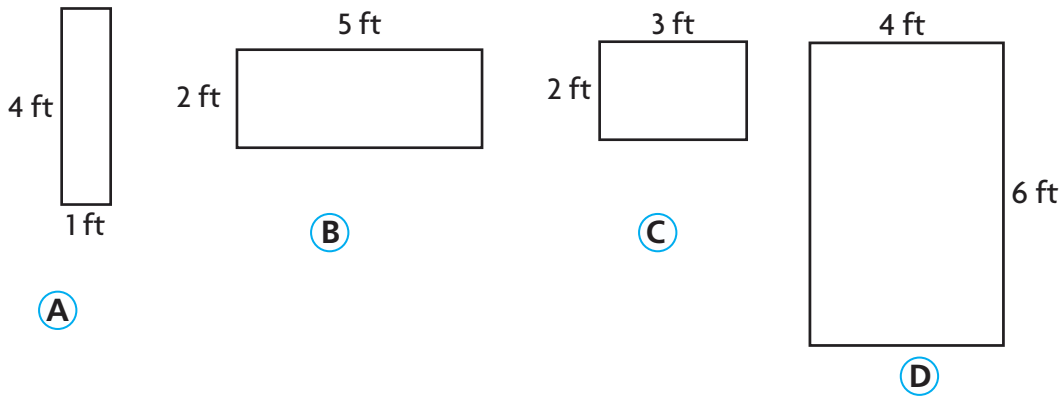
less than
the same as
greater than

the perimeter of Rectangle *B*.

15. Lorenzo built a rectangular brick patio. He is putting a stone border around the edge of the patio. The width of the patio is 12 feet. The length of the patio is 2 feet longer than the width.

How many feet of stone will Lorenzo need? Explain how you found your answer.

16. Which rectangles have a perimeter of 10 feet? Mark all that apply.

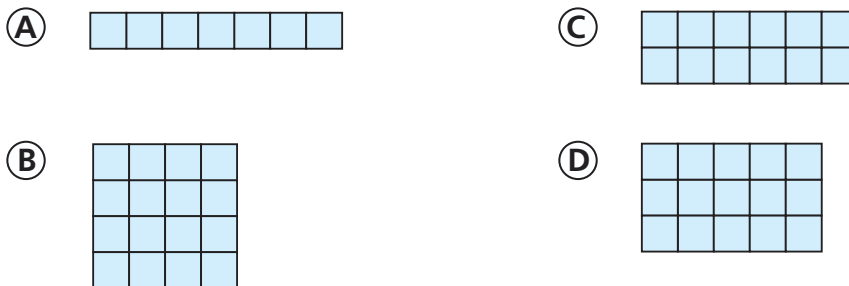


17. A folder is 11 inches long and 8 inches wide. Alyssa places a sticker that is 2 inches long and 1 inch wide on the folder. Choose the words that correctly complete the sentence.

To find the number of square inches of the folder that is NOT covered by the sticker,

add	the	width of the sticker	from	the	width of the sticker	
subtract		area of the sticker			by	area of the sticker
multiply		area of the folder			to	area of the folder

18. Which rectangle has a number of square units for its area equal to the number of units of its perimeter?



19. Mr. Butler posts his students' artwork on a bulletin board.

The width and length of the bulletin board are whole numbers. What could be the dimensions of the bulletin board Mr. Butler uses?



Area = 15 square feet