

MY Homework

Lesson 1

Hands On: Find Perimeter

Homework Helper



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Use a centimeter ruler to measure the perimeter of the figure at the right to the nearest centimeter.

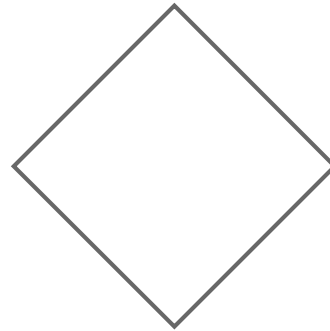
Measure the length of each side.

To the nearest centimeter, the length of each side is 3 centimeters.

Add the side lengths.

$$3 + 3 + 3 + 3 = 12$$

So, the perimeter of the figure is 12 centimeters.



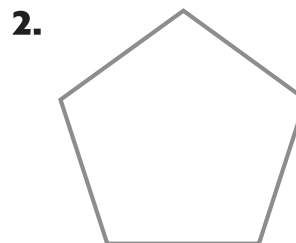
Practice Sample estimates: 1, 2

Estimate the perimeter of each figure in centimeters. Then measure the perimeter to the nearest centimeter.



Estimate: 10 centimeters

Actual: 8 centimeters



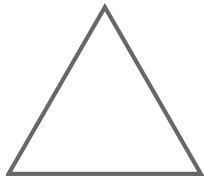
Estimate: 10 centimeters

Actual: 10 centimeters

Estimate the perimeter of each figure in inches. Then use an inch ruler to measure the perimeter to the nearest inch.

Sample estimates: 3, 4

3.



Estimate: 3 inches

Actual: 3 inches

4.



Estimate: 4 inches

Actual: 4 inches



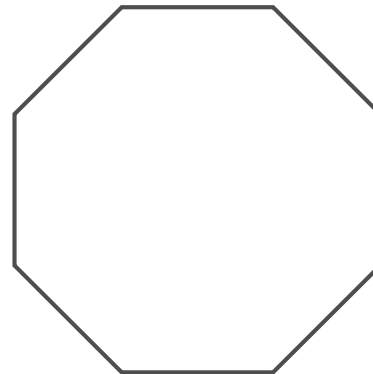
Problem Solving

Mathematical

5. PRACTICE Make Sense of Problems

Gina used a centimeter ruler to measure the perimeter of the figure at the right. Which estimate is closest to the actual perimeter, 8 centimeters or 16 centimeters?

16 cm



Mathematical

6. PRACTICE Be Precise Allison used an inch ruler to measure the perimeter of the figure above. Circle the measure that represents the best estimate of the perimeter to the nearest inch.

2 inches

8 inches

12 inches

16 inches

Vocabulary Check



7. Complete the sentence below with the correct vocabulary word.

perimeter

array

Perimeter is the distance around a figure, or shape.

MY Homework

Lesson 2

Perimeter

Homework Helper



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The perimeter of the figure is 88 centimeters.
Find the unknown side length.

Write an equation.

unknown

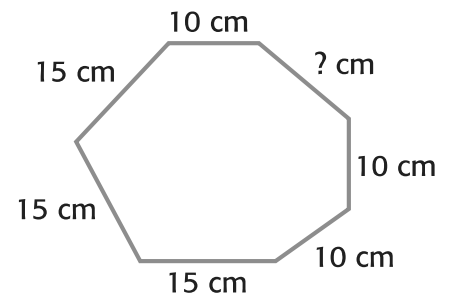
$$10 + 15 + 15 + 15 + 10 + 10 + ? = 88$$

$$75 + ? = 88$$

Add.

$$75 + 13 = 88$$

Think: 75 plus what number is 88?



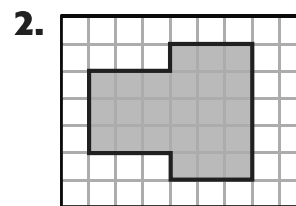
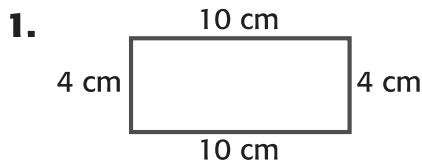
The unknown side length is 13 centimeters,
since $75 + 13 = 88$.

Check Add the lengths of all the sides.

$$10 + 13 + 10 + 10 + 15 + 15 + 15 = 88$$

Practice

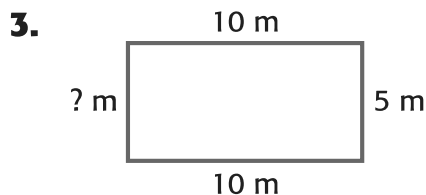
Find the perimeter of each figure.



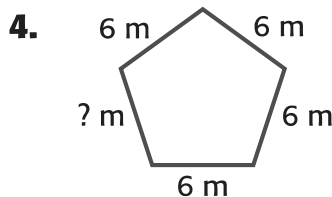
The perimeter is 28 centimeters.

The perimeter is 22 units.

Algebra Find the unknown side length for each figure. The perimeter of each figure is 30 meters.



The unknown is 5 meters.




The unknown is 6 meters.



Problem Solving

Mathematical

5. **PRACTICE**  **Use Algebra** A garden has eight equal sides and has a perimeter of 56 meters. Circle the equation that gives the length, in meters, of each side.

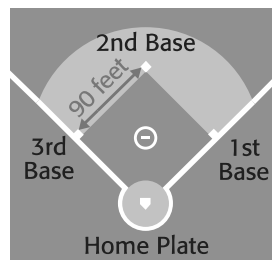
$56 + 8 = 65$

$56 - 8 = 48$

$56 \div 8 = 7$

6. All professional baseball teams' playing fields are the same size. The three bases and home plate make a diamond that is 90 feet on each side. What is the perimeter of the diamond?

360 feet



Vocabulary Check



7. Describe perimeter in your own words.

Sample answer: Perimeter is the distance around a figure, or the sum of the side lengths.

Test Practice

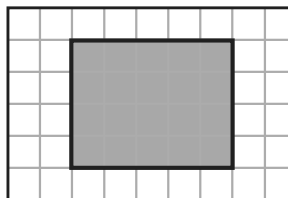
8. What is the perimeter of the shaded figure?

(A) 18 units

(C) 10 units

(B) 20 units

(D) 9 units



Name

MY Homework

Lesson 3

Hands On: Understand Area

Homework Helper



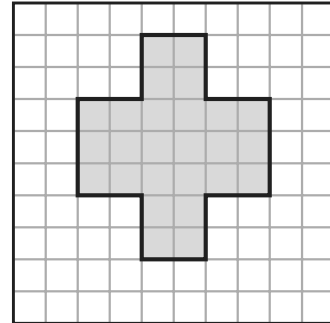
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What is the area of the figure at the right?

The figure has no gaps or overlaps. So, count the shaded unit squares.

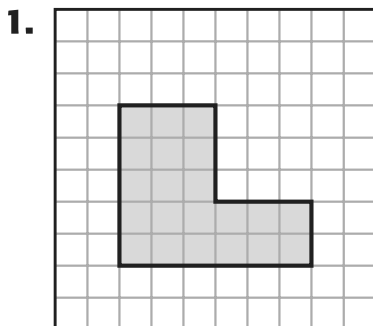
There are 26 unit squares covering, or enclosing, the figure.

So, the area is 26 square units.

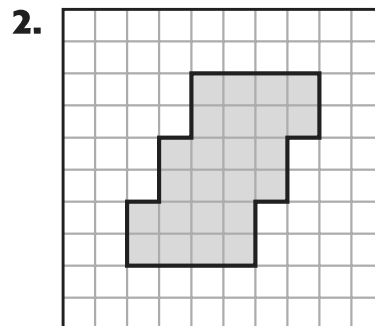


Practice

Count unit squares to find the area of each figure.



Area: 21 square units

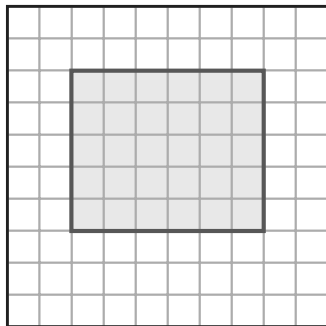


Area: 24 square units

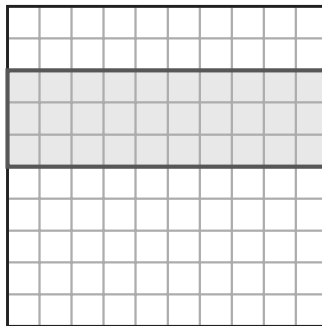
3. A shape is covered by 40 unit squares. What is the area of the shape?

40 square units

4. Draw and shade a rectangle with an area of 30 square units.



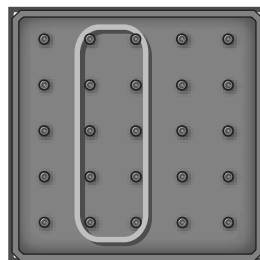
5. Draw and shade a different rectangle with an area of 30 square units.




Problem Solving

6. Caitlyn used a rubber band and geoboard to make the rectangle shown. What is the area of the rectangle?

4 square units



7. **PRACTICE**  **Plan Your Solution** A figure can be covered by 28 unit squares, without any gaps or overlaps. What is the area of the figure?

28 square units

Vocabulary Check



Choose the correct word(s) to complete each sentence.

area square units unit square

8. Area is measured in square units and represents the number of those needed to cover a figure without overlapping.

9. A square with a side length of one unit is called a unit square.

MY Homework

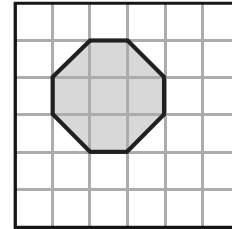
Lesson 4

Measure Area

Homework Helper

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Find the area of the figure at the right if each square unit represents one square centimeter.



- 1** Count the number of whole squares.
There are 5 whole squares.

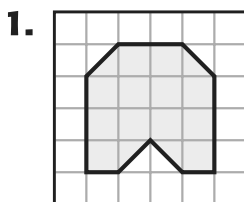
- 2** Count the number of half-squares.
There are 4 half-squares. Four halves equal two wholes.

- 3** Add.
5 whole squares + 4 half-squares
5 whole squares + 2 whole squares
7 whole squares

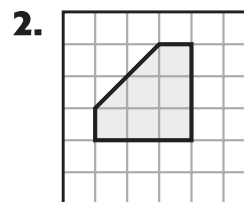
So, the area is 7 square units. If each square unit represents one square centimeter, then the area is 7 square centimeters.

Practice

Find the area of each figure.

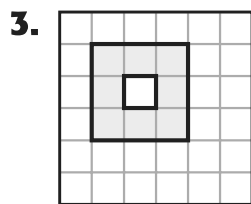


The area is 14 square units.

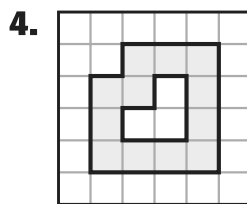


The area is 7 square units.

Find the area of each shaded region if one square unit represents one square meter.



The area is 8 square meters.

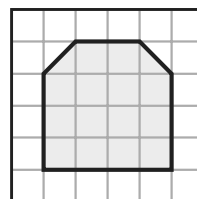


The area is 12 square meters.




Problem Solving

For Exercises 5 and 6, refer to the drawing at the right which represents the area of Elaine's bedroom.



5. What is the area of Elaine's bedroom in square units?

15 square units

6. **PRACTICE**  **Look for a Pattern** If each square unit represents 5 square feet, what is the area of Elaine's bedroom in square feet? Use repeated addition.

$15 + 15 + 15 + 15 + 15 = 75$ square feet

Vocabulary Check



7. Describe area in your own words.

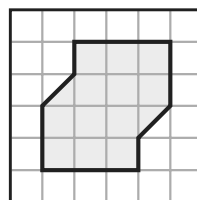
Sample answer: Area is the number of square units

needed to cover a figure without overlapping.

Test Practice

8. What is the area of the figure at the right?

- (A) 12 square units (C) 14 square units
(B) 13 square units (D) 16 square units



MY Homework

Lesson 5

Hands On: Tile Rectangles to Find Area

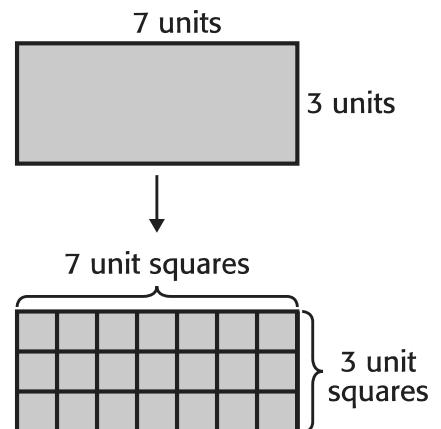
Homework Helper

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Find the area of the rectangle at the right by tiling it.

- 1** Tile the rectangle by separating the rectangle into unit squares. Draw unit squares so the length of the rectangle is 7 unit squares and the width is 3 unit squares.

- 2** Count the total number of unit squares.
There are 21 unit squares.



So, the area of the rectangle is 21 square units.

Tiling the rectangle results in an array.

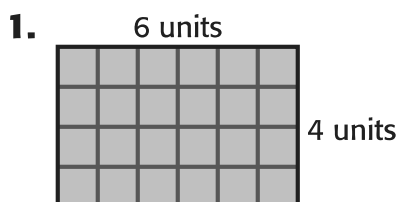
The array has 3 rows and 7 columns.

Find 3×7 . $3 \times 7 = 21$

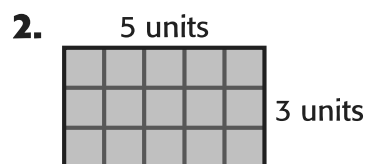
The product of 3×7 and the total number of unit squares tiled in the rectangle are the same.

Practice

Tile each rectangle to find its area. Draw unit squares on each rectangle.

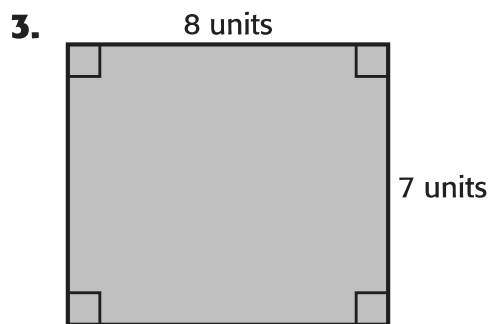


The area is 24 square units.

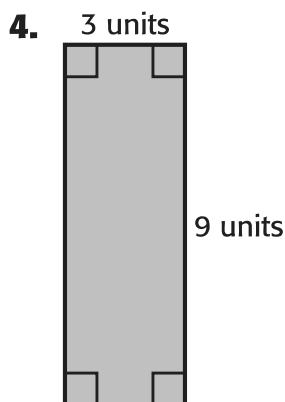


The area is 15 square units.

Algebra Find the area of each rectangle without tiling it.
Write a multiplication equation. Sample equations shown.



56 square units; $8 \times 7 = 56$



27 square units; $3 \times 9 = 27$




Problem Solving

Algebra Write a multiplication equation to solve Exercises 5 and 6.

5. A piece of poster board is in the shape of a rectangle. The length of the poster board is 2 feet and the width is one foot. What is the area of the piece of poster board?

2 square feet; $2 \times 1 = 2$

6. **Mathematical PRACTICE**  **Model Math** A rectangular garden has a length of 8 meters and a width of 5 meters. What is the area of the garden?

40 square meters; $8 \times 5 = 40$

7. Circle the number sentence that correctly represents the area of a rectangle, in square inches, with a length of 4 inches and a width of 10 inches.

$4 + 10 = 14$

$4 \times 10 = 40$

$4 + 10 + 4 + 10 = 28$

My Work!

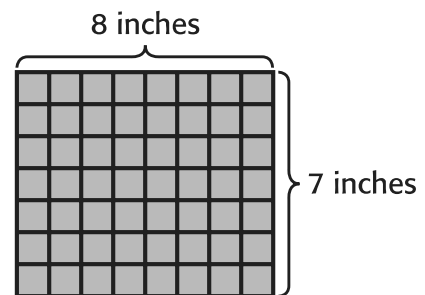
MY Homework**Lesson 6****Area of Rectangles****Homework Helper**Need help? connectED.mcgraw-hill.com

Find the area of a rectangle with a length of 8 inches and a width of 7 inches.

One Way Tile a rectangle.

- 1** Tile a rectangle with unit squares. It is 8 unit squares long and 7 unit squares wide.

Each unit square represents one square inch.



- 2** Count the unit squares.
There are 56 unit squares.

Another Way Use $A = \ell \times w$.

$$A = \ell \times w \quad \text{Area formula}$$

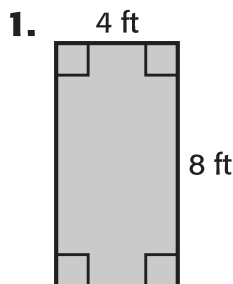
$$A = 8 \times 7 \quad \text{The length is 8 inches and the width is 7 inches.}$$

$$56 = 8 \times 7 \quad \text{Multiply.}$$

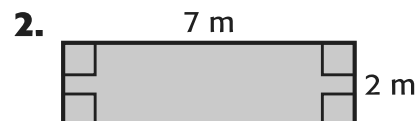
Area is measured in square units. In this case, it is measured in square inches. So, the area is 56 square inches.

Practice

Find the area of each rectangle.

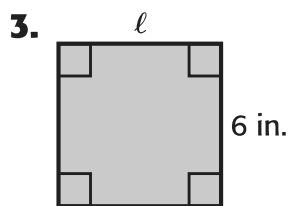


32 square feet



14 square meters

Algebra Find the unknown side. Use the area formula.



$$36 = \ell \times w$$

$$36 = \underline{6} \times 6$$

The unknown is 6 inches.



$$24 = \ell \times w$$

$$24 = 8 \times \underline{3}$$

The unknown is 3 meters.

Vocabulary Check



5. Explain how the equation $A = \ell \times w$ is a formula.

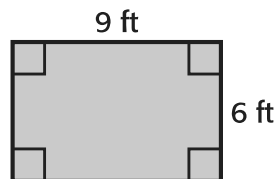
Sample answer: The equation $A = \ell \times w$ uses letters to represent area, length, and width. The equation shows their relationship.



Problem Solving

For Exercises 6 and 7, use the information below and the rectangle at the right.


Mrs. Morris plans to tile her front hallway shown at the right.



6. If each tile is 1 foot long and 1 foot wide, how many tiles will she need?

54 tiles

Mathematical

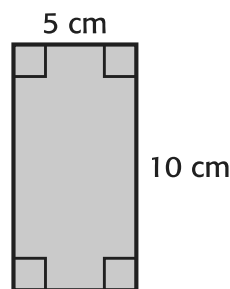
7. **PRACTICE**  **Keep Trying** Squares of tile come in packages of 6 tiles. How many packages will Mrs. Morris need?

9 packages

Test Practice

8. Which equation can be used to find the area of the rectangle?

- (A) $5 + 10 = 15$ (B) $5 \times 10 = 50$
(C) $10 - 5 = 5$ (D) $10 \div 5 = 2$



MY Homework

Lesson 7

Hands On: Area and the Distributive Property

Homework Helper



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Use the Distributive Property to find the area of the rectangle.

1

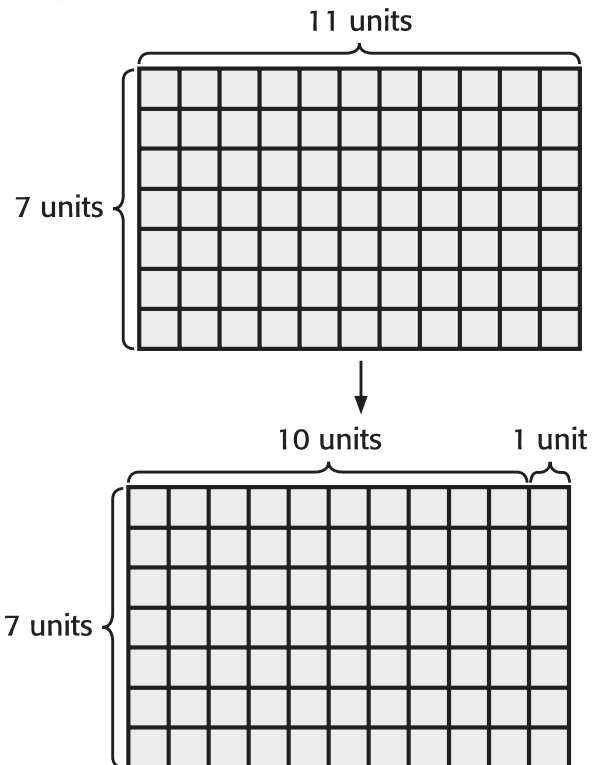
Decompose one factor.

$$11 = 10 + 1$$

2

Find the area of each smaller rectangle. Then add.

$$\begin{aligned} 7 \times 11 &= (7 \times 10) + (7 \times 1) \\ &= 70 + 7 \\ &= 77 \end{aligned}$$

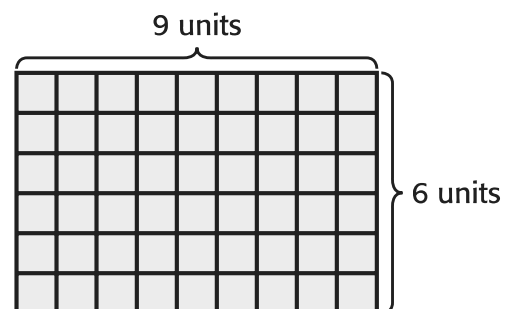


So, the area of the rectangle is 77 square units.

Practice

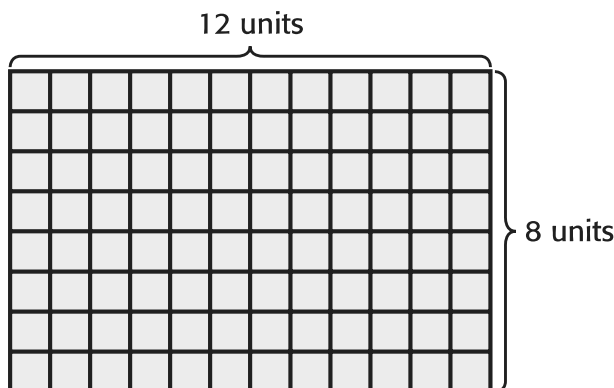
1. Use the Distributive Property to find the area of the rectangle.

$$\begin{aligned} 6 \times 9 &= (6 \times 5) + (6 \times 4) \\ &= 30 + 24 \\ &= 54 \end{aligned}$$

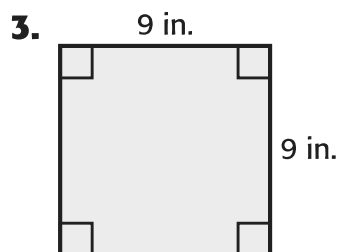


2. Use the Distributive Property to find the area of the rectangle.

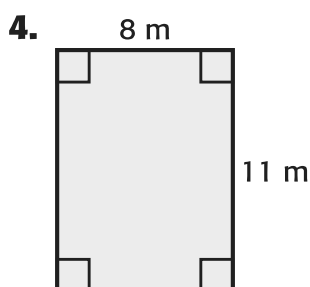
$$\begin{aligned}
 8 \times 12 &= (8 \times 10) + (8 \times 2) \\
 &= \underline{80} + \underline{16} \\
 &= \underline{96}
 \end{aligned}$$



Find the area of each rectangle. Use the Distributive Property to decompose the longer side. Show your steps.



The area is 81 square inches.



The area is 88 square meters.



Problem Solving

- 5. PRACTICE** **Identify Structure** Erika is painting a rectangular painting. The painting has a length of 12 inches and a width of 10 inches. Use the Distributive Property to decompose the factor 12. Then find the area of the painting.

120 square inches

- 6.** Hector will build a deck in his backyard. The deck has a length of 9 meters and a width of 8 meters. Use the Distributive Property to decompose the factor 9. Then find the area of the deck.

72 square meters

My Work!

MY Homework

Lesson 8

Area of Composite Figures

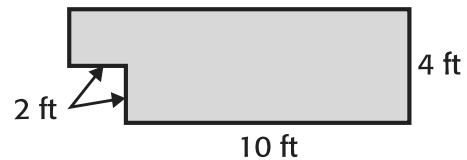
Homework Helper



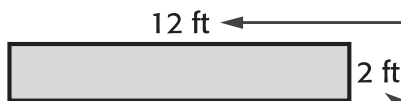
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Find the area of the composite figure.

- 1** Break the composite figure into smaller parts. Look for rectangles.



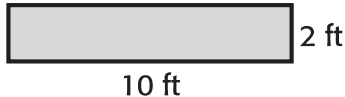
Rectangle 1



$10 + 2 = 12$
So, this length is 12 feet.

$4 - 2 = 2$
So, this length is 2 feet.

Rectangle 2



- 2** Find the area of each part.

Rectangle 1

$$\begin{aligned} A &= \ell \times w \\ &= 12 \times 2 \\ &= (10 \times 2) + (2 \times 2) \quad \text{Decompose 12 as } 10 + 2. \\ &= 20 + 4 \\ &= 24 \end{aligned}$$

Rectangle 2

$$\begin{aligned} A &= \ell \times w \\ &= 10 \times 2 \\ &= 20 \end{aligned}$$

The area of Rectangle 1 is 24 square feet.

The area of Rectangle 2 is 20 square feet.

- 3** Add the areas.

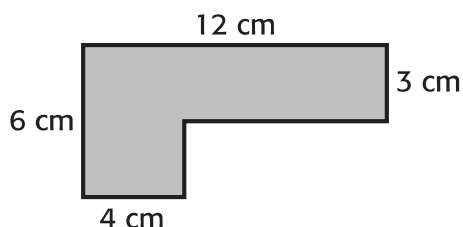
$$24 + 20 = 44$$

The area of the composite figure is 44 square feet.

Practice

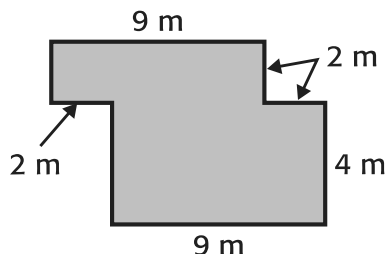
Find the area of each composite figure. Show your work.

1.



The area is 48 square centimeters.

2.



The area is 54 square meters.

Vocabulary Check



3. Draw an example of a composite figure. **See students' work.**



Problem Solving

The composite figure shows the floor plan of a bathroom.

4. What is the area of the bathroom floor?

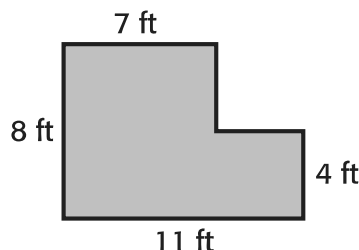
72 square feet

Mathematical



5. **PRACTICE** **Plan Your Solution** The floor will be covered in square tiles. If one square tile covers one square foot, how many tiles are needed?

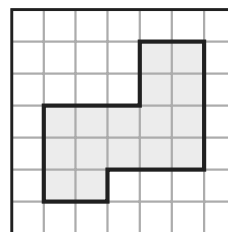
72 tiles



Test Practice

6. What is the area of the composite figure shown?

- (A) 8 square units
- (B) 12 square units
- (C) 16 square units
- (D) 20 square units



MY Homework

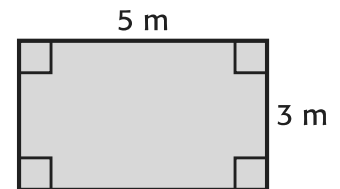
Lesson 9

Area and Perimeter

Homework Helper

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Draw and label a rectangle that has the same perimeter as the rectangle shown, but a different area.



Find the perimeter and area of the rectangle shown.

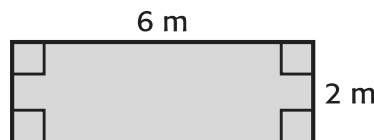
The perimeter is $5 + 3 + 5 + 3$, or 16 meters.

The area is 5×3 , or 15 square meters.

Multiply the length by the width.



Draw and label a rectangle that has a perimeter of 16 meters, but a different area.



The length of the rectangle is 6 meters. The width is 2 meters.

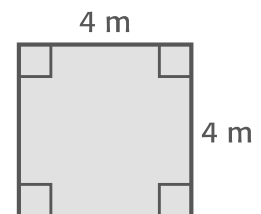
The perimeter is $6 + 2 + 6 + 2$, or 16 meters.

The area is 6×2 , or 12 square meters.

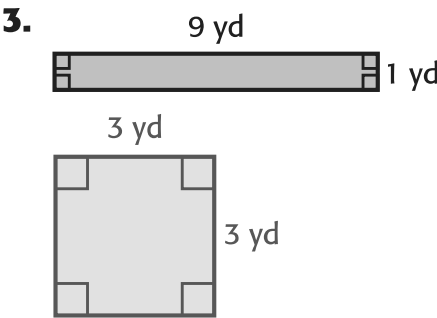
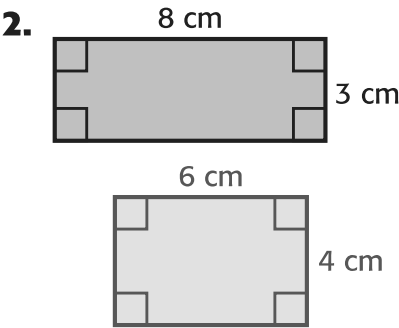
Practice

1. In the space at the right, draw and label a different rectangle that also has a perimeter of 16 meters, but a different area than shown above.

Sample answer:



Draw and label a rectangle that has the same area, but a different perimeter, than each rectangle shown.



Problem Solving

David’s Dog Pens makes the rectangular dog pens shown in the table. Use this information to solve Exercises 4 and 5.


Dog Pens	Length (feet)	Width (feet)
1	8	6
2	10	4
3	8	5

4. Which dog pens will take up the same area?

Dog Pens 2 and 3

5. Which dog pens have the same perimeter?

Dog Pens 1 and 2

6. **Mathematical PRACTICE**  **Keep Trying** Alexa drew a rectangle with an area of 36 square centimeters. The rectangle she drew has the smallest perimeter possible for this area. What is the length and width of the rectangle she drew?

6 cm and 6 cm

Test Practice

7. Which rectangle has the same area as Rectangle E, but a different perimeter?

- Ⓐ Rectangle A
 Ⓒ Rectangle C
- Ⓑ Rectangle B
 Ⓓ Rectangle D

Rectangle	Length (units)	Width (units)
A	6	6
B	7	6
C	10	3
D	8	5
E	9	4

MY Homework

Lesson 10

Problem Solving: Draw a Diagram

Homework Helper



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Gina's family built a deck in the shape of a hexagon. They placed posts on each outside corner. For a party, they will hang strings of decorative lights from each post to every other post. How many strings of lights are needed?

1 Understand

What facts do you know?

- The deck has six corners.
- One string of lights will be hung from each corner to every other corner.

What do you need to find?

- how many strings of lights are needed

2 Plan

Draw a diagram to solve the problem.

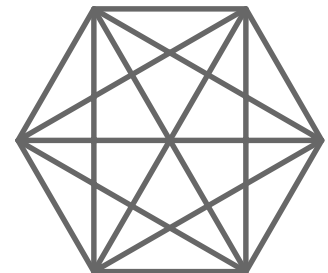
3 Solve

Draw a hexagon.

Draw lines from each corner to every other corner. Each line represents a string of decorative lights.

Count the lines. There are 15 lines drawn.

So, Gina's family needs 15 strings of lights.



4 Check

Is my answer reasonable?

The diagram shows 9 lines inside the hexagon plus 6 lines connecting each side of the hexagon. Since $9 + 6 = 15$, the answer is reasonable.



Problem Solving

Solve each problem by drawing a diagram. 1–5. See students' diagrams.

Mathematical



- 1. PRACTICE** **Model Math** Martina and Charlotte are sharing a pizza. The pizza is cut into eight pieces. Martina ate a quarter of the pizza. Charlotte ate 3 pieces. How many pieces are left?

3 pieces

- 2.** Five friends are having a tennis tournament. Each friend will play the other four friends once. How many matches will be played?

10 matches

- 3.** A rectangular bedroom floor has an area of 100 square feet and a length of 10 feet. What is the perimeter of the floor?

40 feet

- 4.** Alexander is riding his bicycle to school. After one mile, he is a third of the way there. How much farther does he have to ride?

2 miles

- 5.** Marjorie has 28 feet of trim to use as edging on a rectangular blanket she wants to make. What is the length and width of two blanket sizes she could make.

Sample answer: 8 ft and 6 ft; 5 ft and 9 ft

My Work!