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1-9 Lesson Reading Guide

Algebra: Area Formulas

Get Ready for the Lesson

Complete the activity at the top of page 63 in your textbook. Write your answers below.

1. Draw as many rectangles as you can on grid paper so that each one has an area of 20 square units. Find the distance around each one.

2. Which rectangle from Question 1 has the greatest distance around it? the least?

Read the Lesson

3. Look up the word *area* in a dictionary. Write the meaning of the word as used in this lesson.

4. In order to find the area of a surface, what two measurements do you need to know?

5. On page 63, the textbook says that the area of a figure is the number of square units needed to cover a surface. If the length and width are measured in inches, in what units will the area be expressed?

6. What unit of measure is indicated by m^2? How large is one unit?

Remember What You Learned

7. With a partner, measure a surface in your classroom. Explain how to find its area. Then find the area in the appropriate square units.

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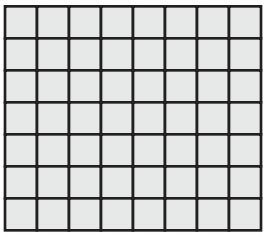
1-9 Study Guide and Intervention

Algebra: Area Formulas

The **area** of a figure is the number of square units needed to cover a surface. You can use a formula to find the area of a rectangle. The formula for finding the area of a rectangle is $A = \ell \times w$. In this formula, A represents area, ℓ represents the length of the rectangle, and w represents the width of the rectangle.

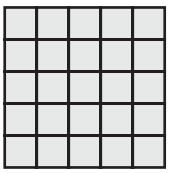
Example 1 **Find the area of a rectangle with length 8 feet and width 7 feet.**

$A = \ell \times w$ Area of a rectangle
$A = 8 \times 7$ Replace ℓ with 8 and w with 7.
$A = 56$
The area is 56 square feet.



Example 2 **Find the area of a square with side length 5 inches.**

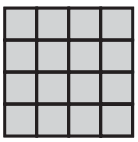
$A = s^2$ Area of a square
$A = 5^2$ Replace s with 5.
$A = 25$
The area is 25 square inches.



Exercises

Find the area of each figure.

1.



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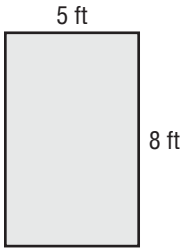

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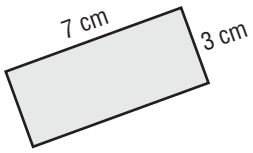

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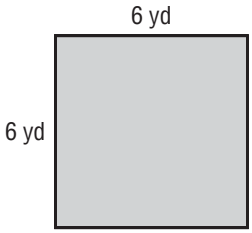

5. What is the area of a rectangle with a length of 10 meters and a width of 7 meters?

6. What is the area of a square with a side length of 15 inches?

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1-9 Skills Practice

Algebra: Area Formulas

Complete each problem.

1. Give the formula for finding the area of a rectangle.

2. Draw and label a rectangle that has an area of 18 square units.

3. Give the formula for finding the area of a square.

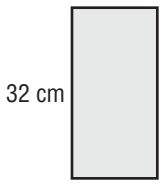
4. Draw and label a rectangle that has an area of 25 square units.

Find the area of each rectangle.

5.

6.

7.



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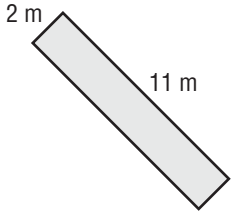

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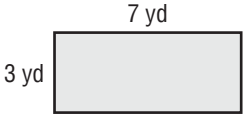

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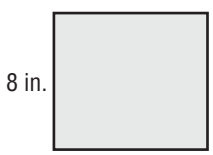
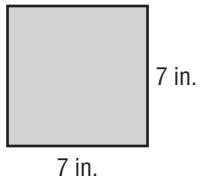


Find the area of each square.

11.



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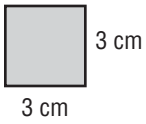

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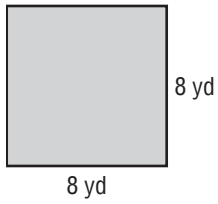


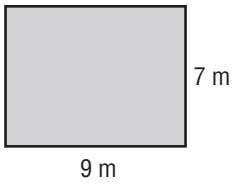
NAME _____ DATE _____ PERIOD _____

1-9 Practice

Algebra: Area Formulas

Find the area of each rectangle.

1.



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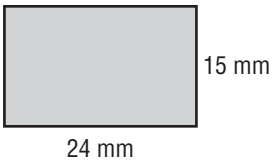

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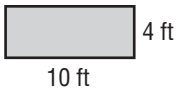
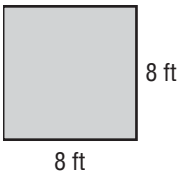


4. Find the area of a rectangle with a length of 35 inches and a width of 21 inches.

Find the area of each square.

5.



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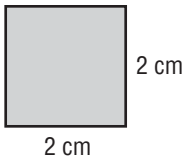

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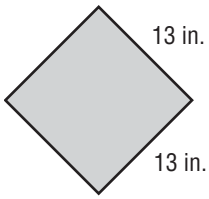
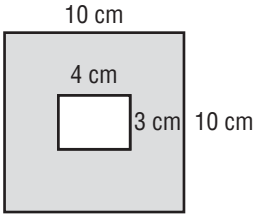


8. What is the area of a square with a side length of 21 yards?

Find the area of each shaded region.

10.



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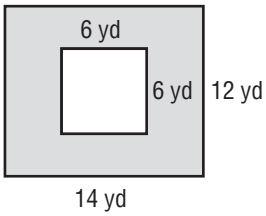

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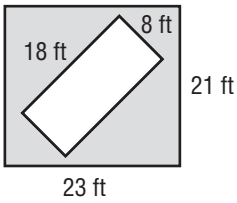
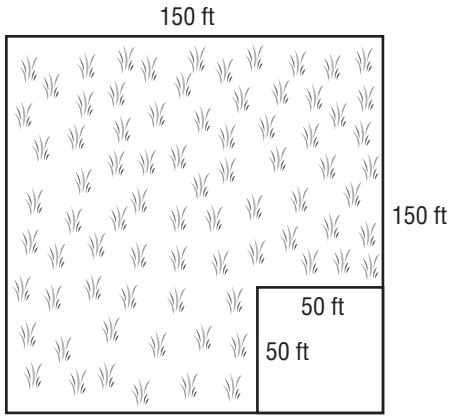


13. REMODELING The Crofts are covering the floor in their living room and in their bedroom with carpeting. The living room is 16 feet long and 12 feet wide. The bedroom is a square with 10 feet on each side. How many square feet of carpeting should the Crofts buy?

14. GARDENING The diagram shows a park's lawn with a sandy playground in the corner. If a bag of fertilizer feeds 5,000 square feet of lawn, how many bags of fertilizer are needed to feed the lawn area of the park?



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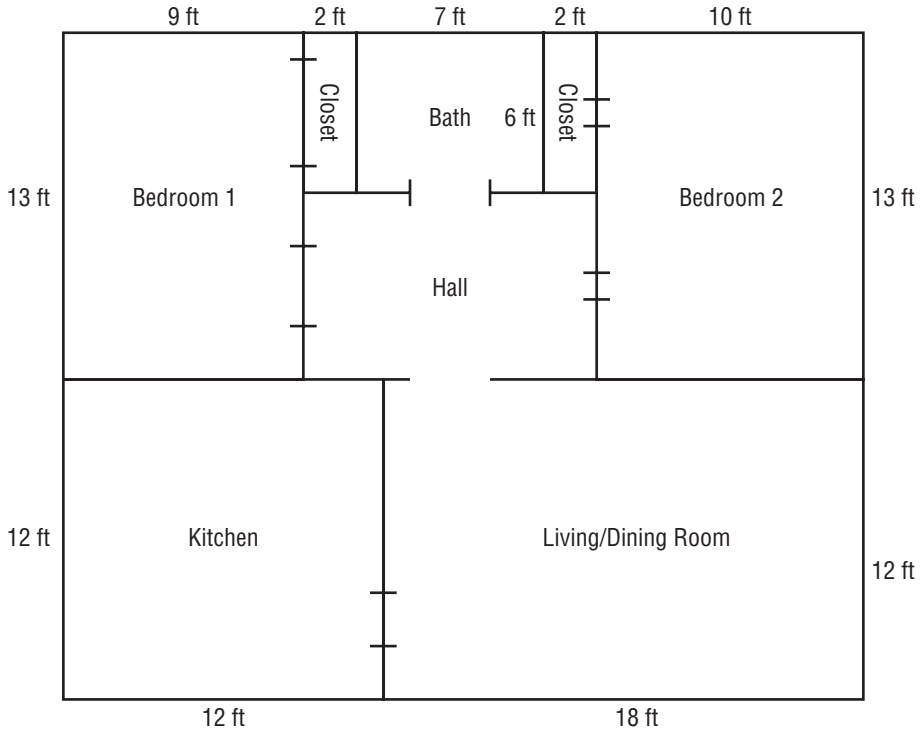
1-9 Word Problem Practice

Algebra: Area Formulas

FLOOR PLANS **For Exercises 1–6, use the diagram that shows the floor plan for a house.**



1. What is the area of the floor in the kitchen?	**2.** Find the area of the living/dining room.
3. What is the area of the bathroom?	**4.** Find the area of Bedroom 1.
5. Which two parts of the house have the same area?	**6.** How much larger is Bedroom 2 than Bedroom 1?

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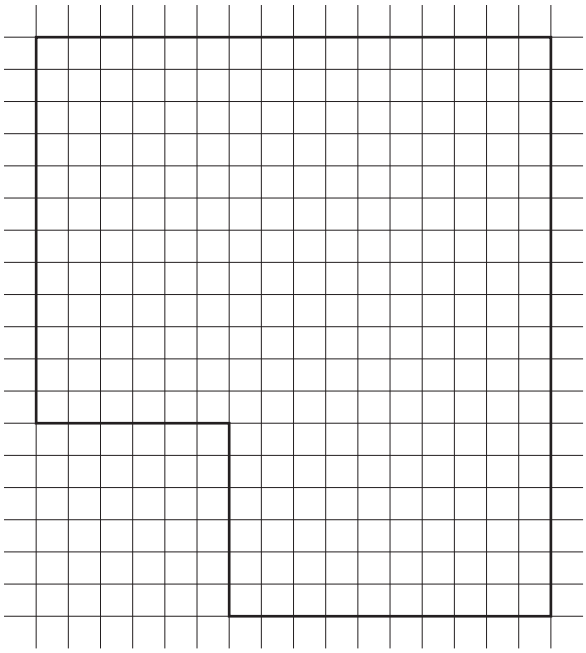
1-9 Enrichment

Tiling a Floor

The figure at the right is the floor plan of a family room. The plan is drawn on grid paper, and each square of the grid represents one square foot. The floor is going to be covered completely with tiles.



1. What is the area of the floor?

2. Suppose each tile is a square with a side that measures one foot. How many tiles will be needed?

3. Suppose each tile is a square with a side that measures one inch. How many tiles will be needed?

4. Suppose each tile is a square with a side that measures six inches. How many tiles will be needed?

Use the given information to find the total cost of tiles for the floor.

5. tile: square, 1 foot by 1 foot
cost of one tile: $3.50

6. tile: square, 6 inches by 6 inches
cost of one tile: $0.95

7. tile: square, 4 inches by 4 inches
cost of one tile: $0.50

8. tile: square, 2 feet by 2 feet
cost of one tile: $12

9. tile: square, 1 foot by 1 foot
cost of two tiles: $6.99

10. tile: rectangle, 1 foot by 2 feet
cost of one tile: $7.99

11. Refer to your answers in Exercises 5-10. Which way of tiling the floor costs the least? the most?

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1-9 TI-73 Activity

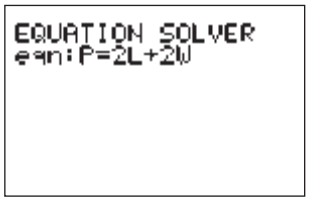
Perimeter and Area

Use the Equation Solver feature on the TI-73 calculator to evaluate expressions for the perimeter and the area of rectangles. The perimeter of a rectangle is given by $P = 2\ell + 2w$. The area is $A = \ell w$.

Example 1 **Find the perimeter of a rectangle whose length is 8 feet and width is 4 feet.**

Step 1 Go to the Equation Solver. Clear any existing equation.

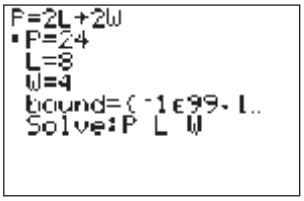
MATH 6 ▲ CLEAR



Step 2 Enter the formula for perimeter.

2nd [TEXT] P = 2 L + 2 W Done ENTER ENTER

Step 3 Enter values for L and W.



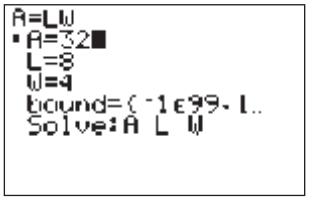
Step 4 Solve for *P*.

▼ ▼ ENTER

The value of the perimeter is 24 feet.
To find the perimeter of another rectangle, repeat Steps 3 and 4.

Example 2 **Find the area of a rectangle whose length is 9 feet and width is 3 feet.**

Follow the steps above, but in Step 2, enter the formula $A = \ell w$. Solve for *A*. The area is 27 square feet.



Use a graphing calculator to find the perimeter and area of each rectangle described.

1. length = 7 ft
width = 6 ft

2. length = 8 ft
width = 8 ft

3. length = 9 ft
width = 2 ft

4. length = 9 ft
width = 4 ft

5. length = 7 ft
width = 5 ft

6. length = 6 ft
width = 1 ft

Lesson 1–9