

LESSON

9-3

Problem Solving

Area of Parallelograms

Show work.

Write the correct answer.

- | | |
|--|---|
| <p>1. A dollar bill has an area of 15.86 square inches. If a dollar bill is 2.6 inches long, how wide is it?</p> <p>_____</p> | <p>2. On an official United States flag, the ratio of width to length is exactly 1 to 1.9. What is the area of a United States flag whose width is 2 feet?</p> <p>_____</p> |
| <p>3. A back yard is shaped like a parallelogram with a height of 32 feet and a base of 100 feet. One bag of grass seed covers 125 square feet. What is the least number of bags of seed needed to seed the lawn?</p> <p>_____</p> | <p>4. The art club is painting a mural on a school wall. The mural is in the shape of a parallelogram. If the base of the mural is 10.5 feet long and the mural covers 89.25 square feet, how high is the mural?</p> <p>_____</p> |

Choose the letter of the correct answer.

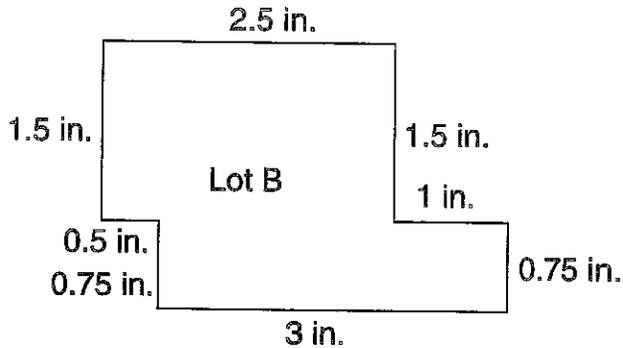
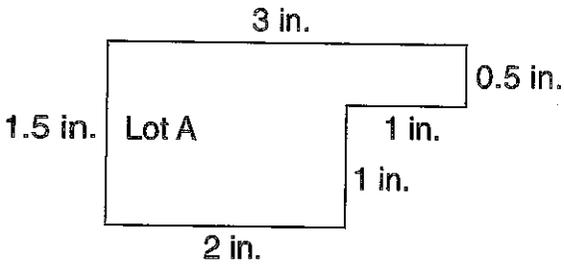
- | | |
|--|--|
| <p>5. In baseball, the area of each base is 225 square inches. Each base is a square. What is the length of each side of a base on a baseball field?</p> <p>A 12 in. C 25 in.
 B 22.5 in. D 15 in.</p> | <p>6. The area of a parallelogram is 632.1 square centimeters. Its base is 24.5 centimeters. What is the height of the parallelogram?</p> <p>F 25.8 cm H 21.9 cm
 G 705.6 cm J 11.8 cm</p> |
| <p>7. The official rules for volleyball were developed in 1897. The rules state that the court or floor space must be 25 feet wide and 50 feet long. An official basketball court is 94 feet by 50 feet. How much larger is the area of a basketball court than the area of a volleyball court?</p> <p>A 69 ft² larger
 B 3,450 ft² larger
 C 1,250 ft² larger
 D 4,700 ft² larger</p> | <p>8. Two parallelograms each have an area of 288 square inches. One has a height of 12 inches, and the other has a height of 18 inches. What are the bases of each parallelogram?</p> <p>F 40 in. and 30 in.
 G 22 in. and 15 in.
 H 24 in. and 16 in.
 J 26 in. and 20 in.</p> |

Show work.

LESSON 9-3 Challenge Size It Up!

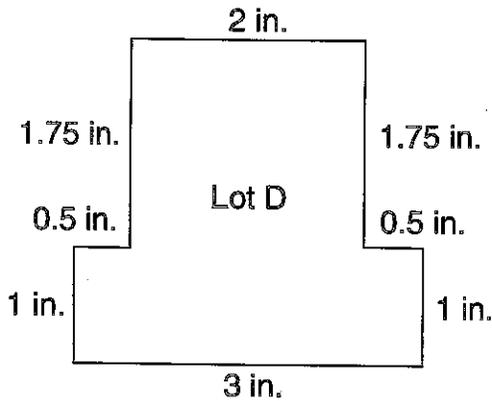
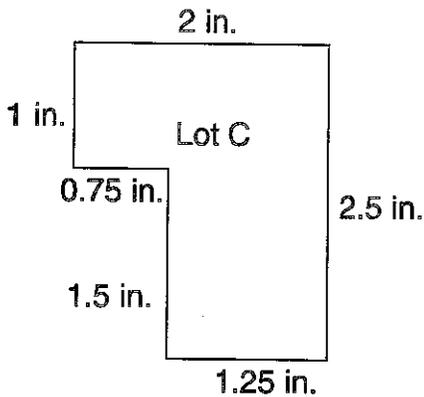
Gonzalez Builders purchased the four lots shown below. The company intends to build homes on the lots and needs to know the total area in square feet of each lot. They also need to know the perimeter in feet of each lot.

You can use proportions to calculate the areas and perimeters. For each figure, the scale is 1 inch: 60 feet.



1. total area _____
perimeter _____

2. total area _____
perimeter _____



3. total area _____
perimeter _____

4. total area _____
perimeter _____

5. What is the combined area of all four lots? _____

6. What length of fencing would be needed to enclose all four lots during construction? _____

LESSON

9-4

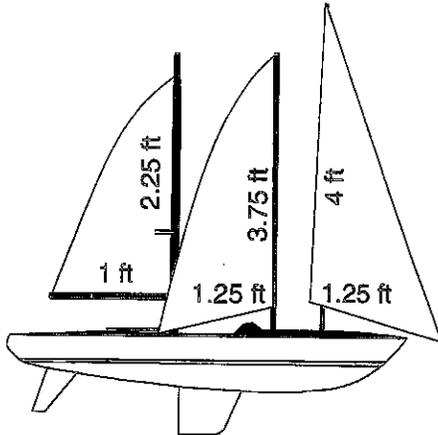
Problem Solving

Area of Triangles and Trapezoids

Show work.

Write the correct answer.

The diagram shows the dimensions of the sails on a model sailboat. Use the diagram to solve Problems 1–2.



1. About how much material to the nearest square foot will be needed to make the sails?

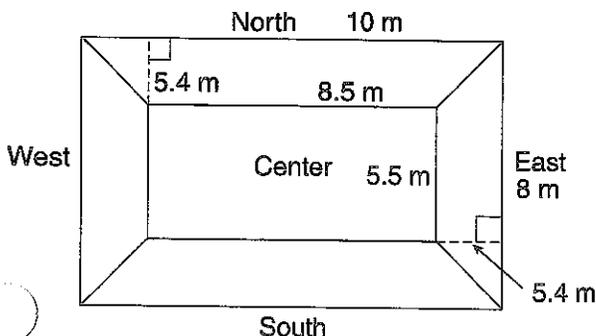
2. If the dimensions for each sail were doubled, how would that change the total amount of material needed to make the sails?

3. A flower bed is shaped like a trapezoid with a height of 3.5 yards, one 2.8-yard base, and another 4.6-yard base. A packet of flower seeds covers 5.6 square yards. What is the least number of packets needed to plant the flower bed?

4. A triangular road sign has a height of 8 feet and a base of 16.5 feet. How much larger in area is this sign than one with a height of 4 feet and a base of 8.25 feet?

Choose the letter of the correct answer.

This diagram shows the top view of the roof of a house.



5. If you need to reshingle the north and south sections of the roof, how many square meters of shingles will you need?

- | | |
|------------------------|------------------------|
| A 199.8 m ² | C 49.95 m ² |
| B 99.9 m ² | D 459 m ² |

6. If you need to reshingle the west section of the roof, how many square meters of shingles will you need?

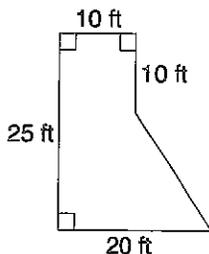
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|-----------------------|------------------------|
| F 13.5 m ² | H 36.45 m ² |
| G 18.9 m ² | J 72.9 m ² |

CHAPTER 9-6 Problem Solving
Area of Irregular Figures

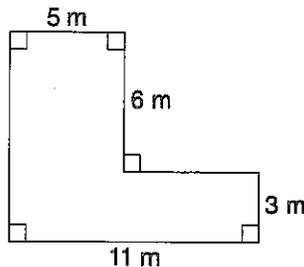
Show work.

Write the correct answer.

1. Explain how to find the area of the irregular figure below. Then find the area.



2. Mr. Bemis carpets the living room shown below. If he pays \$20 per square meter, what is the total cost of the carpet?



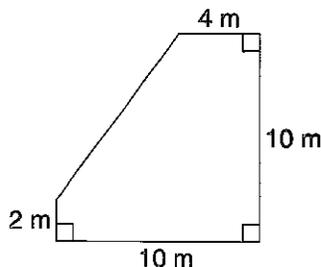
3. A figure is made of a square and a semi-circle. The square has sides of 16 cm each. One side of the square is also the diameter of the semi-circle. What is the total area of the figure?

4. A figure is made of a rectangle and an isosceles right triangle. The rectangle has sides of 6 in. and 3 in. One of the short sides of the rectangle is also one of the legs of the right triangle. What is the total area of the figure?

Choose the letter of the correct answer.

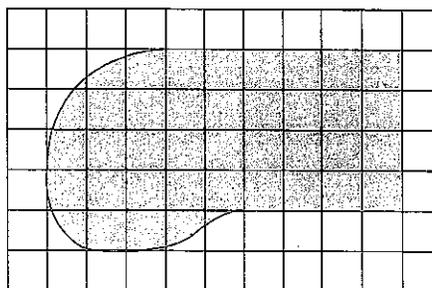
5. Norene builds the deck at the right. The area of the deck is 10 m^2 greater than was originally planned. What is the area of the deck?

- A 110 m^2 C 66 m^2
 B 76 m^2 D 56 m^2



6. The grid to the right shows a swimming pool. Each square represents 1 square meter. What is the best estimate of the area of the swimming pool?

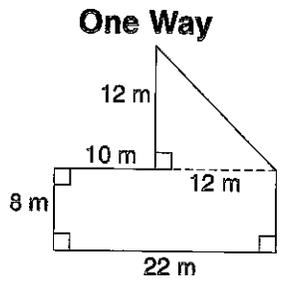
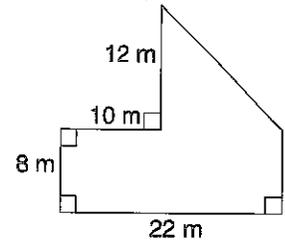
- F 45 m^2 H 37 m^2
 G 41 m^2 J 32 m^2



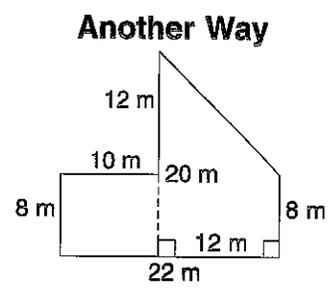
CHAPTER 9-6 **Challenge**
Figure it Out!

Show work.

Sometimes there is more than one way to find the area of an irregular figure.

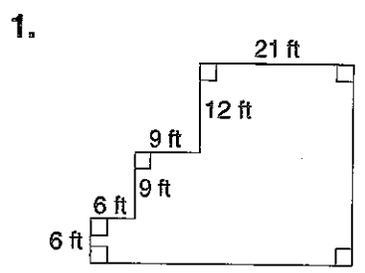


$A(\text{rectangle}) = 22 \cdot 8 = 176 \text{ ft}^2$
 $A(\text{triangle}) = \frac{1}{2} \cdot 12 \cdot 12 = 72 \text{ ft}^2$
 $A(\text{figure}) = 176 + 72 = 248 \text{ ft}^2$



$A(\text{rectangle}) = 10 \cdot 8 = 80 \text{ ft}^2$
 $A(\text{trapezoid}) = \frac{1}{2} \cdot 12 \cdot (20 + 8) = 168 \text{ ft}^2$
 $A(\text{figure}) = 80 + 168 = 248 \text{ ft}^2$

Show two different ways to find the area of each figure.

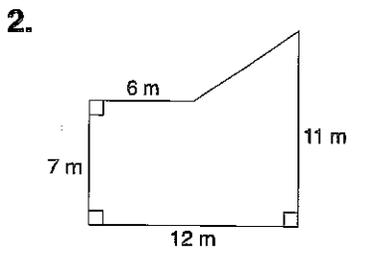


One Way

Another Way

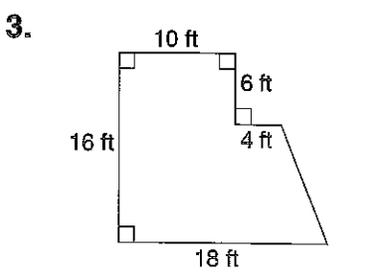
Area = _____

Area = _____



Area = _____

Area = _____



Area = _____

Area = _____

