Find the area of each. Include UNITS in your answers.

1) \[ \text{Area} = 4 \text{ ft} \times 5.4 \text{ ft} \]

2) \[ \text{Area} = 8.7 \text{ yd} \times 11 \text{ yd} \]

3) \[ \text{Area} = 48 \text{ in} \times 6.1 \text{ ft} \]

4) \[ \text{Area} = 860 \text{ cm} \times 12 \text{ m} \]

5) \[ \text{Area} = 3 \text{ cm} \times 95 \text{ mm} \times 95 \text{ mm} \]

6) \[ \text{Area} = 550 \text{ cm} \times 990 \text{ cm} \times 9.9 \text{ m} \]

7) \[ \text{Area} = \frac{1}{2} \times 10 \text{ m} \times 5.7 \text{ m} \]

8) \[ \text{Area} = \frac{1}{2} \times 8.2 \text{ km} \times 11 \text{ km} \]

9) \[ \text{Area} = \frac{1}{2} \times 10 \text{ m} \times 12 \text{ m} \times 3.7 \text{ m} \]

10) \[ \text{Area} = \frac{1}{2} \times 8 \text{ yd} \times 10 \text{ yd} \times 4 \text{ yd} \times 5 \text{ yd} \]

11) \[ \text{Area} = \frac{1}{2} \times 108 \text{ in} \times 96 \text{ in} \times 7.6 \text{ ft} \]

12) \[ \text{Area} = \frac{1}{2} \times 46 \text{ mm} \times 10 \text{ cm} \times 5 \text{ cm} \]

13) \[ \text{Area} = \frac{1}{2} \times 12 \text{ km} \times 11 \text{ km} \]

14) \[ \text{Area} = \frac{1}{2} \times 4 \text{ km} \times 6 \text{ km} \]
Find the missing length. Include UNITS in your answers.

31) \[ \text{Area} = 14 \text{ mi}^2 \]

33) \[ \text{Area} = 66 \text{ yd}^2 \]

35) \[ \text{Area} = 13.5 \text{ cm}^2 \]

37) \[ \text{Area} = 32 \text{ mi}^2 \]

39) \[ \text{Area} = 5.6 \text{ ft}^2 \]

41) \[ \text{Area} = 3.8 \text{ mi}^2 \]

43) \[ \text{Area} = 14 \text{ in}^2 \]
Example 2

Find the area of the figure at right.

Subproblems:

1. Make a rectangle out of the figure by enclosing the top.
2. Find the area of the entire rectangle: $8 \times 10 = 80$ square cm
3. Find the area of the shaded triangle. Use the formula $A = \frac{1}{2}bh$. 
   \[ b = 8 \quad \text{and} \quad h = 10 - 6 = 4, \quad \text{so} \quad A = \frac{1}{2} (8 \times 4) = \frac{32}{2} = 16 \text{ square cm}. \]
4. Subtract the area of the triangle from the area of the rectangle: $80 - 16 = 64$ square cm.

Problems

Find the areas of the figures below.

1. 

2. 

3. 

4. 

5. 

6. 

7. 

8. 

9.
10. 11. Find the area of the shaded region.

12. Find the area of the shaded region.

**Answers**

1. 158 sq. ft.  
2. 225 sq. m.  
3. 303 sq. in.  
4. 42 sq. yd.

5. 95 sq. m.  
6. 172.5 sq. m.  
7. 252 sq. cm.  
8. 310 sq. ft.

9. 23 sq. cm.  
10. 264 sq. m.  
11. 148.5 sq. in.  
12. 112 sq. ft.

**PRISMS – VOLUME AND SURFACE AREA**

**SURFACE AREA OF A PRISM**

The surface area of a prism is the sum of the areas of all of the faces, including the bases. Surface area is expressed in square units.

For additional information, see the Math Notes boxes in Lessons 9.2.1 and 9.2.2 of the Core Connections, Course 1 text and Lesson 9.2.4 of the Core Connections, Course 2 text.

**Example**

Find the surface area of the triangular prism at right.

Step 1: Area of the 2 bases: \(2 \left( \frac{1}{2} \times 6 \text{ cm} \times 8 \text{ cm} \right) = 48 \text{ cm}^2 \)

Step 2: Area of the 3 lateral faces

- Area of face 1: \(6 \text{ cm} \times 7 \text{ cm} = 42 \text{ cm}^2\)
- Area of face 2: \(8 \text{ cm} \times 7 \text{ cm} = 56 \text{ cm}^2\)
- Area of face 3: \(10 \text{ cm} \times 7 \text{ cm} = 70 \text{ cm}^2\)

Step 3: Surface Area of Prism = sum of bases and lateral faces:

\[SA = 48 \text{ cm}^2 + 42 \text{ cm}^2 + 56 \text{ cm}^2 + 70 \text{ cm}^2 = 216 \text{ cm}^2\]