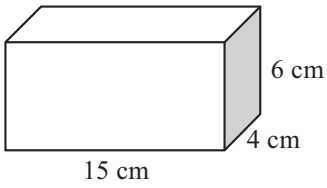
NAME_____

Module 13 Perimeter, Area, and Volume
Lesson 4 Surface Area: Prisms, Cylinders, and Spheres

Independent Practice 13.4

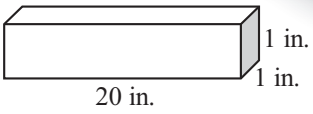
Find the surface area.

1.



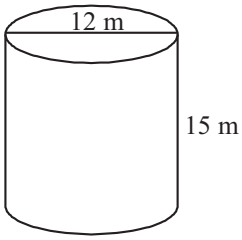
348 cm^2

2.



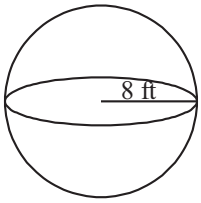
82 in.^{2}

3.



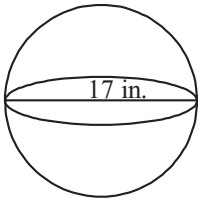
About 791.28 m^2

4.



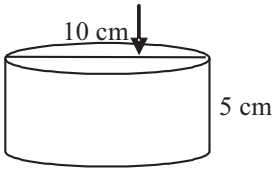
About 803.84 ft^2

5.



About 907.46 in.^{2}

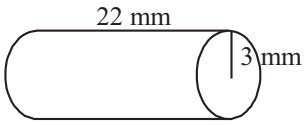
6.



About 314 cm^2

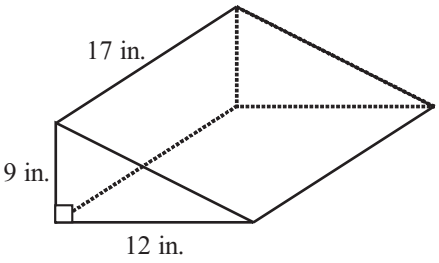
Find the lateral area.

7.



About 414.48 mm^2

8.



720 in.^{2}

9. Find the surface area of a cube with a side length of 0.8 meter.

The surface area is 3.84 m^2.

10. The surface area of a sphere is 615.44 square inches. What is the diameter of the sphere?

The diameter is about 14 in.

11. A cardboard box has a length of four feet, a width of $\frac{1}{2}$ foot, and a height of $\frac{3}{4}$ foot. What is the surface area of the box?

The surface area is $10\frac{3}{4}$ ft^2.

12. The lateral area of a cylinder is 200.96 square centimeters. What is the height of the cylinder if the diameter of the cylinder is four centimeters?

The height of the cylinder is 16 cm.

13. Which has the greater surface area: a 7 ft by 2 ft by 4 ft rectangular prism or a cube with side lengths of four feet? How much greater is the surface area?

The rectangular prism has 4 ft^2 more surface area than the cube.

NAME_____

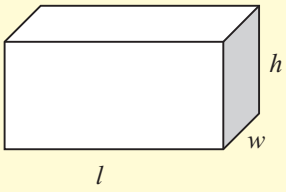
Module 13 **Perimeter, Area, and Volume**
Lesson 4 **Surface Area: Prisms, Cylinders, and Spheres**

Journal

1. What is the difference between the lateral area and the surface area of a prism? Which area is always greater? Why?

2. Explain why the surface area of a cube can be found by using the formula $SA = 6s^2$.

3. Explain why the expression $2lw + 2lh + 2wh$ gives the surface area of a rectangular prism.

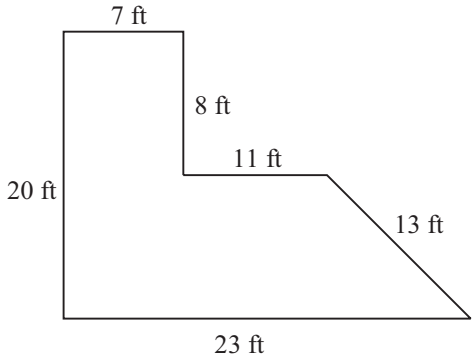


Cumulative Review

1. Find the perimeter and area of the figure.

$P = 82$ ft

$A = 302$ ft^2

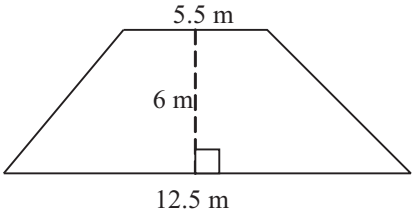


2. Find the circumference and area of a circle whose diameter is 35 inches.

$C \approx 109.9$ in.; $A \approx 961.625$ in.^{2}

3. Find the area of the trapezoid.

54 m^2



4. Find the area of a triangle whose base has a length of 230 millimeters and whose height is 56 millimeters.

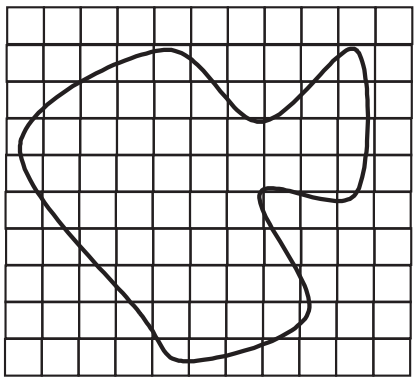
6,440 mm^2

5. The area of a parallelogram is 630 square meters. What is the height if the base is 42 meters?

***h* = 15 m**

6. Estimate the area of the shape. Each ☐ is 1 km^2.

The area is about 50 km^2.



Possible Journal Answers

1. **The lateral area of a prism is the sum of the areas of the faces of the prism that are not bases. The surface area of a prism is the sum of the areas of all the faces. It is the lateral area plus the sum of the base areas. Because the surface area includes the lateral area, the surface area of a prism is always greater than the lateral area of the prism.**

2. **Surface area is the sum of the areas of all the faces. Each face of a cube is a square. The area of a square can be found by squaring the length of one of its side lengths: s^2. I would multiply by six because there are six congruent faces: $6s^2$.**

3. **The product of the length and the width is the area of the base. By multiplying this by two, $2lw$, the area of both bases is found. The product of the length and height is the area of the front face. By multiplying this by two, $2lh$, the area of both the front and back faces of the prism is found. The product of the width and height is the area of the right face. By multiplying this by two, $2wh$, the area of both the right and left faces is found. The sum of these three products gives the area of all six faces, which is the surface area.**