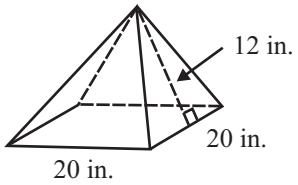
NAME_____

**Module 13** **Perimeter, Area, and Volume**
**Lesson 6** **Surface Area: Pyramids and Cones**

# Independent Practice 13.6

**1.** Find the lateral area and surface area of the square pyramid.




***LA* = 480 in.$^2$**
***SA* = 880 in.$^2$**

**2.** A square pyramid has a base whose perimeter is 32 square yards. The slant height of the pyramid is six yards. Find the surface area of the pyramid.

***SA* = 160 yd$^2$**

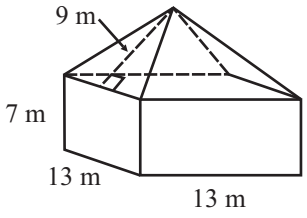
**3.** The base of a tent is square with a perimeter of 24 feet. The slant height is eight feet. What is the surface area of the tent?

***SA* = 132 ft$^2$**

**Complete the table.**

| Square Pyramids | | | |
|---|---|---|---|
| | Base | Slant Height | Surface Area |
| **4.** | 15 cm by 15 cm | 10 cm | **525 cm$^2$** |
| **5.** | $A$ = 121 in.$^2$ | 14 in. | **429 in.$^2$** |
| **6.** | $P$ = 100 ft | **4 ft** | 825 ft$^2$ |

**7.** Find the surface area of the figure.




**SA = 767 m$^2$**

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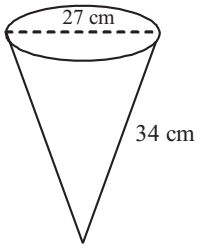
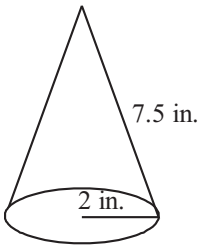
**Find the lateral area.**

**8.**




**About 1,441.26 cm$^2$**

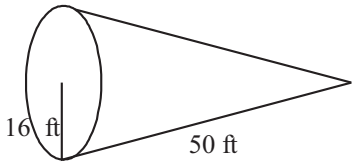
**9.**




**About 47.1 in.$^2$**

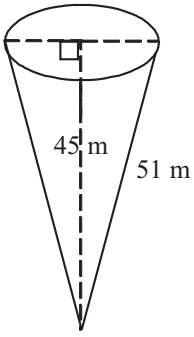
**Find the surface area.**

**10.**



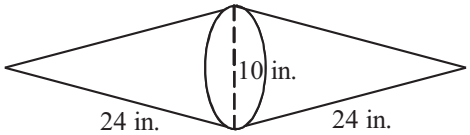

**About 3,315.84 ft$^2$**

**11.**



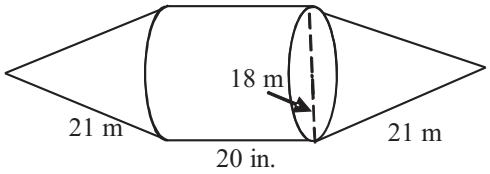

**About 5,652 m$^2$**

**12.**




**About 753.6 in.$^2$**

**13.**




**About 2,317.32 m$^2$**

**14.** The lateral area of an ice cream cone is 86.35 square centimeters. Estimate the diameter of the cone if the slant height is 10 centimeters.

**The diameter of the cone is about 5.5 cm.**

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**Module 13** **Perimeter, Area, and Volume**
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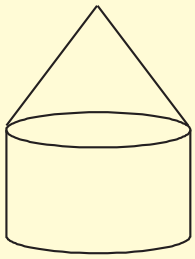
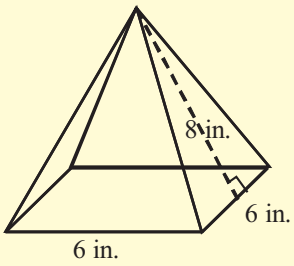
## Journal

**1.** What is the difference between the height of a pyramid and the slant height of a pyramid?

**2.** Explain why the surface area of the figure below can be found using the formula $SA = \pi rl + 2\pi rh + \pi r^2$.



**3.** Explain the error made in finding the surface area of the pyramid below. Then, find the surface area.




$$\text{SA} = \frac{1}{2}(12)(8) + 36$$
$$= 48 + 36$$
$$= 84 \text{ in.}^2$$

## Cumulative Review

**1.** Find the perimeter of an equilateral triangle whose side lengths are each $2\frac{1}{4}$ feet long.

**The perimeter of the triangle is $6\frac{3}{4}$ feet.**

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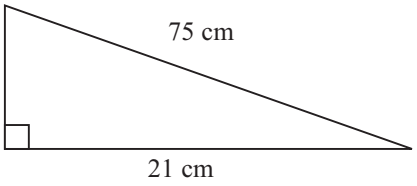
**2.** A wheel has a diameter of 22 inches. Find the wheel's circumference.

**The circumference of the wheel is about 69.08 in.**

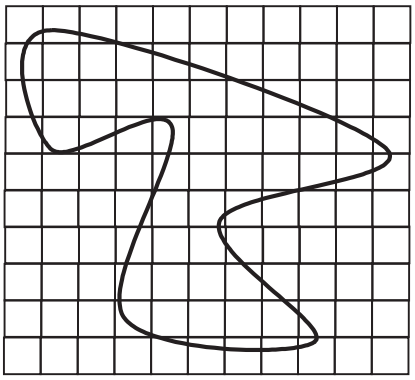
**3.** Find the area of the triangle.

**The area is 756 cm$^2$.**



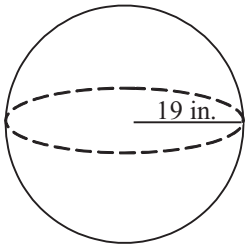

**4.** Estimate the area of the shape.
Each ☐ is 1 ft$^2$.

**The area is about 39.5 ft$^2$.**



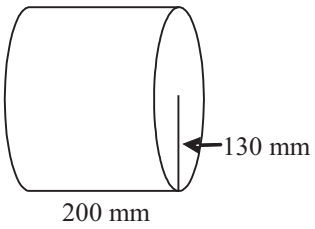
**5.** Find the surface area of the sphere whose radius is 19 inches.

**The surface area is about 4,534.16 sq. in.**




**6.** Find the volume of the cylinder whose radius is 130 millimeters and whose height is 200 millimeters.

**The volume is about 10,613,200 mm$^2$.**

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## Possible Journal Answers

1. The height of a pyramid is the perpendicular distance from the base of the pyramid to the vertex of the pyramid. The slant height is the height of one of the lateral faces. It extends from the vertex of the pyramid to an edge of the base at a right angle. In a given pyramid, the slant height is greater than the height of the pyramid.

2. The top of the figure is a cone. Because the base of the cone is inside the figure, only the lateral area is needed, which is $\pi rl$. The bottom of the figure is a cylinder with the same radius as the cone. Because one of the two bases is inside the figure, $\pi r^2$ needs to be found only once, so the surface area of the cylinder is $2\pi rh + \pi r^2$. Putting the two expressions together gives the formula $\pi rl + 2\pi rh + \pi r^2$.

3. The sum of the length and width of the base was used as the perimeter of the base. The perimeter of a figure is the sum of all the sides, so the perimeter is four times six inches or 24 inches. The surface of the pyramid is $SA = \frac{1}{2}(24)(8) + 36 = 96 + 36 = 132$ square inches.

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