## **Classroom Exercises**

Copy and complete the table for spheres.

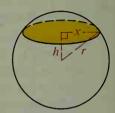
| التناف | 1. | 2. | 3.         | 4.      | 5.       | 6.                  |
|--------|----|----|------------|---------|----------|---------------------|
| Radius | 1  | 8  | 3 <i>t</i> | ?       | ?        | ?                   |
| Area   | ?  | ?  | ?          | $36\pi$ | $100\pi$ | ?                   |
| Volume | ?  | ?  | ?          | ?       | ?        | $\frac{4000\pi}{3}$ |

A plane passes h cm from the center of a sphere with radius r cm. Find the area of the circle of intersection, shaded in the diagram, for the given values.

7. 
$$r = 5$$
  
 $h = 3$ 

8. 
$$r = 17$$
  
 $h = 8$ 

9. 
$$r = 7$$
  
 $h = 6$ 



## **Written Exercises**

Copy and complete the table for spheres.

A

|        | 1. | 2. | 3.            | 4.             | 5.      | 6.       | 7.         | 8.       |
|--------|----|----|---------------|----------------|---------|----------|------------|----------|
| Radius | 7  | 5  | $\frac{1}{2}$ | $\frac{3}{4}k$ | ?       | ?        | $\sqrt{2}$ | ?        |
| Area   | ?  | ?  | ?             | ?              | $64\pi$ | $324\pi$ | ?          | ?        |
| Volume | ?  | ?  | ?             | ?              | ?       | ?        | ?          | $288\pi$ |

- 9. If the radius of a sphere is doubled, the area of the sphere is multiplied by \_?\_ and the volume is multiplied by \_?\_.
- 10. Repeat Exercise 9 if the radius of the sphere is tripled.
- 11. The area of a sphere is  $\pi$  cm<sup>2</sup>. Find the diameter of the sphere.
- 12. The volume of a sphere is  $36\pi$  m<sup>3</sup>. Find its area.
- 13. Find the area of the circle formed when a plane passes 2 cm from the center of a sphere with radius 5 cm.
- **14.** Find the area of the circle formed when a plane passes 7 cm from the center of a sphere with radius 8 cm.
- 15. A sphere has radius 2 and a hemisphere ("half" a sphere) has radius 4. Compare their volumes.
- 16. A scoop of ice cream with diameter 6 cm is placed in an ice-cream cone with diameter 5 cm and height 12 cm. Is the cone big enough to hold all the ice cream if it melts?
- 17. Approximately 70% of the Earth's surface is covered by water. Use a calculator to find the area covered by water to the nearest million square kilometers. (The radius of the Earth is approximately 6380 km.)

