

LESSON
12.6

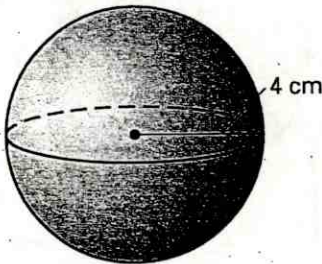
Practice

For use with pages 838–845

$$S = 4\pi r^2$$

Find the surface area of the sphere. Round your answer to two decimal places.

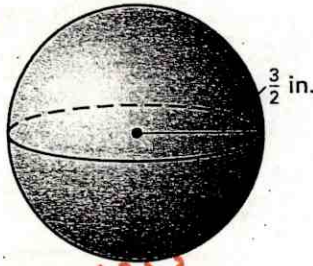
1.



$$S = 4\pi(4)^2$$

$$S = 64\pi \text{ cm}^2$$

2.

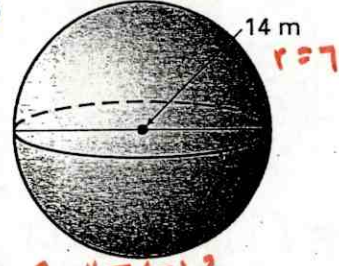


$$S = 4\pi\left(\frac{3}{2}\right)^2$$

$$= 4\pi\left(\frac{9}{4}\right)$$

$$S = 9\pi \text{ in}^2$$

3.



$$S = 4\pi(7)^2$$

$$S = 196\pi \text{ m}^2$$

4. **Multiple Choice** What is the approximate radius of a sphere with a surface area of 40π square feet?

A. 2 ft

B. 3.16 ft

C. 6.32 ft

D. 10 ft

$$S = 4\pi r^2$$

$$S = 40\pi$$

$$\frac{40\pi}{4\pi} = \frac{4\pi r^2}{4\pi}$$

$$10 = r^2$$

$$r = \sqrt{10}$$

In Exercises 5–7, use the sphere below. The center of the sphere is C and its circumference is 7π centimeters.

5. Find the radius of the sphere.



6. Find the diameter of the sphere.

7. Find the surface area of one hemisphere. Round your answer to two decimal places.

8. **Great Circle** The circumference of a great circle of a sphere is 24.6π meters. What is the surface area of the sphere? Round your answer to two decimal places.

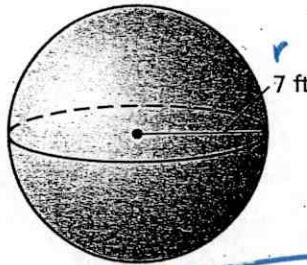


LESSON 12.6 Practice *continued*
For use with pages 838-845

$$V = \frac{4\pi r^3}{3}$$

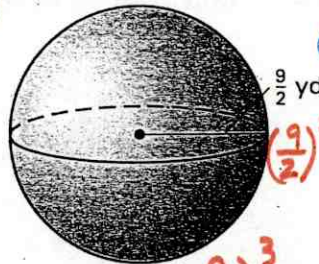
Find the volume of the sphere. Round your answer to two decimal places.

9.



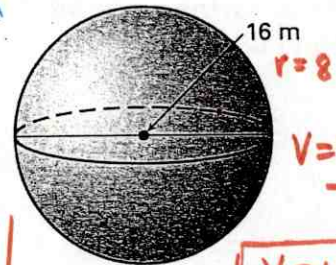
$$V = \frac{4\pi (7)^3}{3} = \frac{1372\pi \text{ ft}^3}{3} \approx 457.33\pi \text{ ft}^3$$

10.



$$V = \frac{4\pi \left(\frac{9}{2}\right)^3}{3} = \frac{4\pi (729)}{3(8)} = 121.5\pi \text{ yd}^3$$

11.



$$V = \frac{4\pi (8)^3}{3} = \frac{1682.67\pi \text{ m}^3}{3} \approx 560.89\pi \text{ m}^3$$

Find the radius of the sphere with the given volume V . Round your answer to two decimal places.

12. $V = 64 \text{ in.}^3$

$$64 = \frac{4\pi r^3}{3} \rightarrow 192 = 4\pi r^3 \rightarrow 15.28 = r^3 \rightarrow r = \sqrt[3]{15.28} \approx 2.48 \text{ in.}$$

13. $V = 150\pi \text{ cm}^3$

$$150\pi = \frac{4\pi r^3}{3} \rightarrow 450\pi = 4\pi r^3 \rightarrow 112.5 = r^3 \rightarrow r = \sqrt[3]{112.5} \approx 4.83 \text{ cm}$$

14. $V = 152 \text{ m}^3$

$$152 = \frac{4\pi r^3}{3} \rightarrow 456 = 4\pi r^3 \rightarrow 36.29 = r^3 \rightarrow r = \sqrt[3]{36.29} \approx 3.31 \text{ m}$$

15. Multiple Choice What is the approximate radius of a sphere with a volume of 128π cubic centimeters?

A. 2.5 cm

B. 4.58 cm

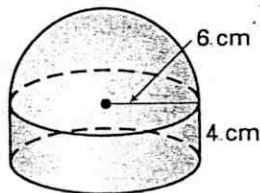
C. 6.62 cm

D. 8 cm

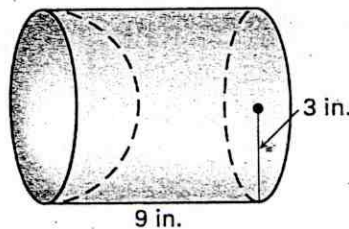
$$V = \frac{4\pi r^3}{3} \rightarrow 128\pi = \frac{4\pi r^3}{3} \rightarrow 384\pi = 4\pi r^3 \rightarrow 96 = r^3 \rightarrow r = \sqrt[3]{96} \approx 4.58 \text{ cm}$$

Find the surface area and the volume of the solid. The cylinders and cones are right. Round your answer to two decimal places.

16.



17.



18.

