

Skills Practice

Volumes of Spheres

Find the volume of each sphere or hemisphere. Round to the nearest tenth.

1. The radius of the sphere is 9 centimeters.

$$\frac{4}{3} \pi (9^3) = 3053.0$$

2. The diameter of the sphere is 10 inches.

$$\frac{4}{3} \pi (5^3) = 523.6$$

3. The circumference of the sphere is 26 meters.

$$26 = 2\pi r \quad \frac{4}{3} \pi (4.1^3) = 288.7$$

$$r \approx 4.1$$

4. The radius of the hemisphere is 7 feet.

$$\frac{2}{3} \pi (7^3) = 718.4$$

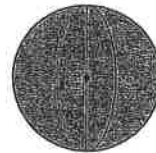
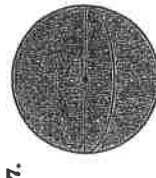
5. The diameter of the hemisphere is 12 kilometers.

$$\frac{2}{3} \pi (6^3) = 452.4$$

6. The circumference of the hemisphere is 48 yards.

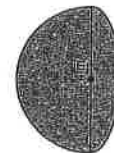
$$48 = 2\pi r \quad \frac{2}{3} \pi (7.6^3) = 99.4$$

$$r \approx 7.6$$



$$\frac{4}{3} \pi (8)^3 = 2226094.9$$

$$2226094.9 \text{ cm}^3$$



$$\frac{2}{3} \pi (4.5^3) = 190.9$$

$$\frac{2}{3} \pi (7.2^3) = 781.7$$



Practice

Volumes of Spheres

Find the volume of each sphere or hemisphere. Round to the nearest tenth.

1. The radius of the sphere is 12.4 centimeters.

$$7986.4$$

2. The diameter of the sphere is 17 feet.

$$2572.4$$

3. The circumference of the sphere is 38 meters.

$$r = 6.0 \quad 904.8$$

4. The diameter of the hemisphere is 21 inches.

$$2424.5$$

5. The circumference of the hemisphere is 18 millimeters.

$$r = 2.9 \quad 51.1$$

6.



$$\frac{4}{3} \pi (12.32^3)$$

$$7832.9$$

7.



$$58 = 2\pi r$$

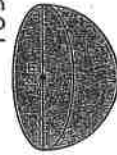
$$r = 9.2$$

$$\frac{4}{3} \pi (9.2^3)$$

C = 68 cm

$$3261.8$$

8.



$$\frac{2}{3} \pi (16^3) = 8578.6$$

9.



$$43 = 2\pi r$$

$$r = 6.8$$

$$\frac{2}{3} \pi (6.8^3)$$

C = 49 mm

$$658.5$$

10. **PACKAGING** Amber plans to ship a mini-basketball she bought for her nephew. The circumference of the ball is 24 inches and the package she wants to ship it in is a rectangular box that measures 8 inches \times 8 inches \times 9 inches. Will the basketball fit in the box? Explain.