

✚ *homework check:* Lesson 8 - 4

✚ *note:* Volume of Cones and Spheres

The volume formulas for cones and spheres are also fairly straight forward as follows:

$$V_{\text{cone}} = \frac{\pi r^2 h}{3} \quad \text{and} \quad V_{\text{sphere}} = \frac{4\pi r^3}{3}$$

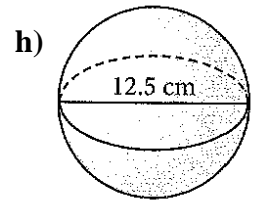
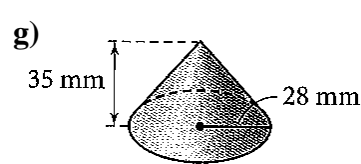
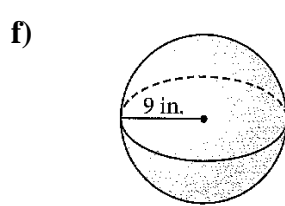
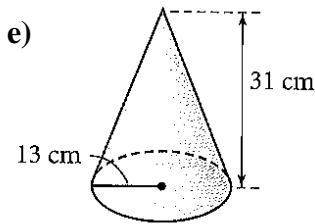
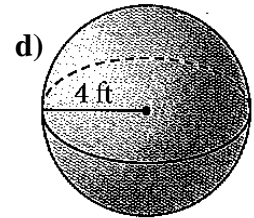
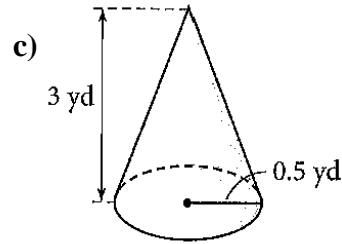
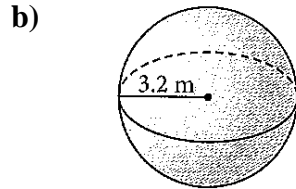
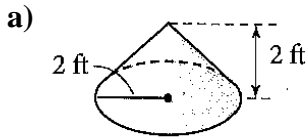
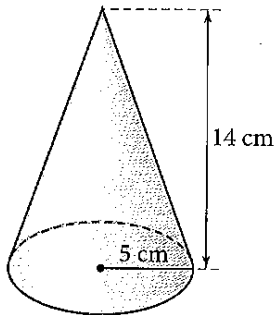
Find the volume of a cone with radius 2cm and height of 8 cm.

$$\begin{aligned} V_{\text{cone}} &= \frac{\pi(2)^2(8)}{3} \\ &= 33.5\text{cm}^3 \end{aligned}$$

Find the volume of a sphere with diameter of 7 cm.

$$\begin{aligned} V_{\text{sphere}} &= \frac{4\pi(3.5)^3}{3} \\ &= 179.6\text{cm}^3 \end{aligned}$$

✚ *note:* Lesson 8 - 5

Lesson 8 – 5: Volume of Cones and Spheres**1. Find the volume of each shape shown.****2. Find the volume of the cone below. If a sphere is $\frac{1}{4}$ of the volume of this cone, find the radius of the sphere.****3. The radius of a large sphere is 14 cm. The radius of a small sphere is 14 mm. Find the volume of each sphere. How many times larger is the volume of the large sphere?**

4. A foam cube with side length 12 inches is to be shaped into the largest possible sphere.

a) Find the volume of the cube.

b) What is the diameter of the largest possible sphere that can be made from the foam cube?

c) Find the volume of the sphere.

d) How much foam must be removed to make the largest possible sphere?

5. A cone shaped scoop is used to scoop beans from a coffee can. The scoop is 5 cm in diameter and 3 cm deep. The coffee can is 20 cm in diameter and is 15 cm tall. How many level scoops can be taken from the coffee can to make coffee?

6. A pickle jar full of olives is 10 cm tall and has a radius of 6 cm. Assuming the olives are shaped as spheres each with radius of 2 cm, how many olives are in the jar?