8-4: Find Volume of Spheres

1. Sample answer: The volume of a sphere is equal to two times the volume of a cone that has the same circular base and height.

2. Sample answer: Kristy found the surface area, not the volume of the sphere. She used the formula S.A. = $4\pi r^2$ instead of $V = \frac{4}{3}\pi r^3$.

3. Sample answer: The radius of the base of the cone-shaped block is the same as the radius of the sphere-shaped block. The volume of a cone is half the volume of a sphere with the same height (diameter) and radius.

4. About 113 cubic inches

5. The volume of the sphere is about 2,144 cubic centimeters.

6. 30 ⅔ π in^3 or about 96.3 in^3; Sample answer: In cubic inches, the volume of the cylinder is $\pi r^2 h$ or 30π, and the total volume of the hemisphere is ⅔ πr^3 or ⅔ π. Add the volumes.

7. 27.5
   20,796.875
   3.14; 20,796.875
   87,070

8. a. $\frac{5,324}{3}\pi$ $in.^3$
   b. $\frac{2,662}{3}\pi$ $in.^3$
   c. 8.7 inches

9. About 1,590 cm

10. About 14,130 mm^3

11. About 7.6 cm

12. About 988 m^3

13. About 20.57 m^3; Sample answer: My friend calculated the volume using the diameter, not the radius.

14. About 1,507 $in.^3$

15. a. About 1,611 $in.^3$
    b. She did not subtract the volume of the small cylinder.

16. 4,187

17. 57