8-2: Find Volume of Cylinders

1. Sample answer: The volume of both figures can be found by covering the base with one layer of full and partial unit cubes and stacking the layers to fill the figure. So, for both figures, the volume is the product of the area of the base and height.

2. The height and radius of the cylinder

3. Not necessarily; Sample answer: If Cylinder B is taller than Cylinder A by enough, then the volume of Cylinder B could be greater than the volume of Cylinder A.

4. 40π mm^3

5. 1 ft

6. 159.8 cm^3

7. 5; 2.5
   25; 2.5
   62.5
   196.25

8. Cylinder A, V = 60π ft^3;
   Cylinder B, V = 54π ft^3;
   Cylinder A has the greater volume.

9. 15 inches

10. About 2.01 cm

11. a. 48π in^3

    b. Greater; Sample answer: The area of the two bases is the same, but the increase in the height of the second cylinder increases its volume to 96π cubic inches.

12. 96π cubic inches; Sample answer: A height of 6 inches results in a volume of 96π cubic inches, and a height of 8 inches results in a volume of 72π cubic inches.

13. a. 4.9 inches

    b. Sample answer: If the height of the cylinder increases, then the radius will decrease so that the volume stays the same. If the height of the cylinder decreases, then the radius will increase.

14. 773.6 cm^3

15. 1,055.04 in^3

16. 7

17. 147π; 462

18. C, E