Answers for Lesson 11-6, pp. 640–643 Exercises

1. 900π m^2

2. 400π in.^{2}

3. 1024π mm^2

4. $40{,}000\pi$ yd^2

5. 4624π mm^2

6. 576π cm^2

7. $\frac{121}{16}\pi$ in.^{2}

8. 62 cm^2

9. 232 in.^{2}

10. 20 cm^2

11. 154 in.^{2}

12. $\frac{500}{3}\pi$ ft^3; 524 ft^3

13. 288π cm^3; 905 cm^3

14. $\frac{1125}{2}\pi$ in.^{3}; 1767 in.^{3}

15. $\frac{2048}{3}\pi$ cm^3; 2145 cm^3

16. 2304π yd^3; 7238 yd^3

17. 98.784π m^3; 310 m^3

18. 451 in.^{2}

19. 1006 m^2

20. 130 cm^2

21. S.A. $\approx$ 108 cm^2; $V \approx$ 108 cm^3

22. a. sphere of radius 4

    b. $\frac{256}{3}\pi$ units^3

    c. 64π units^2

23. Yes; the volume of the frozen yogurt is $\frac{256}{3}\pi$ cm^3, and the volume of the cone is 64π cm^3.

24. C

25. Answers may vary. Sample: $(5, 0, 0)$, $(0, 5, 0)$, $(0, 0, 5)$, $(-5, 0, 0)$, $(0, -5, 0)$, $(0, 0, -5)$

26. A: on; B: inside; C: outside

27. 1.7 lb

Answers for Lesson 11-6, pp. 640–643 Exercises (cont.)

28. 8 in. sphere; the volume of the three spheres is 13.5π and of the large sphere is $85\frac{1}{3}\pi$.

29. $\frac{4}{3}\pi$ m^3

30. 36π in.^{3}

31. $\frac{9}{2}\pi$ ft^3

32. $\frac{500}{3}\pi$ mm^3

33. $\frac{125}{6}\pi$ yd^3

34. 288π cm^3

35. $\frac{343}{6}\pi$ m^3

36. $\frac{1125}{2}\pi$ mi^3

37. a. $457\frac{1}{3}\pi$ in.^{3}

   b. $228\frac{2}{3}\pi$ in.^{3}

   c. 11 in.

38. a. about 8.9 in.^{2}

   b. The answer is less than the actual surface area since the dimples on the golf ball add to the surface area.

39. Answers may vary. Sample: sphere radius 3 in.; cylinder radius 3 in., height 4 in.

40. 22π cm^2; $\frac{46}{3}\pi$ cm^3

41. 26π cm^2; $\frac{62}{3}\pi$ cm^3

42. 22π cm^2; $\frac{14}{3}\pi$ cm^3

43. Answers may vary. Sample: You could lift the small ball because it weighs about 75 lb. The big ball would be much harder to lift since it weighs about 253 lb.

44. a. $6\sqrt{3}$ in.; $3\sqrt{3}$ in.

   b. 371.7 in.^{3}

45. $r \approx 7.1$ cm, $h \approx 14.1$ cm

46. $r \approx 8.2$ cm, $h \approx 11.4$ cm

47. 707 cm^2

48. a. Cube; explanations may vary. Sample:

If $s^3 = \frac{4}{3}\pi r^3$, then $s = \sqrt[3]{\frac{4\pi}{3}}r$. So $6s^2 = 6\left(\sqrt[3]{\frac{4\pi}{3}}r\right)^2 \approx$
$15.6r^2 > 4\pi r^2$.

b. Answers may vary. Sample: Spheres are difficult to stack.

49. 3 m   **50.** 15 m

51. $2 : 3$