Answers for Lesson 8-2, pp. 428–429 Exercises

1. $x = 8; y = 8\sqrt{2}$

2. $x = \sqrt{2}; y = 2$

3. $y = 60\sqrt{2}$

4. $x = 15; y = 15$

5. $4\sqrt{2}$

6. $\sqrt{10}$

7. 14.1 cm

8. 25.5 ft

9. $x = 20; y = 20\sqrt{3}$

10. $x = \sqrt{3}; y = 3$

11. $x = 5; y = 5\sqrt{3}$

12. $x = 24; y = 12\sqrt{3}$

13. $x = 4; y = 2$

14. $x = 9; y = 18$

15. 50 ft

16. 424 ft

17. $a = 7; b = 14; c = 7; d = 7\sqrt{3}$

18. $a = 6; b = 6\sqrt{2}; c = 2\sqrt{3}; d = 6$

19. $a = 10\sqrt{3}; b = 5\sqrt{3}; c = 15; d = 5$

20. $a = 4; b = 4$

21. $a = 3; b = 7$

22. $a = 14; b = 6\sqrt{2}$

23. Rika; Sandra marked the shorter leg as opposite the 60° angle.

24. Answers may vary. Sample: A ramp up to a door is 12 ft long. It has an incline of 30°. How high off the ground is the door? sol.: 6 ft

25. a. 28 ft

b. about 0.28 min

26. a. 8.5 m

b. 3.1 m

27. a. $\sqrt{3}$ units   **b.** $2\sqrt{3}$ units   **c.** $s\sqrt{3}$ units

28. Explanations may vary. Samples are given.

a. Construct an equilateral triangle with sides twice the length of the given segment. Bisect one of the angles of the triangle (or construct the perpendicular bisector of one side).

b. Construct an equilateral triangle with sides that are the given length. Bisect one of the angles of the triangle and extend the line until it passes through the side opposite the bisected angle.

c. Construct an equilateral triangle with a side length that is roughly 1.25 the length of the given side. Bisect one of the angles of the triangle. Set the compass to the length of the given side, place the point on the vertex of the bisected angle, and mark the length on the angle bisector. Construct a perpendicular to the bisector through that point and extend it until it intersects one of the sides of the equilateral triangle.