Answers for Lesson 9-4, pp. 494–496 Exercises
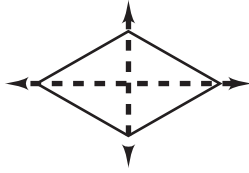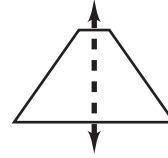
1. line; rotational: 180°
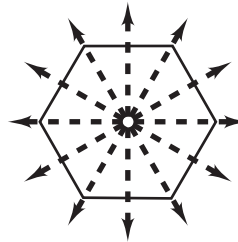

2. line

3. rotational: 90°

4. line, rotational: 60°

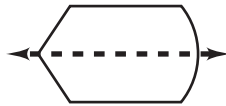

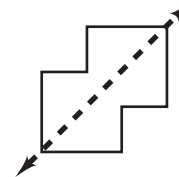**5.** rotational: 180°   **6.** no symmetry   **7.** no symmetry

8. rotational: any angle; line: any line passing through the center
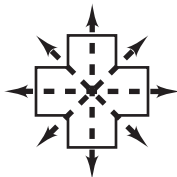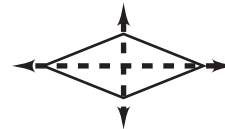
9. rotational: 60°

10. line

11. line, rotational: 180°

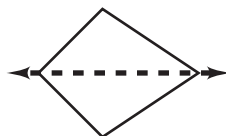**12.** line, rotational: 90°
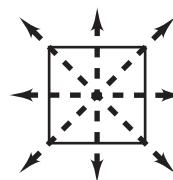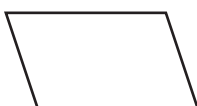

13.

14.

15.

16.

Answers for Lesson 9-4, pp. 494–496 Exercises (cont.)

17. rotational and reflectional   **18.** reflectional

19–20. Answers may vary. Samples are given.

19. CODE, HOOD, DOCK

20. TOMATO, HOAX, WAXY

21. a.

Language	Horz. line	Vert. line	Point
English	B, C, D, E, H, I, K, O, X	A, H, I, M, O, T, U, V, W, X, Y	H, I, N, O S, X, Z
Greek	B, E, H, Θ I, K, Ξ, O, Σ, Φ, X	A, Δ, H, Θ, I, Λ, M, Ξ, O, Π, Τ, Υ, Φ, X, Ψ, Ω	Z, H, Θ, I, N, Ξ, O, Φ, X

b. Answers may vary. Sample: Greek; Greek alphabet has more letters with at least one kind of symmetry and more letters with multiple symmetries.

22–23. Sketches may vary.

22. reflectional

23. rotational: 90°; reflectional

24. Answers may vary. Sample: $30 \div 10 = 3$; $|8 - 1| = |1 - 8|$, $80 + 3 < 88$; $\frac{80}{80} = \frac{33}{33}$

25. reflectional; rotational   **26.** reflectional

27. point   **28.** none

29. reflectional; rotational   **30.** reflectional

31. reflectional, rotational   **32.** reflectional

33. Yes; the bisector divides the $\angle$ into 2 $\cong$ $\triangle$ with one side of the $\angle$ being the reflection of the other.

34. Not necessarily; the $\triangle$ would need the two other $\triangle$ to be $\cong$.

35. Not necessarily; the bisector divides the segment into $2 \cong$ parts but one part cannot be the reflection of the other unless the bisector is the $\perp$ bisector.
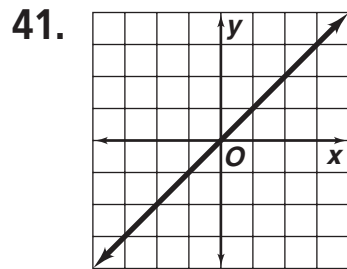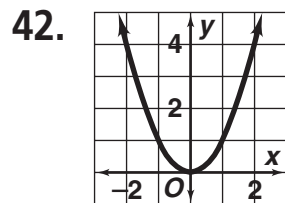
36. D

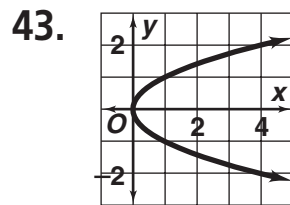**37.** $(-3, 4)$ **38.** $(3, -4)$

39. $(-3, -4)$ **40.** $(4, 3)$

41.
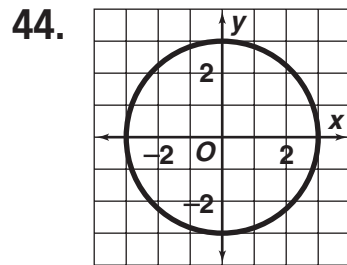
point symmetry about any pt. on the line; reflectional in any member of the family of lines $y = -x + b$
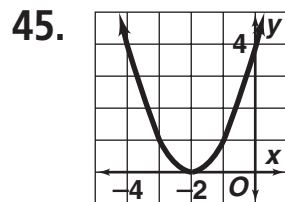
42.

reflectional in y-axis

43.
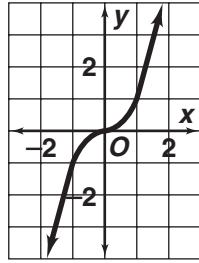
reflectional in x-axis

44.

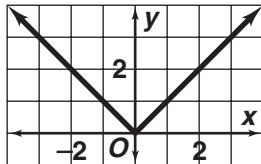rotational symmetry of any $\angle$ about the origin; reflectional in any line through the origin
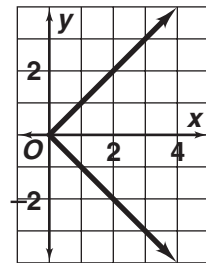
45.

reflectional in $x = -2$

46.

point symmetry about origin

47.

reflectional in *y*-axis

48.

reflectional in *x*-axis

49–50. Answers may vary. Samples are given.

49.

50.