Answers for Lesson 3-5, pp. 161–163 Exercises

1. yes

2. No; it has no sides.

3. No; it is not a plane figure.

4. No; two sides intersect between endpoints.

5. $MWBFX$; sides: $\overline{MW}$, $\overline{WB}$, $\overline{BF}$, $\overline{FX}$, $\overline{XM}$; $\measuredangle$s: $\angle M$, $\angle W$, $\angle B$, $\angle F$, $\angle X$

6. $KCLP$; sides: $\overline{KC}$, $\overline{CL}$, $\overline{LP}$, $\overline{PK}$; $\measuredangle$s: $\angle K$, $\angle C$, $\angle L$, $\angle P$

7. $HEPTAGN$; sides: $\overline{HE}$, $\overline{EP}$, $\overline{PT}$, $\overline{TA}$, $\overline{AG}$, $\overline{GN}$, $\overline{NH}$; $\measuredangle$s: $\angle H$, $\angle E$, $\angle P$, $\angle T$, $\angle A$, $\angle G$, $\angle N$

8. pentagon; convex

9. decagon; concave

10. pentagon; concave

11. 1080

12. 1800

13. 1440

14. 3240

15. 180,000

16. 102

17. 103

18. 145

19. 37

20. 60, 60, 120, 120

21. 113, 119

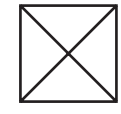
22. 108; 72

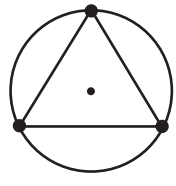
23. 150; 30

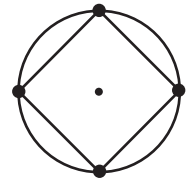
24. 160; 20

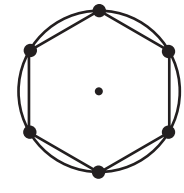
25. 176.4; 3.6

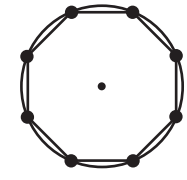
26. 45, 45, 90

27. 
90

28. 

29. 

30. 

31. 

32. 3

33. 8

34. 13

35. 18

36. C

37. octagon; $m\angle 1 = 135$; $m\angle 2 = 45$

38. If you solve $\frac{(n-2)180}{n} = 130$, you get $n = 7.2$. This number is not an integer.

39. 20-80-80; 50-50-80

40. 108; 5

41. 144; 10

42. 162; 20

43. 150; 12

44. $180 - x; \frac{360}{x}$

45. $\frac{4}{5}$

46. a. $n \cdot 180$

b. $(n-2)180$

c. $180n - 180(n-2) = 360$

d. Polygon Ext. $\angle$-Sum Thm.

47. $y = 103; z = 70$; quad.

48. $w = 72, x = 59, y = 49, z = 121; \triangle$

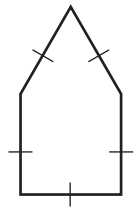
49. $x = 36, 2x = 72, 3x = 108, 4x = 144$; quad.

50–53. Answers may vary. Samples are given

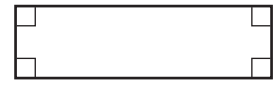
50.

51.

52.



53.



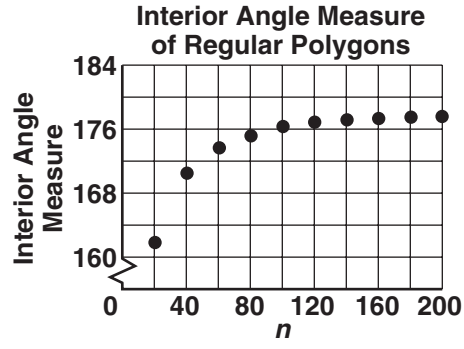
54. Yes; the sum of the measures of $\measuredangle$s at the int. point is 360. The sum of the measures of all the $\measuredangle$s is $180n$. $180n - 360 = (n-2)180$

55. Answers may vary. Sample: The figure is a convex equilateral quad. The sum of its $\measuredangle$s is $2 \cdot 180$ or 360.

56. octagon

57. a. (20, 162), (40, 171), (60, 174), (80, 175.5), (100, 176.4), (120, 177), (140, 177.4), (160, 177.75), (180, 178), (200, 178.2)

b.



c. It is very close to 180.

d. No, two sides cannot be collinear.

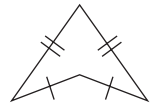
58. a. $[180(n - 2)] \div n = \frac{180n - 360}{n} = 180 - \frac{360}{n}$.

b. As n gets larger, the size of the angles get closer to 180. The more sides it has, the closer the polygon is to a circle.

59. 36

60–63. Answers may vary. Samples are given.

60.



61. Not possible; opp. sides would overlap.

62.

63. Not possible; opp. and adj. sides would overlap.