Answers for Lesson 1-1, pp. 6–9 Exercises

1. 80, 160

2. 33,333; 333,333

3. $-3, 4$

4. $\frac{1}{16}, \frac{1}{32}$

5. 3, 0

6. $1, \frac{1}{3}$

7. N, T

8. J, J

9. 720, 5040

10. 64, 128

11. $\frac{1}{36}, \frac{1}{49}$

12. $\frac{1}{5}, \frac{1}{6}$

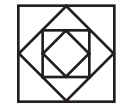
13. James, John

14. Elizabeth, Louisa

15. Andrew, Ulysses

16. Gemini, Cancer

17. 

18. 

19. The sum of the first 6 pos. even numbers is $6 \cdot 7$, or 42.

20. The sum of the first 30 pos. even numbers is $30 \cdot 31$, or 930.

21. The sum of the first 100 pos. even numbers is $100 \cdot 101$, or 10,100.

22. The sum of the first 100 odd numbers is 100^2, or 10,000.

23. 555,555,555

24. 123,454,321

25–28. Answers may vary. Samples are given.

25. $8 + (-5) = 3$ and $3 \not> 8$

26. $\frac{1}{3} \cdot \frac{1}{2} \not> \frac{1}{3}$ and $\frac{1}{3} \cdot \frac{1}{2} \not> \frac{1}{2}$

27. $-6 - (-4) \not< -6$ and $-6 - (-4) \not< -4$

28. $\frac{1}{2} \div \frac{1}{3} = \frac{3}{2}$ and $\frac{3}{2}$ is improper.

29. 75°F

30. 40 push-ups; answers may vary. Sample: Not very confident, Dino may reach a limit to the number of push-ups he can do.

31. 31, 43

32. 10, 13

33. 0.0001, 0.00001

34. 201, 202

35. 63, 127

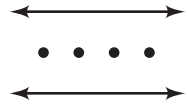
36. $\frac{31}{32}, \frac{63}{64}$

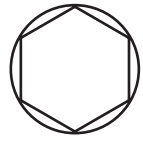
37. J, S

38. CA, CO

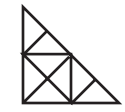
39. B, C

40. Answers may vary. Sample: In Exercise 31, each number increases by increasing multiples of 2. In Exercise 33, to get the next term, divide by 10.

41.  You would get points on a third line between and parallel to the first two lines.

42. 

43. 

44. 

45. 

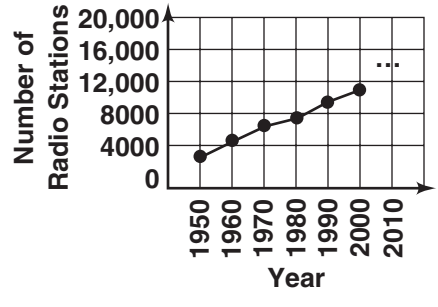
46. B

47. Answers may vary. Samples are given.

a. Women may soon outrun men in running competitions.

b. The conclusion was based on continuing the trend shown in past records.

c. The conclusions are based on fairly recent records for women, and those rates of improvement may not continue. The conclusion about the marathon is most suspect because records date only from 1955.

48. a. 

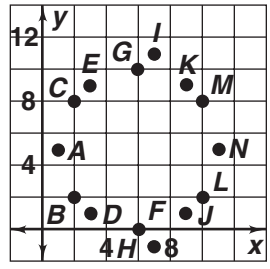
b. about 12,000 radio stations

c. Answers may vary. Sample: Confident; the pattern has held for several decades.

49. Answers may vary. Sample: 1, 3, 9, 27, 81, . . .
1, 3, 5, 7, 9, . . .

50. His conjecture is probably false because most people's growth slows by 18 until they stop growing somewhere between 18 and 22 years.

51. a.



b. H and I

c. a circle

52. 21, 34, 55

53. a. Leap years are years that are divisible by 4.

b. 2020, 2100, and 2400

c. Leap years are years divisible by 4, except the final year of a century which must be divisible by 400. So, 2100 will not be a leap year, but 2400 will be.

54. Answers may vary. Sample:

$$\begin{array}{rrrrrrrrrrrrr} 100 & + & 99 & + & 98 & + \ldots + & 3 & + & 2 & + & 1 \\ \underline{1} & + & \underline{2} & + & \underline{3} & + \ldots + & \underline{98} & + & \underline{99} & + & \underline{100} \\ 101 & + & 101 & + & 101 & + \ldots + & 101 & + & 101 & + & 101 \end{array}$$

The sum of the first 100 numbers is $\frac{100 \cdot 101}{2}$, or 5050.

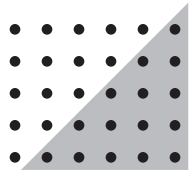
The sum of the first n numbers is $\frac{n(n + 1)}{2}$.

55. a. 1, 3, 6, 10, 15, 21

b. They are the same.

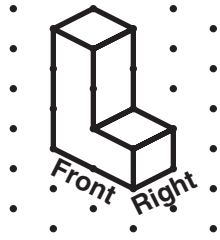
c. The diagram shows the product of n and $n + 1$ divided by 2 when $n = 3$. The result is 6.

d.

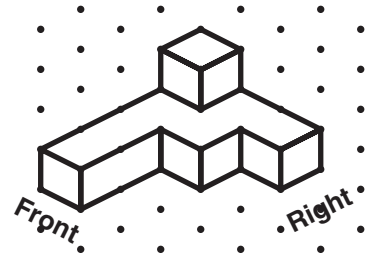


Answers for Lesson 1-2, pp. 13–15 Exercises

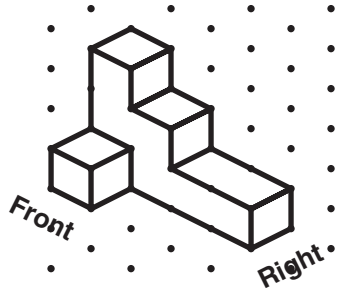
1.



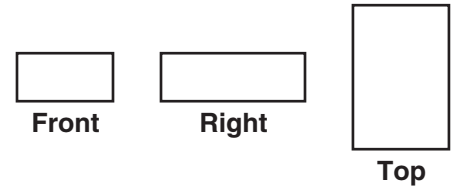
2.



3.



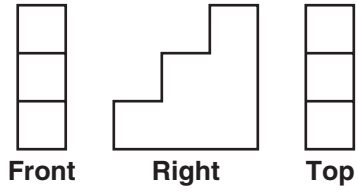
4. a.



b.

1	1	1
1	1	1

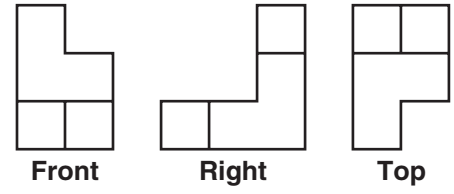
5. a.



b.

1	2	3

6. a.



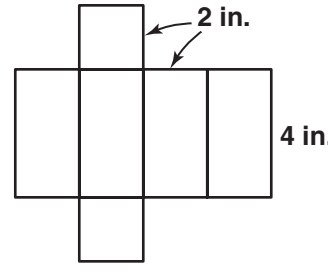
b.

1	1	3
	1	2

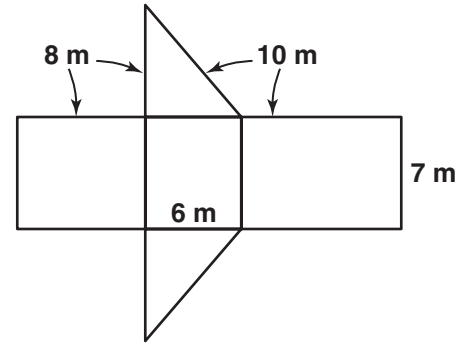
7. 6 **8.** 6 **9.** 8 **10.** 713

11. C **12.** A **13.** B

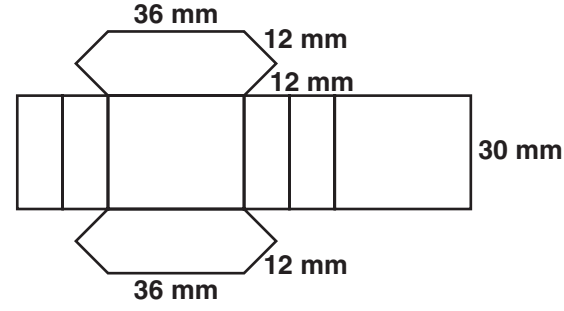
14. Answers may vary. Sample:



15. Answers may vary. Sample:

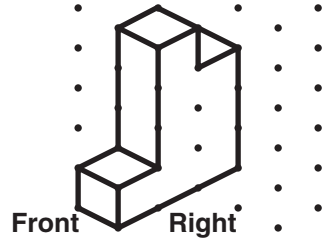


16. Answers may vary. Sample:

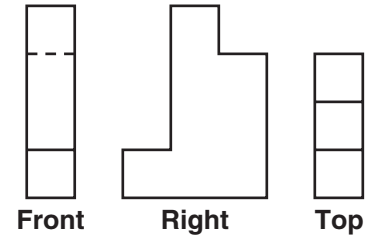


17. Answers may vary. Sample:

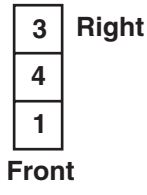
a.



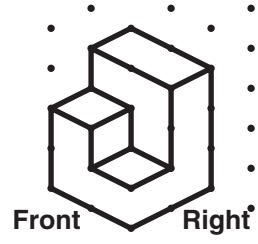
b.



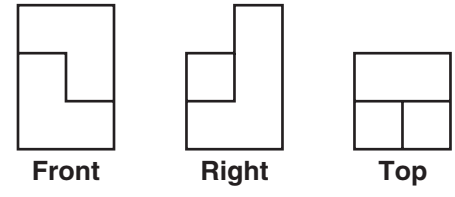
c.



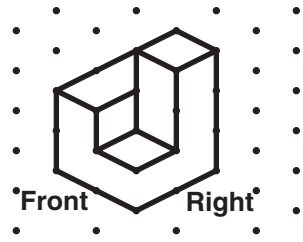
18. **a.**



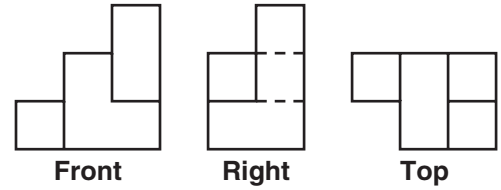
b.



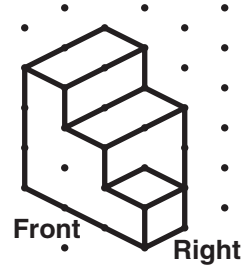
19. a.



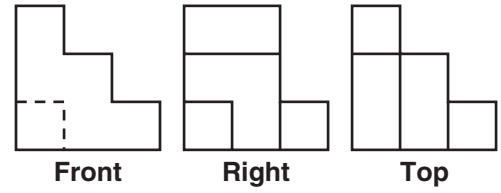
b.



20. a.



b.

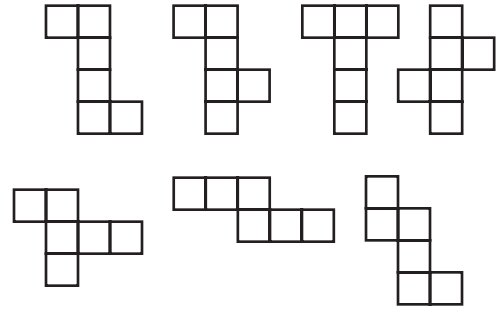


21. orthographic top view

22. Answers may vary. Sample: You may want a bird's eye view for a tourist map showing locations of attractions.

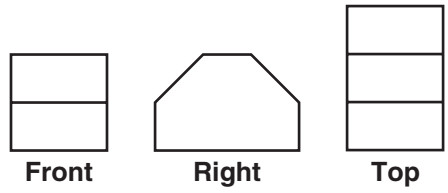
23. blue **24.** green **25.** orange **26.** purple

27. a. Answers may vary. Sample:

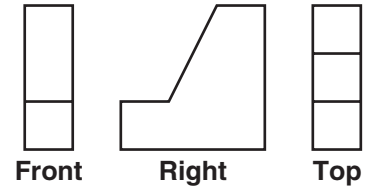


b. Answers may vary. Sample: the net shown in Exercise 23; it is easy to cut and fold.

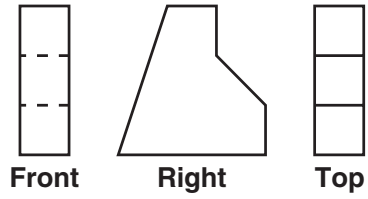
28.



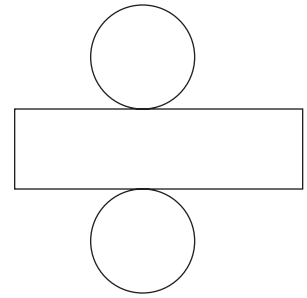
29.



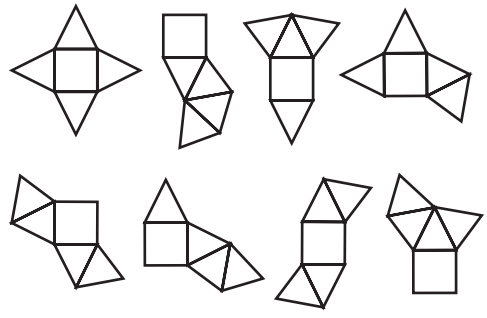
30.



31. Answers may vary. Sample:

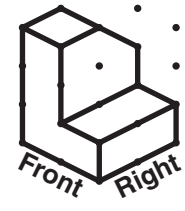


32.

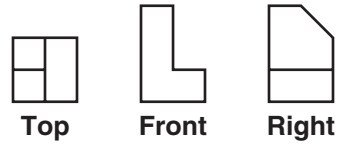


33. **a.**

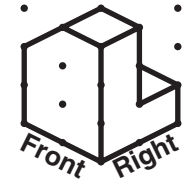
b.

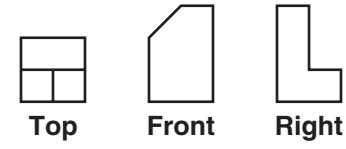


c.

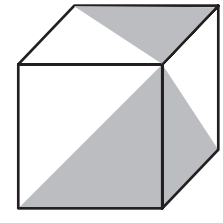


d.





34. Answers may vary. Sample:



Answers for Lesson 1-3, pp. 19–22 Exercises

1. no

2. yes; line n

3. yes; line n

4. yes; line m

5. yes; line n

6. no

7. no

8. yes; line m

9. Answers may vary. Sample: $\overleftrightarrow{AE}$, $\overleftrightarrow{EC}$, $\overleftrightarrow{GA}$

10. Answers may vary. Sample: $\overleftrightarrow{BF}$, $\overleftrightarrow{CD}$, $\overleftrightarrow{DF}$

11. $ABCD$

12. $EFHG$

13. $ABHF$

14. $EDCG$

15. $EFAD$

16. $BCGH$

17. $\overleftrightarrow{RS}$

18. $\overleftrightarrow{VW}$

19. $\overleftrightarrow{UV}$

20. $\overleftrightarrow{XT}$

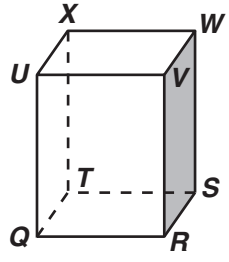
21. planes QUX and QUV

22. planes XTS and QTS

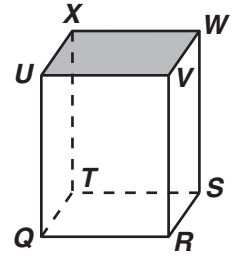
23. planes UXT and WXT

24. UVW and RVW

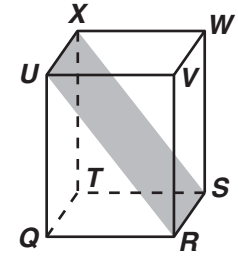
25.



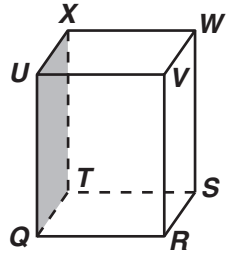
26.



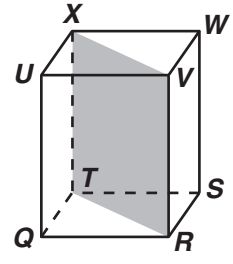
27.



28.



29.



30. S

31. X

32. R

33. Q

34. X

35. no

36. yes

37. no

38. coplanar

39. coplanar

40. noncoplanar

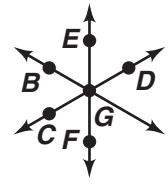
41. coplanar

42. noncoplanar

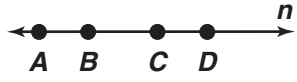
43. noncoplanar

44. Through any three noncollinear points there is exactly one plane. The ends of the legs of the tripod represent three noncollinear points, so they rest in one plane. Therefore, the tripod won't wobble.

45. Answers may vary. Sample:

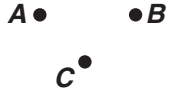


46.



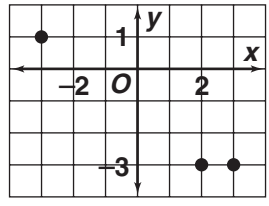
47. not possible

48.



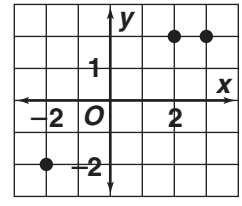
49. not possible

50.



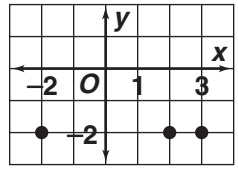
no

51.



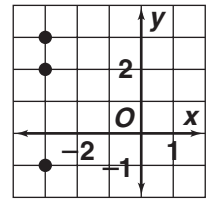
no

52.



yes

53.



yes

54. C

55. always

56. never

57. always

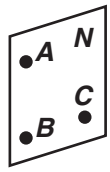
58. always

59. sometimes

60. never

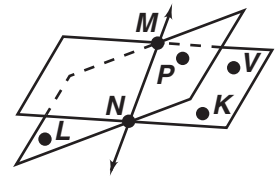
61. **a.** 1 **b.** 1 **c.** 1 **d.** 1

e. A line and a point not on the line are always coplanar.

62. 

Post. 1-4: Through three noncollinear points there is exactly one plane.

63. Answers may vary. Sample:



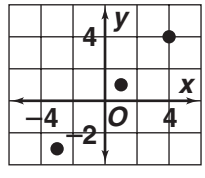
Post. 1-3: If two planes intersect, then they intersect in exactly one line.

64. A, B, and D

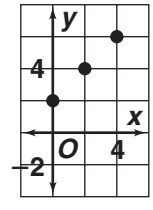
65. Post. 1-1: Through any two points there is exactly one line.

66. Post. 1-3: If two planes intersect, then they intersect in exactly one line.

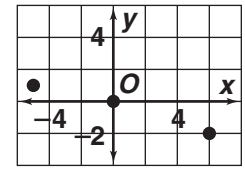
67. The end of one leg might not be coplanar with the ends of the other three legs. (Post. 1-4)

68. 

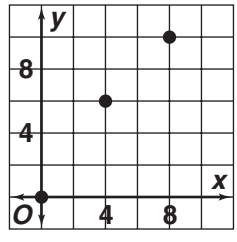
yes

69. 

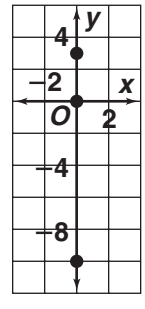
yes

70. 

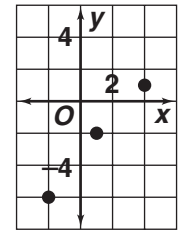
no

71. 

no

72. 

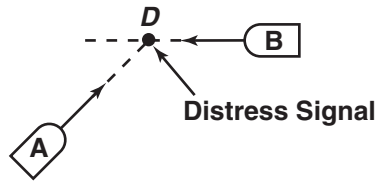
yes

73. 

no

74. Infinitely many; explanations may vary. Sample: Infinitely many planes can intersect in one line.

75.



By Post. 1-1, points D and B determine a line and points A and D determine a line. The distress signal is on both lines and, by Post. 1-2, there can be only one location for the distress signal.

76. a. Since the plane is flat, the line would have to curve so as to contain the 2 points and not lie in the plane; but lines are straight.

b. One plane; Points A, B, and C are noncollinear. By Post. 1-4, they are coplanar. Then, by part (a), $\overleftrightarrow{AB}$ and $\overleftrightarrow{BC}$ are coplanar.

77. 1 **78.** $\frac{1}{4}$ **79.** 1

Answers for Lesson 1-4, pp. 25–27 Exercises

1. $\overline{RS}, \overline{RT}, \overline{RW}, \overline{ST}, \overline{SW}, \overline{TW}$

2. $\overrightarrow{RS}, \overrightarrow{ST}, \overrightarrow{TW}, \overrightarrow{WT}, \overrightarrow{TS}, \overrightarrow{SR}$

3. a. $\overrightarrow{TS}$ or $\overrightarrow{TR}, \overrightarrow{TW}$

b. $\overrightarrow{SR}, \overrightarrow{ST}$

4. $\overline{DF}$

5. $\overline{BC}$

6. $\overline{BE}, \overline{CF}$

7. $\overline{DE}, \overline{EF}, \overline{BE}$

8. $\overline{AD}, \overline{AB}, \overline{AC}$

9. $\overline{BC}, \overline{EF}$

10–11. Answers may vary. Samples:

10. $ABC \parallel DEF$

11. $DEF, \overleftrightarrow{BC}$

12. $\overleftrightarrow{FG}$

13. Answers may vary. Sample: $\overleftrightarrow{CD}, \overleftrightarrow{AB}$

14. $\overleftrightarrow{BG}, \overleftrightarrow{DH}, \overleftrightarrow{CL}$

15. $\overleftrightarrow{AF}$

16. true

17. False; they are skew.

18. true

19. False; they intersect above $\overline{CG}$.

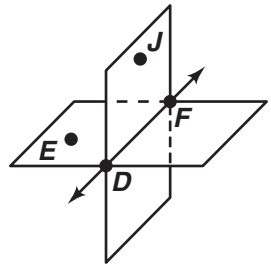
20. true

21. False; they intersect above pt. A.

22. False; they are $\parallel$.

23. False; they are $\parallel$.

24.



25. always

26. never

27. always

28. always

29. never

30. sometimes

31. always

32. sometimes

33. sometimes

34. C

35. Answers may vary. Sample: (0, 0); check students' graphs.

36. **a.** Answers may vary. Sample: northeast and southwest

b. Answers may vary. Sample: northwest and southeast, east and west

37. Two lines can be parallel, skew, or intersecting in one point. Sample: train tracks—parallel; vapor trail of a northbound jet and an eastbound jet at different altitudes—skew; streets that cross—intersecting

38. Answers may vary. Sample: Skew lines cannot be contained in one plane. Therefore, they have "escaped" a plane.

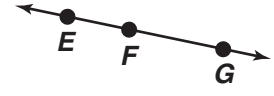
39. **a.** The lines of intersection are parallel.

b. Examples may vary. Sample: The floor and ceiling are parallel. A wall intersects both. The lines of intersection are parallel.

40. **a.**

one segment; $\overline{EF}$

b.



3 segments; $\overline{EF}$, $\overline{EG}$, $\overline{FG}$

c.

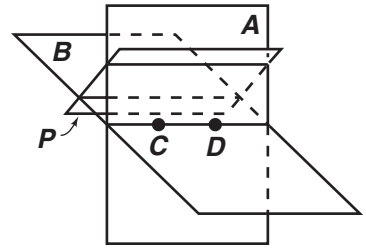
Number of points	Number of segments
2	1
3	3
4	6
5	10
6	15

Answers may vary. Sample: For each "new" point, the number of new segments equals the number of "old" points.

d. 45 segments **e.** $\frac{n(n-1)}{2}$

41. No; two different planes cannot intersect in more than one line.

42. yes; plane P, for example



43. Answers may vary. Sample: $\overleftrightarrow{VR}$, $\overleftrightarrow{QR}$, $\overleftrightarrow{SR}$

44. $\overleftrightarrow{QR}$

45. Yes; no; yes; explanations may vary.

Answers for Lesson 1-5, pp. 33–35 Exercises

1. 9; 9; yes **2.** 9; 6; no **3.** 11; 13; no

4. 7; 6; no **5.** $XY = ZW = 4$; yes

6. $ZX = WY = 8$; yes **7.** $YZ = 4, XW = 12$; no

8. 24 **9.** 25

10. a. 13

b. $RS = 40, ST = 24$

11. a. 7

b. $RS = 60, ST = 36, RT = 96$

12. a. 9

b. 9; 18

13. 33 **14.** 34 **15.** 130

16. Q **17.** 6 **18.** -4

19. 1 **20.** $-2.5, 2.5$ **21.** $-3.5, 3.5$

22. $-6, -1, 1, 6$

23. a. 114 mi

b. Conway

24–28. Check students' work.

29. true; $AB = 2, CD = 2$ **30.** false; $BD = 9, CD = 2$

31. false; $AC = 9, BD = 9, AD = 11$, and $9 + 9 \neq 11$

32. true; $AC = 9, CD = 2, AD = 11$, and $9 + 2 = 11$

33. 2, 12

34. $y = 15; AC = 24, DC = 12$

35. $ED = 10, DB = 10, EB = 20$

36. 30

37. **a.** $5x$ **b.** 9, 15

38. **a.** Answers may vary. Sample: $4\frac{1}{4}$ in. and 11 in.

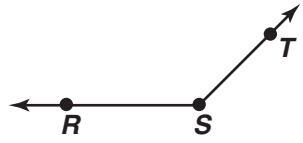
b. Answers may vary. Sample: You can use the marks for $6\frac{1}{2}$ in. and $11\frac{1}{2}$ in. or 6 in. and 11 in.

1. $\angle XYZ$, $\angle ZYX$, $\angle Y$ **2.** $\angle MCP$, $\angle PCM$, $\angle C$, or $\angle 1$

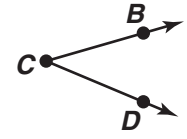
3. $\angle ABC$, $\angle CBA$ **4.** $\angle CBD$, $\angle DBC$

5–8. Drawings may vary. Samples are given.

5.

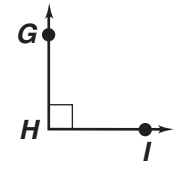


6.



7.

8.



9. 60; acute **10.** about 42°; acute **11.** 90; right

12. 135; obtuse **13.** 34 **14.** 70

15. $\angle AOB$ or $\angle DOC$ **16.** $\angle EOC$

17. $\angle EOC$ **18.** $\angle DOC$ or $\angle AOB$

19. $\angle AOB$ and $\angle DOC$ or $\angle BOC$ and $\angle AOD$

20. 90 **21.** 30 **22.** 150 **23.** 30

24. Yes; the markings show they are $\cong$.

25. No; there are no markings.

26. Yes; you can conclude that $\measuredangle$s are adjacent and suppl. from the diagram.

27. No; there are no markings.

28. Yes; you can conclude that $\measuredangle$s are suppl. from the diagram.

29. Yes; there are markings. **30.** No; there are no markings.

31. Yes; you can conclude that $\measuredangle$s are vert. from the diagram.

32. No; there are no markings.

33. 115 **34.** 65 **35.** 180 **36.** 150

37. 30 **38.** 100 **39.** 40 **40.** 80

41. 45, 75, and 165, or 135, 105, and 15

42. 12; $m\angle AOC = 82, m\angle AOB = 32, m\angle BOC = 50$

43. 8; $m\angle AOB = 30, m\angle BOC = 50, m\angle COD = 30$

44. 18; $m\angle AOB = 28, m\angle BOC = 52, m\angle AOD = 108$

45. 7; $m\angle AOB = 31, m\angle BOC = 49, m\angle AOD = 111$

46. A

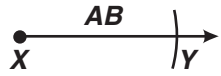
47. **a.** 19.5

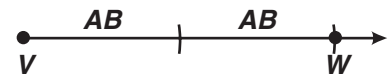
b. 43; 137

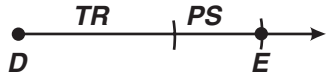
c. Answers may vary. Sample: The sum of the $\angle$ measures should be 180.

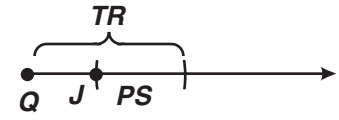
48. 30 **49.** Angle Add. Post.

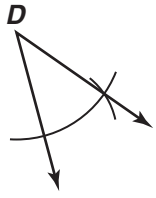
Answers for Lesson 1-7, pp. 47–49 Exercises

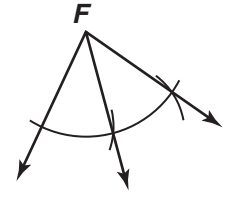
1. 

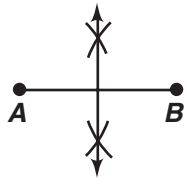
2. 

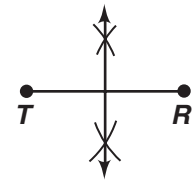
3. 

4. 

5. 

6. 

7. 

8. 

9. **a.** 11; 30

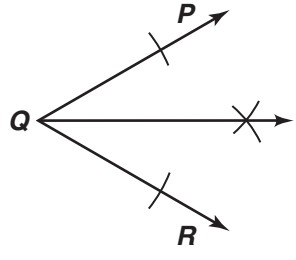
b. 30

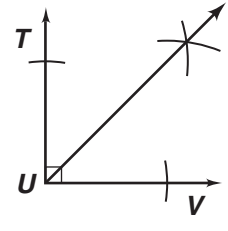
c. 60

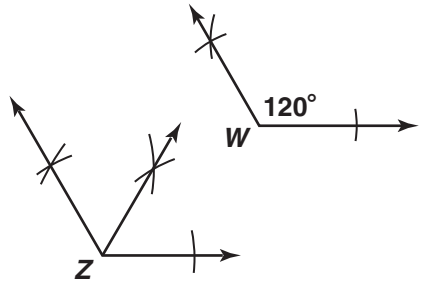
10. 5; 50

11. 15; 48

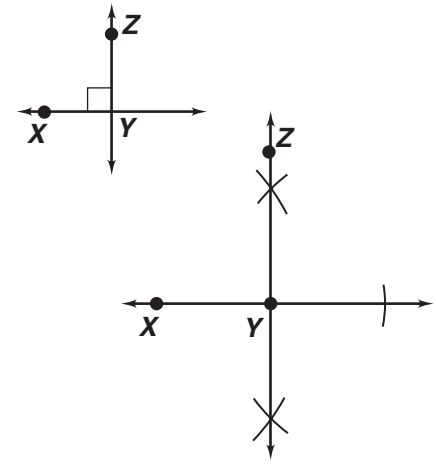
12. 11; 56

13. 

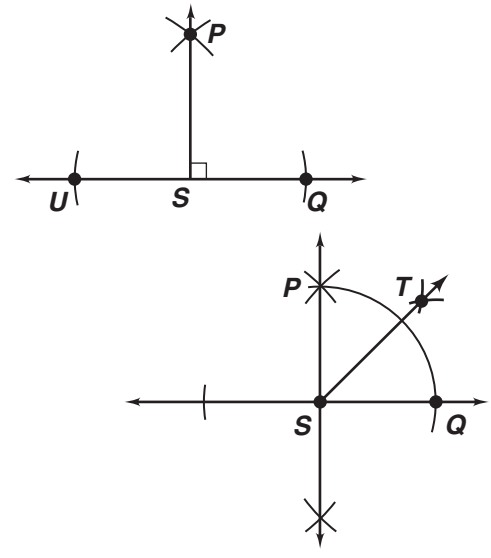
14. 

15. 

16. Find a segment on $\overleftrightarrow{XY}$ so that you can construct $\overleftrightarrow{YZ}$ as its $\perp$ bisector.



17. Find a segment on $\overleftrightarrow{SQ}$ so that you can construct $\overleftrightarrow{SP}$ as its $\perp$ bisector. Then bisect $\angle PSQ$.

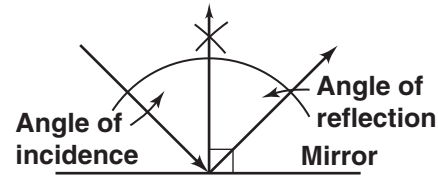


18. a. $\angle CBD$; 41

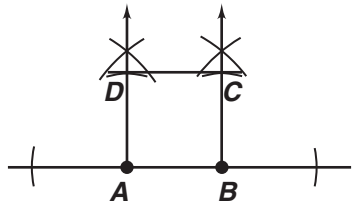
b. 82

c. 49; 49

19. a–b.



20. Locate points A and B on a line. Then construct a $\perp$ at A and B as in Exercise 16. Construct $\overline{AD}$ and $\overline{BC}$ so that $AB = AD = BC$.



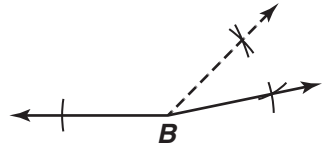
21. Explanations may vary. Samples are given.

a. One midpt.; a midpt. divides a segment into two ≅ segments. If there were more than one midpt. the segments wouldn't be ≅.

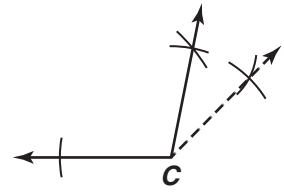
b. Infinitely many; there's only 1 midpt. but there exist infinitely many lines through the midpt. A segment has exactly one ⊥ bisecting line because there can be only one line ⊥ to a segment at its midpt.

c. There are an infinite number of lines in space that are ⊥ to a segment at its midpt. The lines are coplanar.

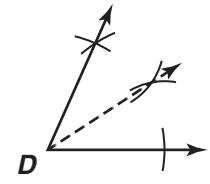
22.



23.



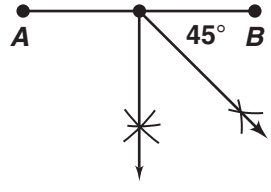
24.

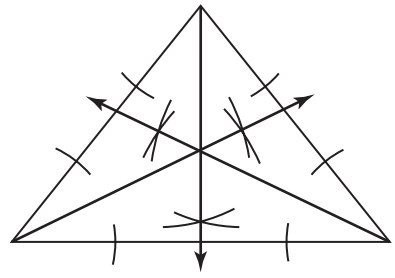


25. They are both correct. If you mult. each side of Lani's eq. by 2, the result is Denyse's eq.

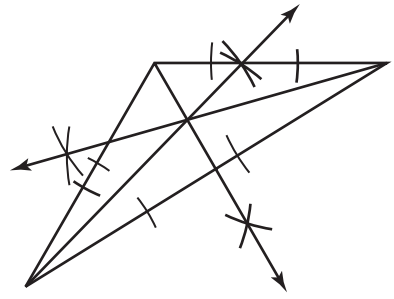
26. Open the compass to more than half the measure of the segment. Swing large arcs from the endpts. to intersect above and below the segment. Draw a line through the two pts. where the arcs intersect. The pt. where the line and segment intersect is the midpt. of the segment.

27.

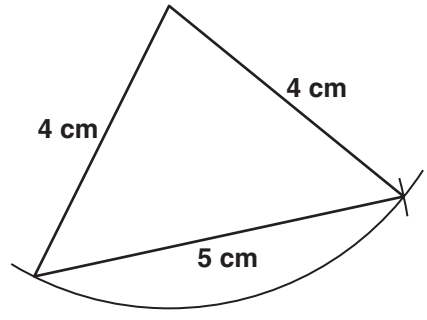


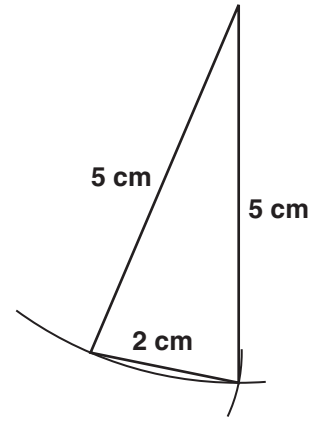
28. a. 

They appear to meet at one pt.

b. 

c. The three ∠ bisectors of a △ intersect in one pt.

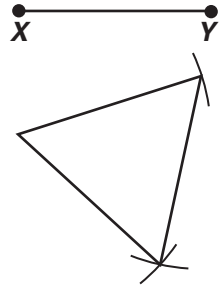
29. 

30. 

31. Impossible; the short segments are not long enough to form a △.

32. Impossible; the short segments are not long enough to form a △.

33. a.

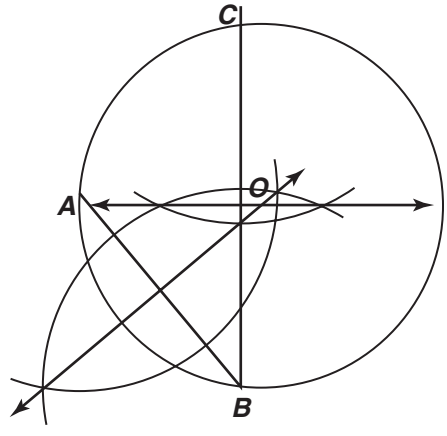


b. They are all 60°.

c. Answers may vary. Sample: Mark a pt., A. Swing a long arc from A. From a pt. P on the arc, swing another arc the same size that intersects the arc at a second pt., Q. Draw $\angle PAQ$. To construct a 30° $\angle$, bisect the 60° $\angle$.

34. A

35. a–b.



c. Point O is the center of the circle.

36. $\perp$; the line intersects.

Answers for Lesson 1-8, pp. 56–58 Exercises

1. 6 **2.** 18 **3.** 8

4. 9 **5.** 23.3 **6.** 10

7. 25 **8.** 12.2 **9.** 12.0

10. 9 mi **11.** about 4.5 mi **12.** about 3.2 mi

13. 6.4 **14.** 15.8 **15.** 15.8

16. 5.0 **17.** B, C, D, E, F **18.** (4, 2)

19. (3, 1) **20.** (3.5, 1) **21.** (6, 1)

22. $(-2.25, 2.1)$ **23.** $(3\frac{7}{8}, -3)$ **24.** $(10, -20)$

25. $(5, -1)$ **26.** $(0, -34)$ **27.** $(12, -24)$

28. $(9, -28)$ **29.** $(5.5, -13.5)$ **30.** (8, 18)

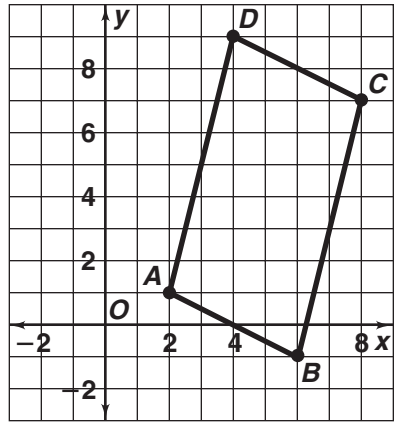
31. $(4, -11)$ **32.** 5.0; (4.5, 4) **33.** 5.8; (1.5, 0.5)

34. 7.1; $(-1.5, 0.5)$ **35.** 5.4; $(-2.5, 3)$ **36.** 10; $(1, -4)$

37. 2.8; $(-4, -4)$ **38.** 6.7; $(-2.5, -2)$ **39.** 5.4; (3, 0.5)

40. 2.2; (3.5, 1) **41.** IV

42.



The midpts. are the same, (5, 4).
The diagonals bisect each other.

43. B

44. 19.2 units; $(-1.5, 0)$

45. 10.8 units; $(3, -4)$

46. 5.4 units; $(-1, 0.5)$

47. 165 units; The dist. TV is less than the dist. TU, so the airplane should fly from T to V to U for the shortest route.

48. Z; about 12 units

49. 934 mi

50. 1073 mi

51. 2693 mi

52. 328 mi

53–56. Answers may vary. Samples are given.

53. $(3, 6), (0, 4.5)$

54. $E\ (0, 0), (8, 4)$

55. $(1, 0), (-1, 4)$

56. $(0, 10), (5, 0)$

57. exactly one pt., $H\ (-5, 2)$

58. exactly one pt., $J\ (2, -2)$

59. a–f. Answers may vary. Samples are given.

a. $BC = AD$

b. If two opp. sides of a quad. are both $\parallel$ and $\cong$, then the other two opp. sides are $\cong$.

c. The midpts. are the same.

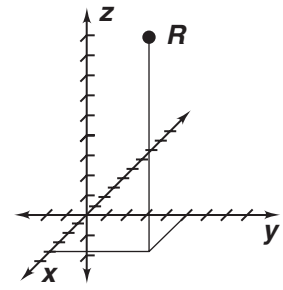
d. If one pair of opp. sides of a quad. are both $\parallel$ and $\cong$, then its diagonals bisect each other.

e. $EF = AB$

f. If a pair of opp. sides of a quad. are both $\parallel$ and $\cong$, then the segment joining the midpts. of the other two sides has the same length as each of the first pair of sides.

60. $A\ (0, 0, 0)$
$B\ (6, 0, 0)$
$C\ (6, -3.5, 0)$
$D\ (0, -3.5, 0)$
$E\ (0, 0, 9)$
$F\ (6, 0, 9)$
$G\ (0, -3.5, 9)$

61.



62. 6.5 units

63. 11.7 units

Answers for Lesson 1-9, pp. 65–68 Exercises

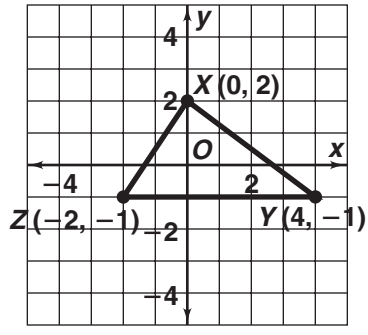
1. 22 in. **2.** 36 cm **3.** 56 in. **4.** 78 cm

5. 120 m **6.** 48 in. **7.** 38 ft **8.** 15π cm

9. 10π ft **10.** 3.7π in. **11.** $\frac{1}{2}\pi$ m **12.** 56.5 in.

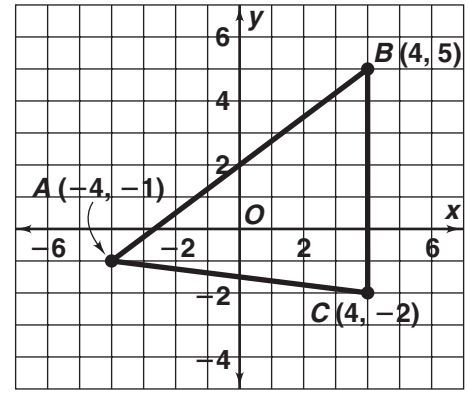
13. 22.9 m **14.** 1.6 yd **15.** 351.9 cm

16.



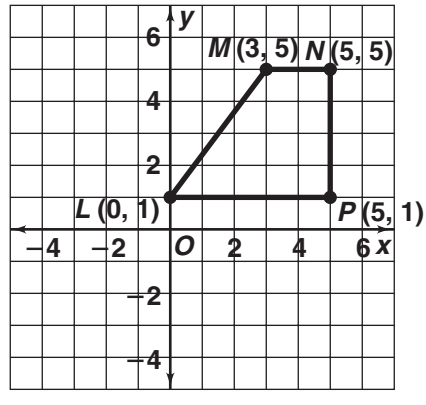
$\approx$ 14.6 units

17.



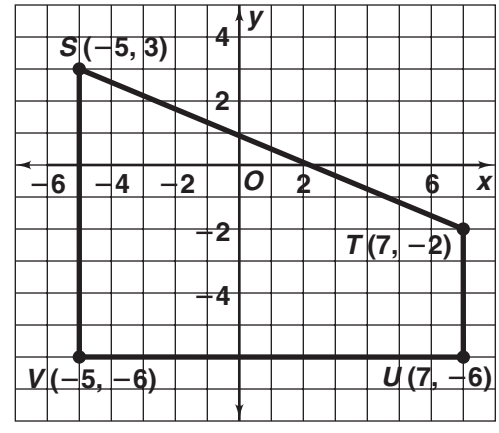
$\approx$ 25.1 units

18.



16 units

19.



38 units

20. $1\frac{1}{3}$ ft^2 or 192 in.^{2} **21.** 4320 in.^{2} or $3\frac{1}{3}$ yd^2

22. $1\frac{1}{8}$ ft^2 or 162 in.^{2} **23.** 8000 cm^2 or 0.8 m^2

24. 5.7 m^2 or 57,000 cm^2 **25.** 120,000 cm^2 or 12 m^2

26. 6000 ft^2 or $666\frac{2}{3}$ yd^2 **27.** 400π m^2

28. 64π ft^2 **29.** $\frac{9}{64}\pi$ in.^{2} **30.** 0.25π m^2 **31.** 9.9225π ft^2

32. 0.01π m^2 **33.** 153.9 ft^2 **34.** 54.1 m^2 **35.** 452.4 cm^2

36. 452.4 in.^{2} **37.** 310 m^2 **38.** 80 in.^{2}

39. **a.** 144 in.^{2} **b.** 1 ft^2

c. 144; a square whose sides are 12 in. long and a square whose sides are 1 ft long are the same size.

40. **a.** 30 squares **b.** 16; 9; 4; 1

c. They are $=$. Post. 1-10

41. 3289 m^2

42–45. Answers may vary. Samples are given.

42. 38 in.; 90 in.^{2} **43.** 39 in.; 93.5 in.^{2}

44. 12 ft; 8 ft^2 **45.** 8 ft; 3.75 ft^2

46. Answers may vary. Sample: For Exercise 44, you use feet because the bulletin board is too big for inches.

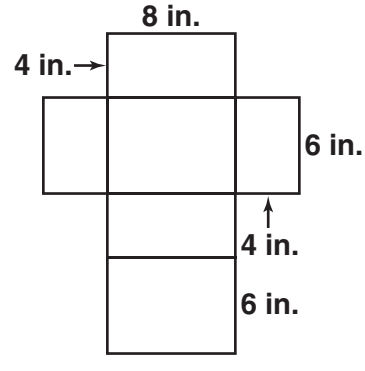
47. 16 cm **48.** 96 cm^2 **49.** 288 cm

50. **a.** Yes; every square is a rectangle.

b. Answers may vary. Sample: No, not all rectangles are squares.

c. $A = \left(\frac{P}{4}\right)^2$ or $A = \frac{P^2}{16}$

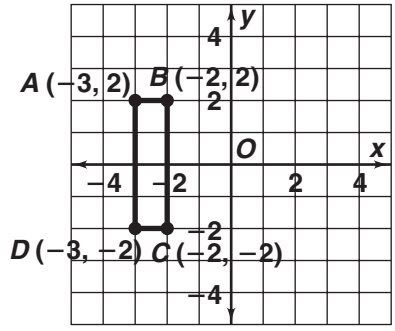
51. **a.**



b. 208 in.^{2}, 208 in.^{2}

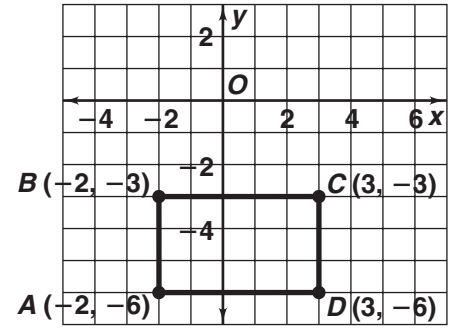
52. 512 tiles

53.



perimeter = 10 units
area = 4 units^2

54.



perimeter = 16 units
area = 15 units^2

55. 38 units

56. 54 units^2

57. 1,620,000 m^2

58. D

59. Area; the wall is a surface.

60. Perimeter; weatherstripping must fit the edges of the door.

61. Perimeter; the fence must fit the perimeter of the garden.

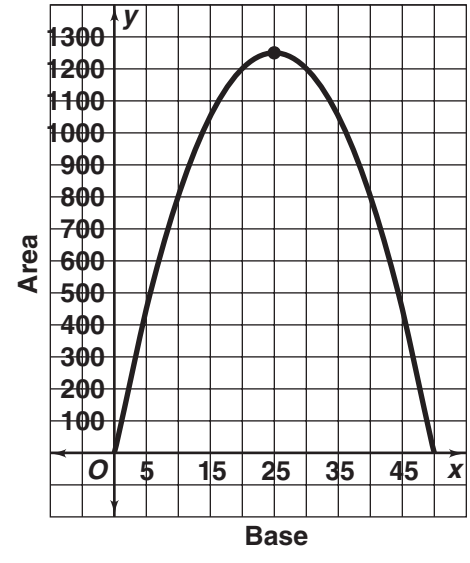
62. Area; the floor is a surface.

63. 6.25π units^2

64. **a.**

base	height	area
1	98	98
2	96	192
3	94	282
⋮	⋮	⋮
24	52	1248
25	50	1250
26	48	1248
⋮	⋮	⋮
47	6	282
48	4	192
49	2	98

b.



c. 25 ft by 50 ft

65. **a.** 9 **b.** 9 **c.** 9 **d.** 9

66. $\frac{3a}{20}$ units^2 **67.** $\frac{25n^2}{4}$ units^2

68. $(9m^2 - 24mn + 16n^2)$ units^2

69. Answers may vary. Sample: one 8 in.-by-8 in. square + one 5 in.-by-5 in. square + two 4 in.-by-4 in. squares

70. 388.5 yd