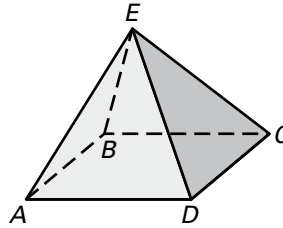


Cumulative Test 1

In Exercises 1–5, use the diagram at the right.

1. Name the intersection of \overleftrightarrow{ED} and \overleftrightarrow{CD} .
2. Name the intersection of plane ABD and plane AEB .
3. Are points B , C , and D collinear?
4. Are points E , A , and D coplanar?
5. Name two planes that intersect at line \overleftrightarrow{EC} .



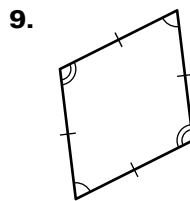
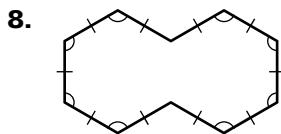
Answers

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____

In Exercises 6 and 7, the endpoints of a segment are given. Find the length of the segment rounded to the nearest tenth. Then find the coordinates of the midpoint of the segment.

6. $A(-3, 4)$ and $B(1, -8)$ 7. $F(-6, -7)$ and $G(5, -3)$

Classify the polygon by the number of sides. Tell whether the polygon is equilateral, equiangular, or regular.



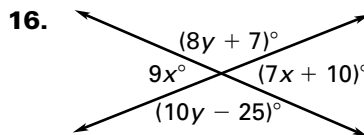
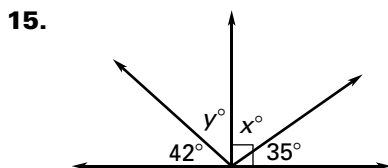
Write the next three numbers in the pattern.

10. 3072, 768, 192, 48, ... 11. 6, 4, 0, -6, ...
12. Write the contrapositive of the conditional statement “Senators are politicians.” Is the statement *true* or *false*?

Use the property to complete the statement.

13. Symmetric Property of Equality: If $m\angle G = m\angle H$, then $\underline{\quad? \quad}$.
14. Transitive Property of Congruence: If $\angle C \cong \angle D$, and $\angle \underline{\quad? \quad} \cong \angle \underline{\quad? \quad}$, then $\angle C \cong \angle E$.

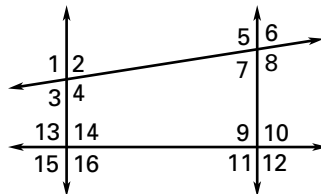
Find the values of x and y .



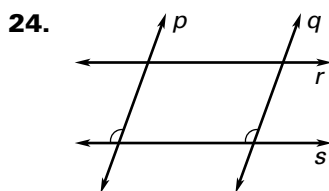
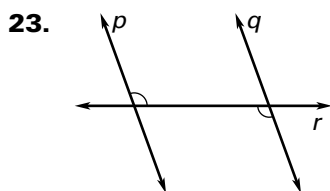
Cumulative Test 1 *continued*

Classify the angle pair as *corresponding*, *alternate interior*, *alternate exterior*, or *consecutive interior* angles.

17. $\angle 7$ and $\angle 10$ 18. $\angle 2$ and $\angle 15$
 19. $\angle 4$ and $\angle 14$ 20. $\angle 5$ and $\angle 9$
 21. $\angle 11$ and $\angle 6$ 22. $\angle 7$ and $\angle 10$



Is there enough information to prove $p \parallel q$? If so, state the postulate or theorem you would use.



Find the slope of the line that passes through the points.

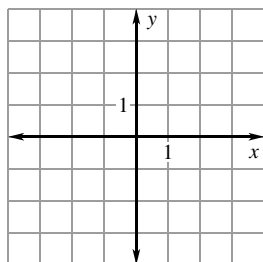
25. $(-4, -2), (2, 6)$ 26. $(-3, 7), (1, -5)$ 27. $(8, 1), (-5, 0)$

Write an equation of the line with the given slope m and y -intercept b .

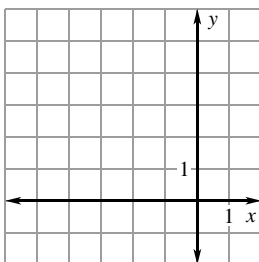
28. $m = -2, b = 3$ 29. $m = 4, b = -1$ 30. $m = \frac{5}{6}, b = 2$

Graph the equation.

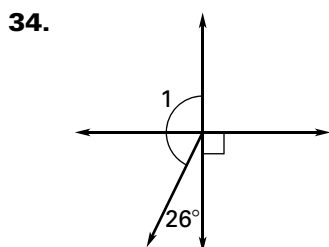
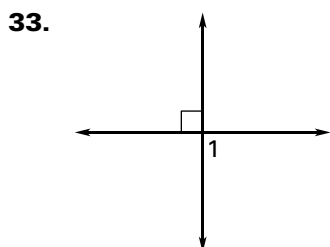
31. $6x + 2y = -4$



32. $-2x + 3y = 9$



Find $m \angle 1$.



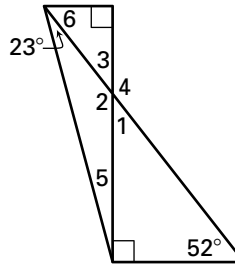
Answers

17. _____
 18. _____
 19. _____
 20. _____
 21. _____
 22. _____
 23. _____
 24. _____
 25. _____
 26. _____
 27. _____
 28. _____
 29. _____
 30. _____
 31. _____
 32. _____
 33. _____
 34. _____

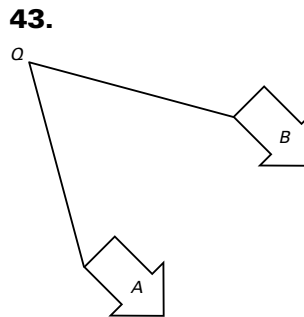
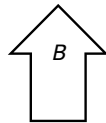
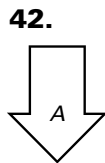
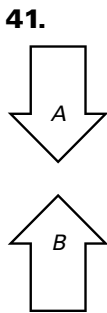
Cumulative Test 1 *continued*

Find the measure of the numbered angle.

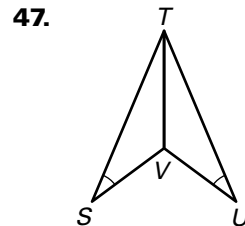
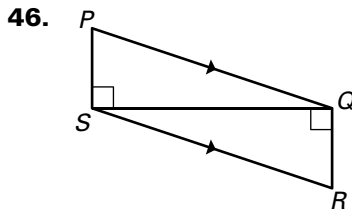
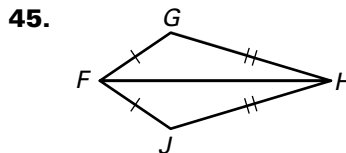
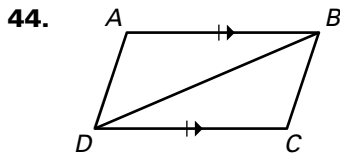
35. $\angle 1$ 36. $\angle 2$
 37. $\angle 3$ 38. $\angle 4$
 39. $\angle 5$ 40. $\angle 6$



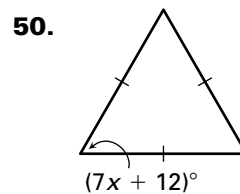
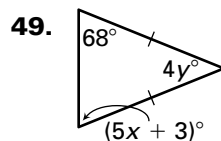
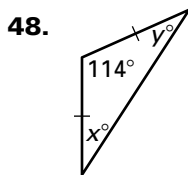
Identify the transformation(s) you can use to move figure A onto figure B.



Decide whether enough information is given to prove that the triangles are congruent. If there is enough information, state the congruence postulate or theorem you would use.



Find the values of x and y .



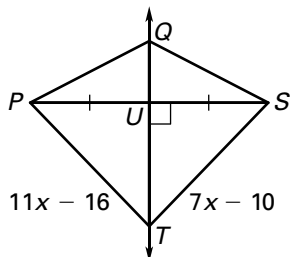
Answers

35. _____
 36. _____
 37. _____
 38. _____
 39. _____
 40. _____
 41. _____
 42. _____
 43. _____
 44. _____
 45. _____
 46. _____
 47. _____
 48. _____
 49. _____
 50. _____

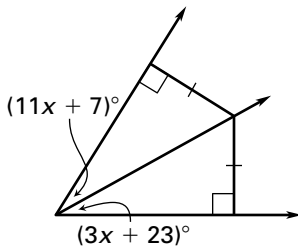
Cumulative Test 1 *continued*

Find the value of x .

51.



52.



Is it possible to construct a triangle with the given side lengths?

53. 11, 17, 29

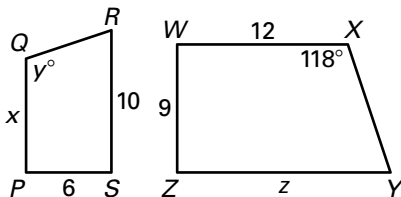
54. 30, 32, 34

55. 15, 112, 113

In the diagram, $PQRS \sim WXYZ$.

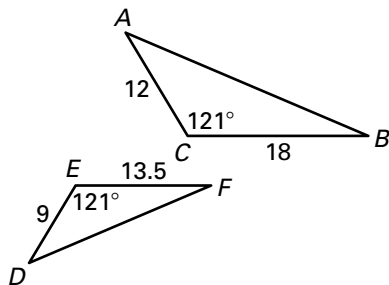
56. Find the scale factor of $PQRS$ to $WXYZ$.

57. Find the values of x , y , and z .

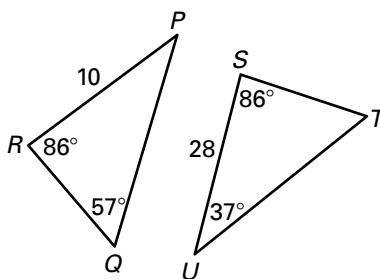


Determine whether the two triangles are similar. If they are similar, write a similarity statement.

58.



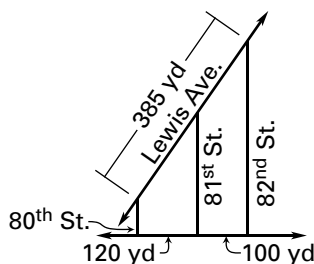
59.



Using the map shown, find the given distance.

60. along Lewis Avenue from 80th Street to 81st Street

61. along Lewis Avenue from 81st Street to 82nd Street



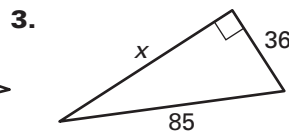
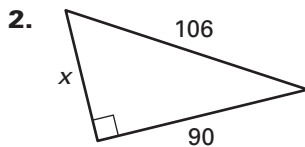
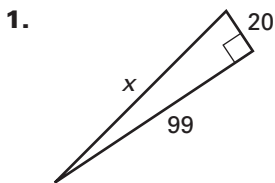
62. A telephone pole casts a shadow that is 90 feet long. Mack, who is standing nearby, is 6 feet tall and casts a shadow that is 18 feet long. How tall is the telephone pole?

Answers

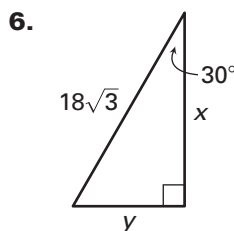
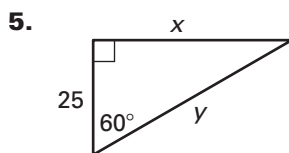
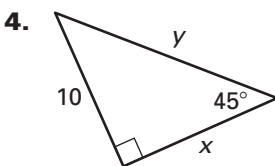
- 51. _____
- 52. _____
- 53. _____
- 54. _____
- 55. _____
- 56. _____
- 57. _____
- 58. _____
- 59. _____
- 60. _____
- 61. _____
- 62. _____

CHAPTERS 7-12 **Cumulative Test 2**

Find the unknown side length of the right triangle.

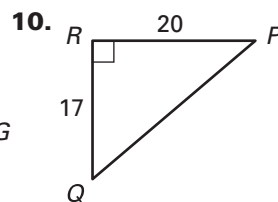
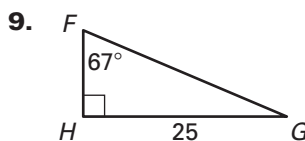
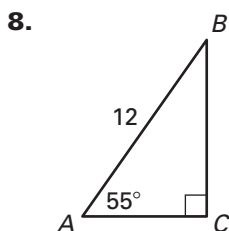


Find the value of each variable. Write your answers in simplest radical form.



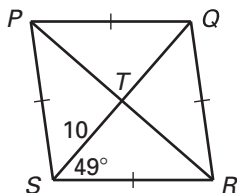
7. You are measuring the height of a Ferris wheel at an amusement park. You are standing 125 feet from its base. You measure the angle of elevation from a point on the ground to the top of the Ferris wheel to be 51° . Estimate the height of the Ferris wheel. Round your answer to the nearest foot.

Solve the right triangle. Round decimal answers to the nearest tenth.

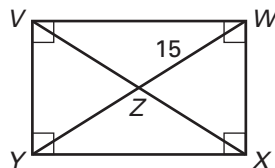


Find the indicated measure.

11. $m\angle PSQ$



12. XV



13. What are the measures of an interior angle and an exterior angle of a regular 30-gon?

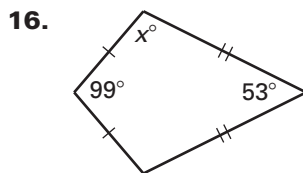
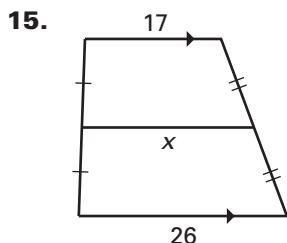
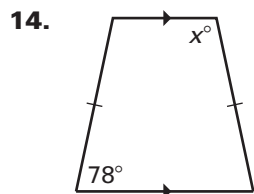
Answers

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____

**CHAPTERS
7-12**

Cumulative Test 2 *continued*

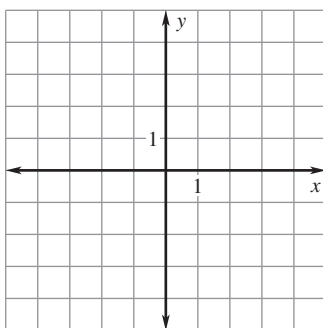
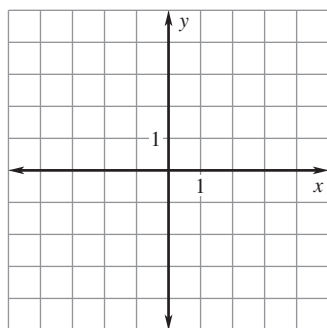
Find the value of x .



The vertices of $\triangle XYZ$ are $X(-1, 4)$, $Y(3, 4)$, and $Z(2, 1)$. Translate $\triangle XYZ$ using the given vector. Graph its image.

17. $\langle -2, 0 \rangle$

18. $\langle 1, -3 \rangle$



Add, subtract, or multiply.

19. $\begin{bmatrix} -4 & 7 \\ -2 & 12 \end{bmatrix} + \begin{bmatrix} 3 & -1 \\ -5 & -10 \end{bmatrix}$

20. $\begin{bmatrix} 8 & -6 & 4 \end{bmatrix} - \begin{bmatrix} -7 & 2 & -3 \end{bmatrix}$

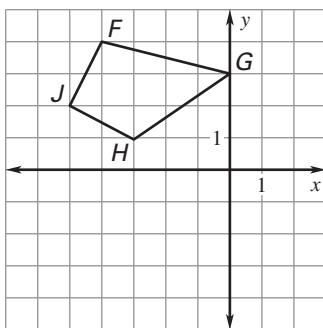
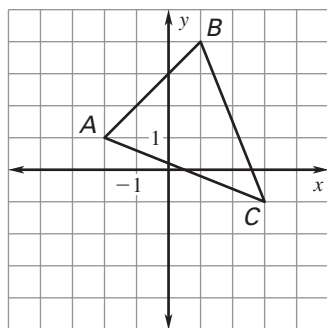
21. $\begin{bmatrix} 9 & 5 \end{bmatrix} \begin{bmatrix} -4 \\ 6 \end{bmatrix}$

22. $\begin{bmatrix} -1 & 6 \\ 5 & 1 \end{bmatrix} \begin{bmatrix} -4 & 2 \\ -2 & 0 \end{bmatrix}$

Find the image matrix that represents the polygon after a reflection in the given line.

23. x -axis

24. $y = -x$



Answers

14. _____

15. _____

16. _____

17. _____

18. _____

19. _____

20. _____

21. _____

22. _____

23. _____

24. _____

CHAPTERS
7-12

Cumulative Test 2 *continued*

The vertices of $\triangle STU$ are $S(1, -2)$, $T(5, -2)$, and $U(1, -4)$. Find the coordinates of the image of $\triangle STU$ after a composition of the transformations in the order they are listed.

25. Translation: $(x, y) \rightarrow (x - 1, y + 4)$
Reflection: in the y -axis
26. Translation: $(x, y) \rightarrow (x - 3, y - 1)$
Rotation: 90° about the origin

Answers

25. _____

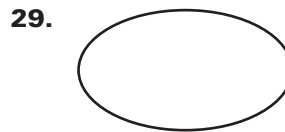
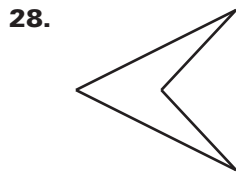
26. _____

27. _____

28. _____

29. _____

Decide whether the figure has *line symmetry* and/or *rotational symmetry*. Identify the number of lines of symmetry and/or the rotations that map the figure onto itself.

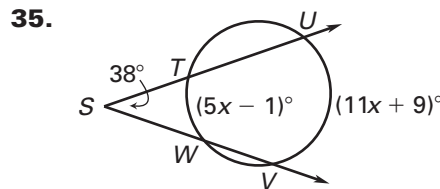
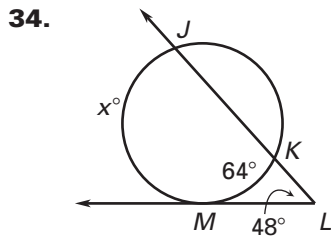
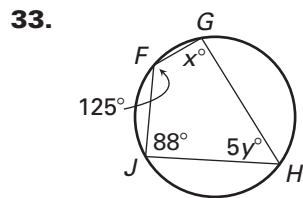
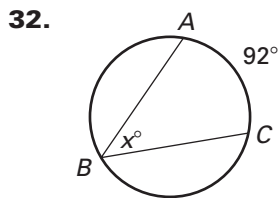


Find the image matrix that represents a dilation of the polygon centered at the origin with the given scale factor.

30. $\begin{matrix} A & B & C \\ \begin{bmatrix} 1 & 3 & 0 \\ 6 & 2 & 4 \end{bmatrix}; k = 2 \end{matrix}$

31. $\begin{matrix} A & B & C \\ \begin{bmatrix} -8 & -4 & -8 \\ 4 & 4 & 0 \end{bmatrix}; k = \frac{3}{4} \end{matrix}$

Find the value of each variable.



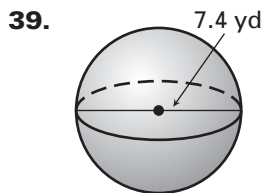
30. _____
31. _____
32. _____
33. _____
34. _____
35. _____
36. _____
37. _____
38. _____

Write the standard equation of the circle with the given center and radius.

36. Center $(0, -3)$, radius 5 37. Center $(-2, 6)$, radius 1
38. Give an equation of a line that does *not* intersect the circle described by the equation $(x - 1)^2 + (y + 2)^2 = 64$.

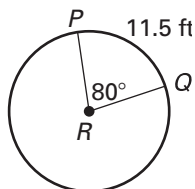
Cumulative Test 2 *continued*

Find the surface area of the figure. Round your answer to two decimal places, if necessary.

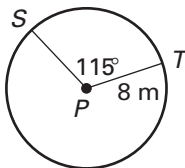


Find the indicated measure.

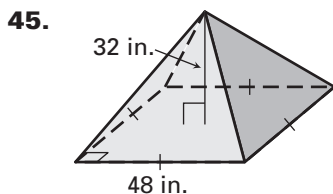
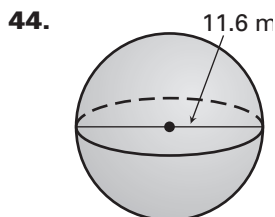
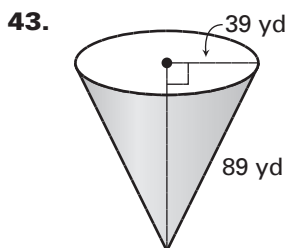
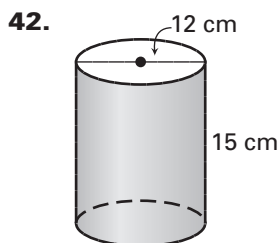
40. Circumference of $\odot P$



41. $m\widehat{ST}$



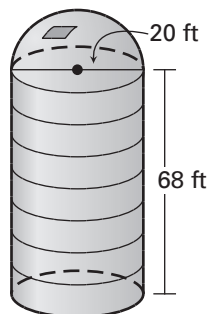
Find the volume of the figure. Round your answers to two decimal places, if necessary.



46. Find the volume of the silo shown at the right. Round your answer to two decimal places.

47. Two rectangular prisms have a scale factor of 3 : 4. The smaller rectangular prism has a surface area of 12,582 square meters. Find the surface area of the larger rectangular prism.

48. Two right cones have a scale factor of 1 : 5. The larger cone has a volume of 1875π cubic feet. Find the volume of the smaller cone.



Answers

- 39. _____
- 40. _____
- 41. _____
- 42. _____
- 43. _____
- 44. _____
- 45. _____
- 46. _____
- 47. _____
- 48. _____

Answers

Cumulative Test

1. point D 2. \overleftrightarrow{AB} 3. no 4. yes 5. plane ECD and plane ECB 6. 12.6; $(-1, -2)$

7. 11.7; $(-\frac{1}{2}, -5)$ 8. decagon, equilateral

9. quadrilateral, equilateral 10. 12, 3, 0.75

11. $-14, -24, -36$ 12. If you are not a politician, then you are not a senator.; true

13. $m\angle H = m\angle G$ 14. $\angle D \cong \angle E$

15. $x = 55, y = 48$ 16. $x = 5, y = 16$

17. alternate interior 18. alternate exterior

19. consecutive interior 20. corresponding

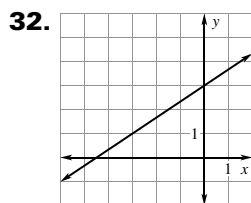
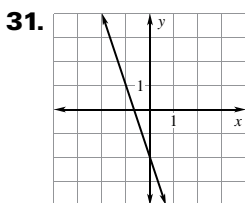
21. alternate exterior 22. alternate interior

23. yes; Alternate Interior Angles Theorem

24. yes; Corresponding Angles Converse

25. $\frac{4}{3}$ 26. -3 27. $\frac{1}{13}$ 28. $y = -2x + 3$

29. $y = 4x - 1$ 30. $y = \frac{5}{6} + 2$



33. 90° 34. 154° 35. 38° 36. 142°

37. 38° 38. 142° 39. 15° 40. 52°

41. reflection 42. Sample answer: translation and then a reflection 43. rotation about Q

44. yes; the SAS Congruence Postulate

45. yes; the SSS Congruence Postulate

46. yes; the AAS Congruence Theorem

47. not enough 48. $x = 33, y = 33$

49. $x = 13, y = 11$ 50. $x = \frac{48}{7}$ 51. $x = \frac{13}{2}$

52. $x = 2$ 53. no 54. yes 55. yes 56. $\frac{2}{3}$

57. $x = 8, y = 118^\circ, z = 15$

58. yes; $\triangle ABC \sim \triangle DFE$

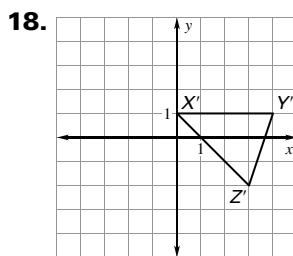
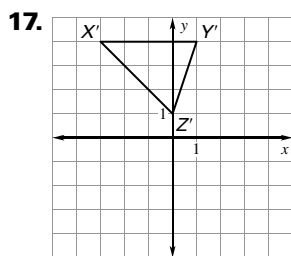
59. yes; $\triangle PQR \sim \triangle UTS$ 60. 210 yd

61. 175 yd 62. 30ft

Answers

Cumulative Test

1. $x = 101$ 2. $x = 56$ 3. $x = 77$ 4. $x = 10$,
 $y = 10\sqrt{2}$ 5. $x = 25\sqrt{3}$, $y = 50$ 6. $x = 27$,
 $y = 9\sqrt{3}$ 7. 154 ft 8. $m\angle B = 35^\circ$, $AC \approx 6.9$,
 $BC \approx 9.8$ 9. $m\angle G = 23^\circ$, $FG \approx 27.2$,
 $FH \approx 10.6$ 10. $m\angle P \approx 40.4^\circ$, $m\angle Q \approx 49.6^\circ$,
 $PQ \approx 26.2$ 11. 49° 12. 30 units 13. 168° , 12°
 14. $x = 102$ 15. $x = 21.5$ 16. $x = 104$



19. $\begin{bmatrix} -1 & 6 \\ -7 & 2 \end{bmatrix}$ 20. $[15 \quad -8 \quad 7]$ 21. $[-6]$

22. $\begin{bmatrix} -8 & -2 \\ -22 & 10 \end{bmatrix}$ 23. $\begin{matrix} A' & B' & C' \\ \begin{bmatrix} -2 & 1 & 3 \\ -1 & -4 & 1 \end{bmatrix} \end{matrix}$

24. $\begin{matrix} F' & G' & H' & J' \\ \begin{bmatrix} -1 & -3 & -1 & -2 \\ 4 & 0 & 3 & 5 \end{bmatrix} \end{matrix}$

25. $S''(0, 2)$, $T''(-4, 2)$, $U''(0, 0)$

26. $S''(3, -2)$, $T''(3, 2)$, $U''(5, -2)$

27. line symmetry; one line of symmetry

28. line symmetry; one line of symmetry

29. line symmetry, rotational symmetry; two lines of symmetry, 180° about the center

30. $\begin{matrix} A' & B' & C' \\ \begin{bmatrix} 2 & 6 & 0 \\ 12 & 4 & 8 \end{bmatrix} \end{matrix}$ 31. $\begin{matrix} A' & B' & C' \\ \begin{bmatrix} -6 & -3 & -6 \\ 3 & 3 & 0 \end{bmatrix} \end{matrix}$

32. $x = 46$ 33. $x = 92$, $y = 11$ 34. $x = 160$

35. $x = 11$ 36. $x^2 + (y + 3)^2 = 25$

37. $(x + 2)^2 + (y - 6)^2 = 1$

38. Sample answer: $y = 8$ 39. 172.03 yd^2

40. 51.75 ft 41. 16.1 m 42. 1696.46 cm^3

43. $127,423 \text{ yd}^3$ 44. 817.28 m^3 45. $24,576 \text{ in.}^3$

46. $23,457.23 \text{ ft}^3$ 47. $22,368 \text{ m}^2$ 48. $15\pi \text{ ft}^3$