Sharyland ISD
Study Guide

Geometry
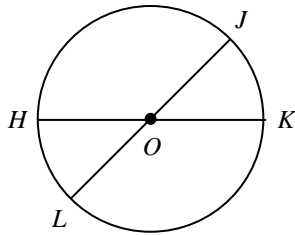# Semester B

Student Name: _____
Student ID: _____

_____ 1. What are the major arcs of $\odot O$ that contain point J?

A. $\overarc{JKH}$, $\overarc{KLJ}$, $\overarc{LHK}$, and $\overarc{HJL}$
B. $\overarc{JKH}$, $\overarc{KLJ}$, and $\overarc{HJL}$
C. $\overarc{JKH}$, $\overarc{JKL}$, $\overarc{KLJ}$, $\overarc{KLH}$, $\overarc{LHK}$, and $\overarc{HJL}$
D. $\overarc{HJ}$, $\overarc{HK}$, $\overarc{JK}$, $\overarc{JL}$, $\overarc{KL}$, and $\overarc{LH}$

Find the area. The figure is not drawn to scale.

_____ 2.

6.1 cm

6.8 cm
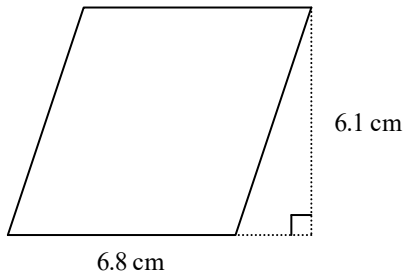
A. 82.96 cm²   B. 41.48 cm²   C. 0.7 cm²   D. 12.9 cm²

The polygons are similar, but not necessarily drawn to scale. Find the value of x.

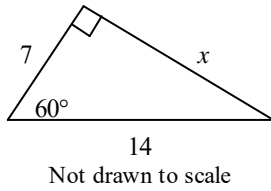$x - 3$ 8   2.5   2

16   4

_____ 3.
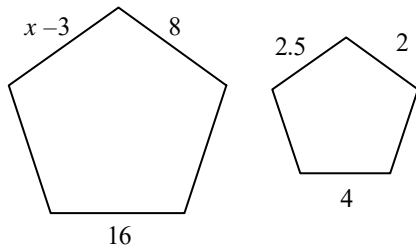
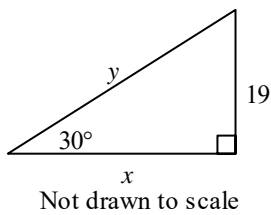A. $x = 5.5$ C. $x = 10$
B. $x = 7$ D. $x = 13$

Find the value of the variable(s). If your answer is not an integer, leave it in simplest radical form.

_____ 4.

7   x

60°

14

Not drawn to scale

A. $\dfrac{1}{2}$ B. $14\sqrt{3}$ C. $7\sqrt{3}$ D. 2

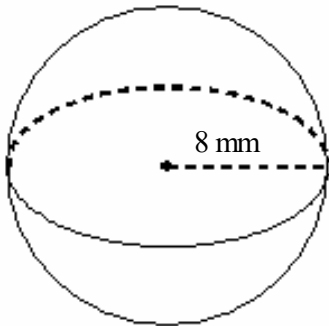_____ 5.

y 19

30°

x

Not drawn to scale

A. $x = 38\sqrt{3}, y = 19$ C. $x = 19\sqrt{3}, y = 38$

B. $x = 38, y = 19\sqrt{3}$ D. $x = 19, y = 38\sqrt{3}$

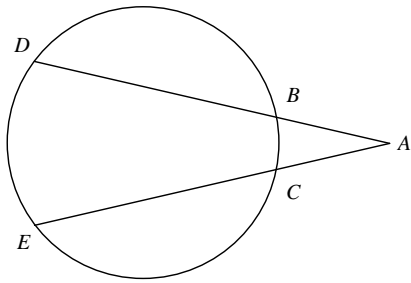**Find the volume of the sphere shown. Give each answer rounded to the nearest cubic unit.**

_____ 6.

8 mm

A. 268 mm^3 B. 1072 mm^3 C. 804 mm^3 D. 2145 mm^3
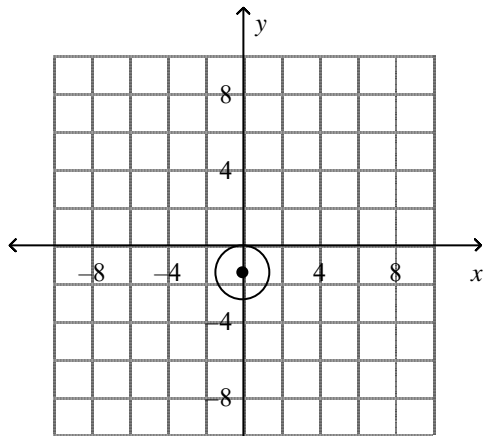
_____ 7. $m\overarc{DE} = 103$ and $m\overarc{BC} = 66$. Find $m\angle A$. (The figure is not drawn to scale.)

A. 84.5   B. 37   C. 18.5   D. 70

_____ 8. A manufacturer is designing a two-wheeled cart that can maneuver through tight spaces. On one test model, the wheel placement (center) and radius is modeled by the equation $(x + 2)^2 + (y + 1.5)^2 = 4$. What is the graph that shows the position and radius of the wheels?

A.

C.
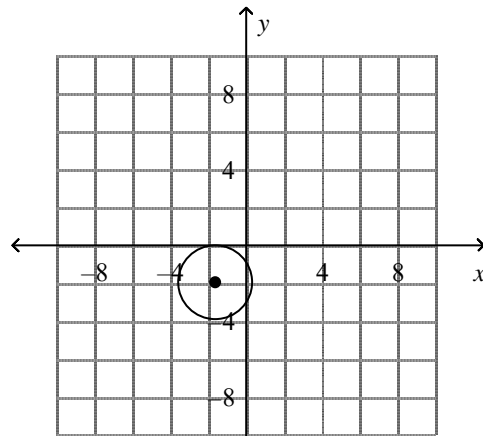
B.

D.

_____ 9. You roll a standard number cube. Find P(number is not 2).

A. $\dfrac{2}{3}$ B. $\dfrac{5}{6}$ C. $\dfrac{1}{2}$ D. $\dfrac{1}{6}$

Find the area of the trapezoid. Leave your answer in simplest radical form.

_____ 10.

8 in.
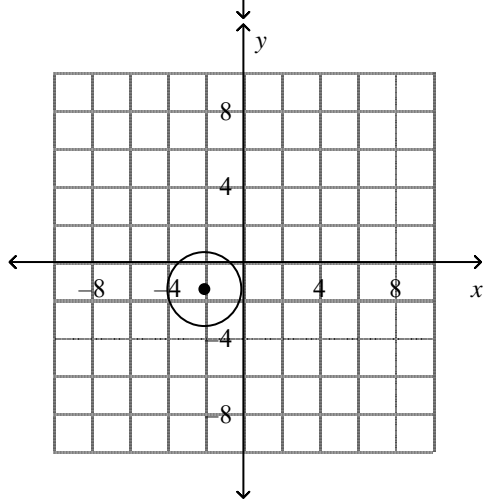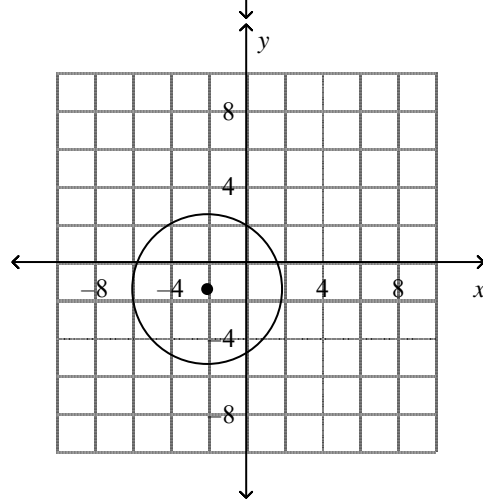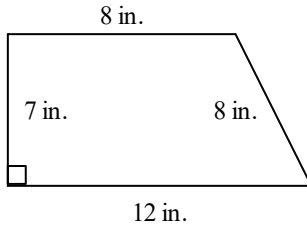
7 in.   8 in.

12 in.
Not drawn to scale

A. 75 in.^{2} B. 80 in.^{2} C. 77.2 in.^{2} D. 70 in.^{2}

Find the volume of the right cone shown as a decimal rounded to the nearest tenth.

_____ 11.

26 m

18 m
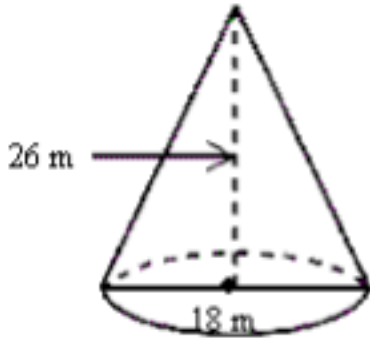
Not drawn to scale

A. 5952.3 m^3 B. 850.3 m^3 C. 1488.1 m^3 D. 2232.1 m^3

_____ 12. Find the radian measure of an angle of 100°.

A. $\dfrac{9}{5\pi}$ B. $\dfrac{5}{9\pi}$ C. $\dfrac{5\pi}{9}$ D. $\dfrac{9\pi}{5}$

_____ 13. An airplane pilot over the Pacific sights an atoll at an angle of depression of 5°. At this time, the horizontal distance from the airplane to the atoll is 4629 meters. What is the height of the plane to the nearest meter?

5°

x
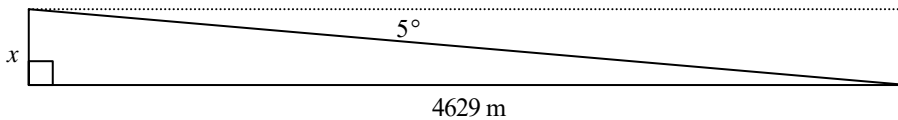
4629 m
Not drawn to scale

A. 4647 m   B. 403 m   C. 4611 m   D. 405 m

_____ 14. Jason wants to walk the shortest distance to get from the parking lot to the beach.

Refreshment
Stand

40 m

Beach

Parking
Lot

30 m

a. How far is the spot on the beach from the parking lot?
b. How far will his place on the beach be from the refreshment stand?

A. 38 m; 12 m   C. 34 m; 16 m
B. 24 m; 18 m   D. 24 m; 32 m

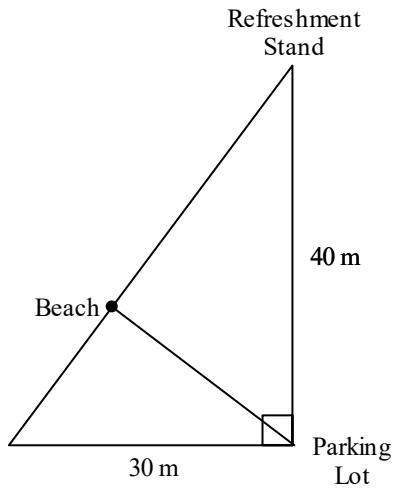_____ 15. A large totem pole in the state of Washington is 100 feet tall. At a particular time of day, the totem pole casts a 249-foot-long shadow. Find the measure of $\angle A$ to the nearest degree.

100 ft

A

249 ft
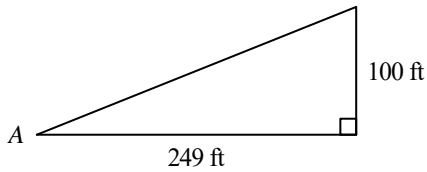
A. 35°   B. 68°   C. 45°   D. 22°

_____ 16. For $m\angle AOC = 53$, find $m\angle BPO$.
A. 143   B. 53   C. 37   D. 63.5

Find the surface area of the cylinder in terms of π.

_____ 17.

4 in.

14 in.

Not drawn to scale

A. 112π in.²   B. 144π in.²   C. 128π in.²   D. 240π in.²

Find the surface area of the regular pyramid shown to the nearest whole number.
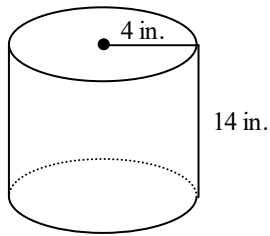
_____ 18.

7 ft

5 ft

5 ft
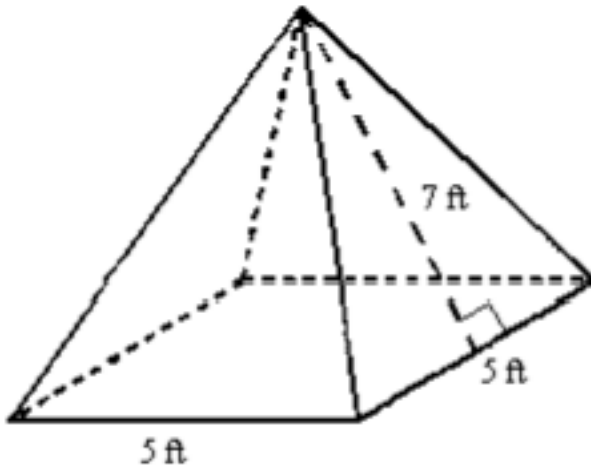
Not drawn to scale

A. 45 ft²   B. 15 ft²   C. 81 ft²   D. 36 ft²

Find the length of the missing side. The triangle is not drawn to scale.

_____ 19.

13

12
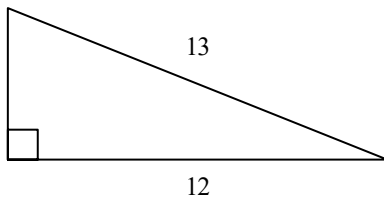
A. 18   B. 2   C. 5   D. 25

_____ 20. Pentagon *RSTUV* is circumscribed about a circle. Solve for *x* for *RS* = 7, *ST* = 8, *TU* = 10, *UV* = 13, and *VR* = 14. The figure is not drawn to scale.

R

x

V   S

U   T
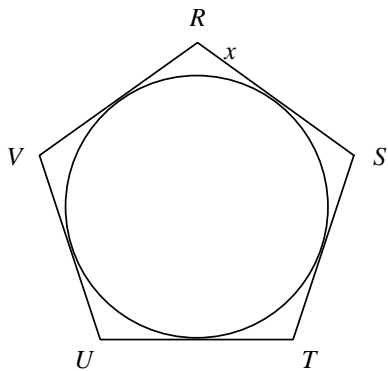
A. 5   B. 10.5   C. 10   D. 2

_____ 21. Which graph shows $T_{<-3,3>}(\triangle ABC)$?

A.

C.

B.

D.
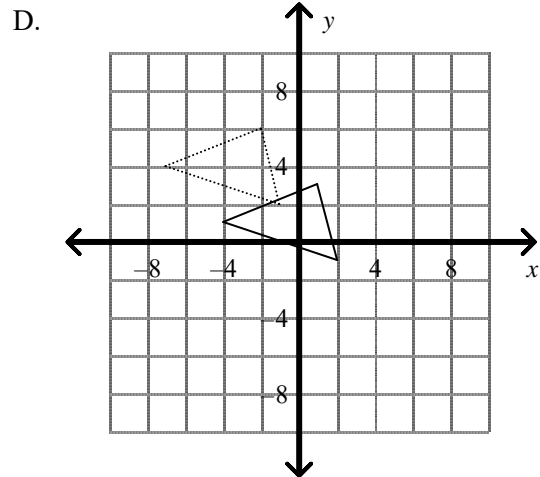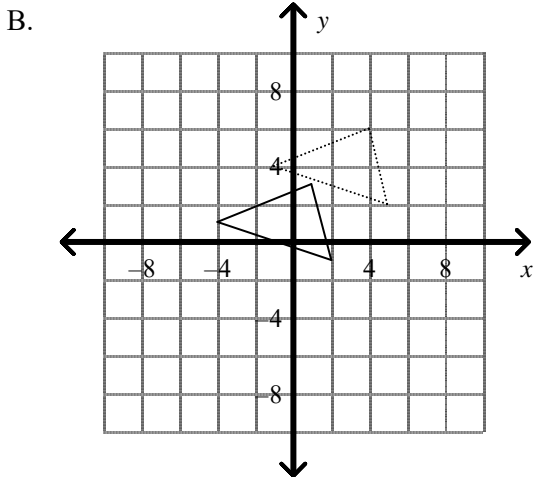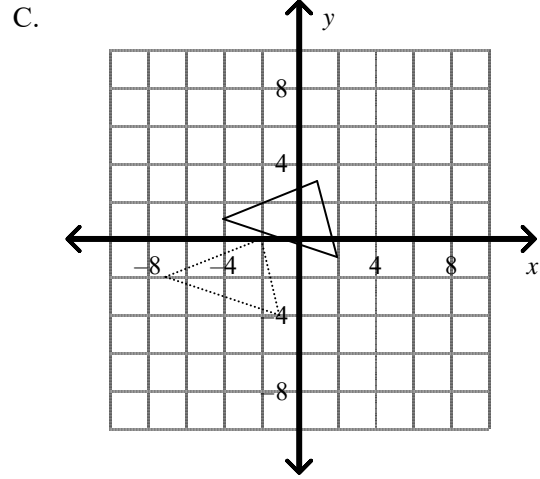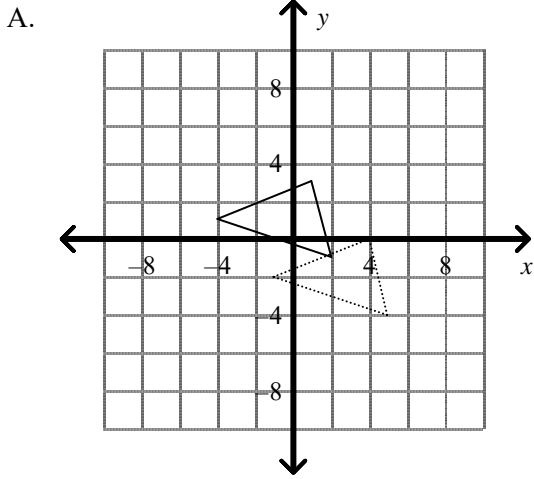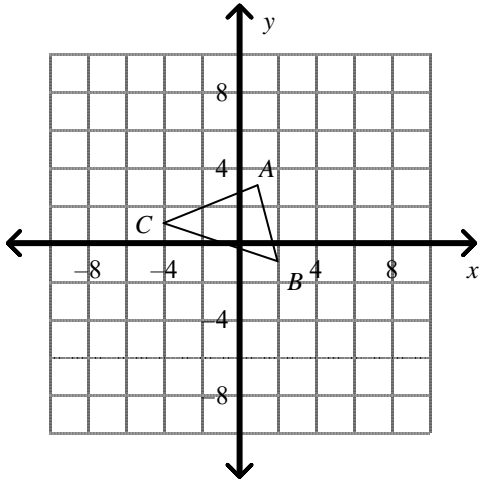
_____ 22. What is the value of x?
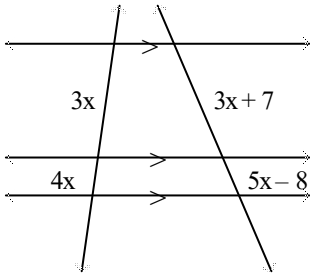
A. $\dfrac{3}{4}$ B. $\dfrac{52}{3}$ C. 17   D. $\dfrac{52}{7}$

_____ 23. What is the value of x to the nearest tenth?
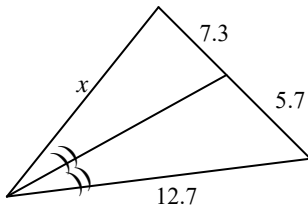
Not drawn to scale.

A. 9.9   B. 3.3   C. 16.3   D. 2.2

_____ 24. Describe in words the translation of X represented by the translation rule $T_{\langle 4,-1 \rangle}(X)$.

A. 1 units to the right and 4 units up
B. 4 units to the left and 1 units up
C. 4 units to the right and 1 units down
D. 4 units to the left and 1 units down

Find the value of x. If necessary, round your answer to the nearest tenth. The figures are not drawn to scale.

_____ 25.
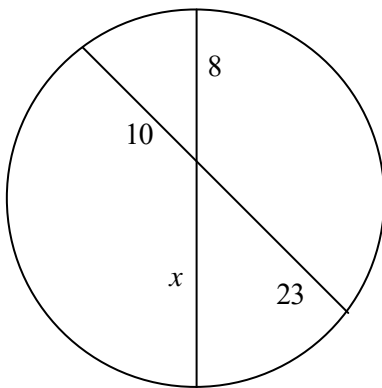
A. 28.8   B. 3.5   C. 230   D. 18.4

_____ 26. $AB = 19$, $BC = 8$, and $CD = 9$
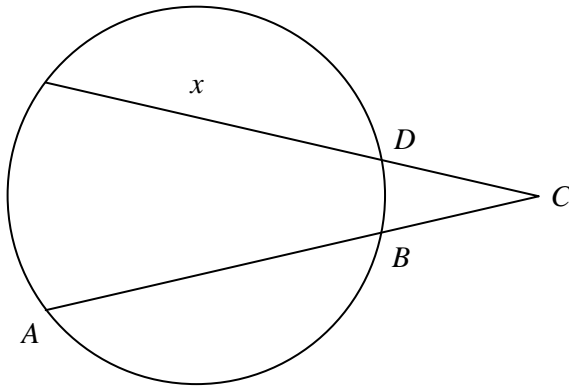
A. 18.78   B. 24   C. 15   D. 16.89

Find the value of x. If necessary, round your answer to the nearest tenth. O is the center of the circle. The figure is not drawn to scale.

_____ 27.
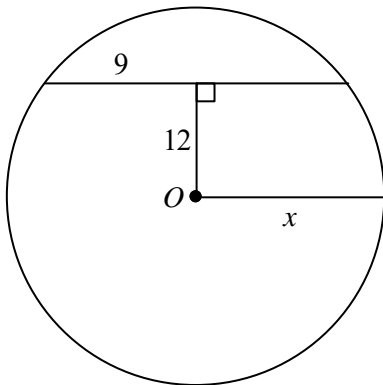
A. 5   B. 15   C. 12   D. 9

_____ 28. Find the measure of $\angle BAC$ in circle O. (The figure is not drawn to scale.)
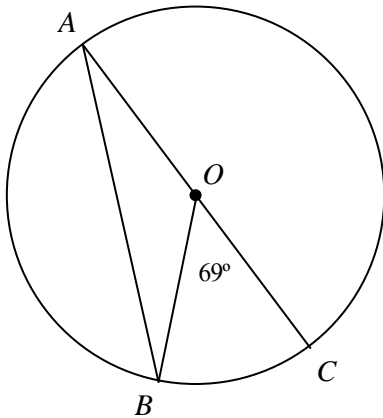
A. 34.5   B. 21   C. 138   D. 69

The figures are similar. Give the ratio of the perimeters and the ratio of the areas of the first figure to the second. The figures are not drawn to scale.

____ 29.

30   35
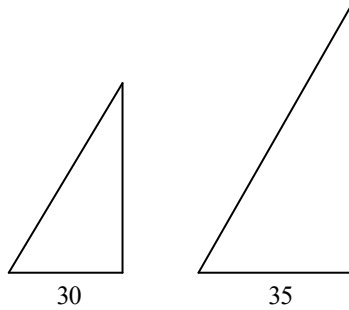
A. 7 : 8 and 49 : 64

C. 7 : 8 and 36 : 49

B. 6 : 7 and 49 : 64

D. 6 : 7 and 36 : 49

____ 30. Write a rule in function notation to describe the transformation that is a reflection across the *y*-axis.

A. $R_{x=0}(x,y)$

C. $R_{y=0}(x,y)$

B. $R_{y=x}(x,y)$

D. $R_{x=-1}(x,y)$

____ 31. This is a spinner used in a board game. What is the probability that the spinner will land on a multiple of 3 and 4?

64   24
12   22
10   54
18   36
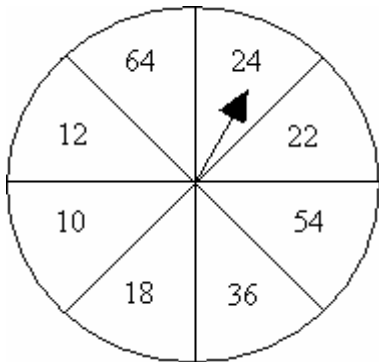
A. $\frac{1}{4}$ B. $\frac{1}{8}$ C. $\frac{1}{2}$ D. $\frac{3}{8}$

What similarity statement can you write relating the three triangles in the diagram?

M

____ 32.

J   K   L
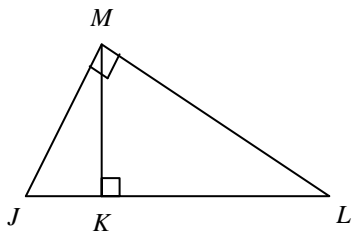
A. $\triangle JKM \sim \triangle MKL \sim \triangle MJL$

C. $\triangle JMK \sim \triangle MLK \sim \triangle JLM$

B. $\triangle JLM \sim \triangle MLK \sim \triangle JKM$

D. $\triangle JMK \sim \triangle LMK \sim \triangle JLM$
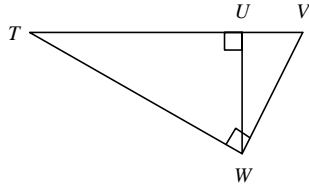
____ 33.

A. $\triangle UVW \sim \triangle UWT \sim \triangle WVT$
B. $\triangle WUT \sim \triangle VUW \sim \triangle WVT$

C. $\triangle UVW \sim \triangle WUT \sim \triangle WVT$
D. $\triangle TWV \sim \triangle VUW \sim \triangle UWT$

The hexagon *GIKMPR* and $\triangle FJN$ are regular. The dashed line segments form 30° angles.
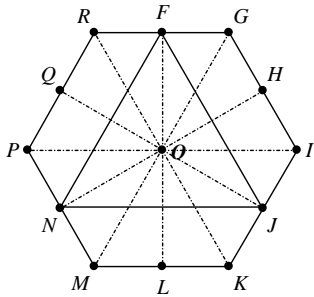
____ 34. What is $r_{(240°, O)}(M)$?

A. *O*   B. *R*   C. *P*   D. *I*

____ 35. The trapezoids are similar. The area of the smaller trapezoid is 46 m^2. Find the area of the larger trapezoid to the nearest whole number.

8 m   30 m
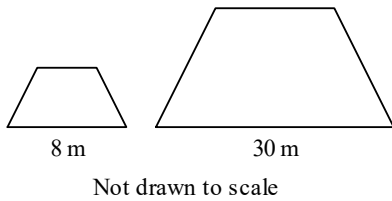
Not drawn to scale

A. 64 m^2 B. 647 m^2 C. 900 m^2 D. 17 m^2

Use a trigonometric ratio to find the value of *x*. Round your answer to the nearest tenth.

____ 36.

20°

x

9
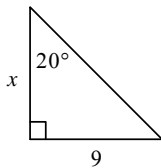
Not drawn to scale

A. 24.7   B. 3.3   C. 3.1   D. 8.5

Assume that lines that appear to be tangent are tangent. *O* is the center of the circle. Find the value of *x*. (Figures are not drawn to scale.)

_____ 37. $m\angle O = 154$
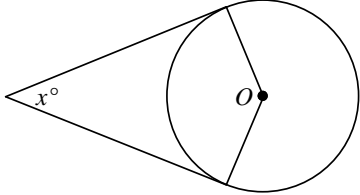
A. 26   B. 77   C. 334   D. 308

_____ 38. What is the value of *x*?
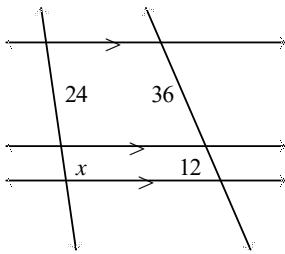
A. 12   B. 6   C. 2   D. 8

_____ 39. Find the exact area of the shaded region.
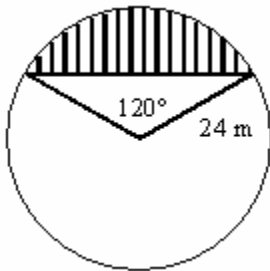
A. $(192\pi - 144)\text{m}^2$

B. $\left(192\pi - 144\sqrt{3}\right)\text{m}^2$

C. $\left(8\pi - 144\sqrt{3}\right)\text{m}^2$

D. none of these

_____ 40. Find the length of the altitude drawn to the hypotenuse. The triangle is not drawn to scale.
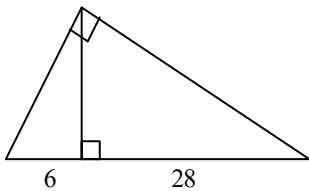
A. 34   B. 168   C. $\sqrt{34}$ D. $2\sqrt{42}$

_____ 41. Find the area of the regular polygon. Round your answer to the nearest tenth.

13.07 in.

10 in.
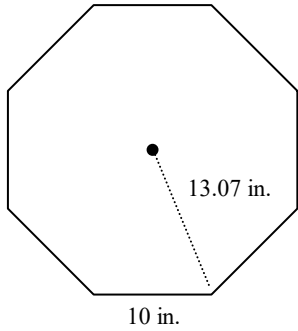
A. 80.0 in.^{2} B. 483.0 in.^{2} C. 966.1 in.^{2} D. 176.6 in.^{2}

_____ 42. What is the value of x, given that $\overline{PQ} \parallel \overline{BC}$?

A
8   x
P _____ Q
32   24
B   C
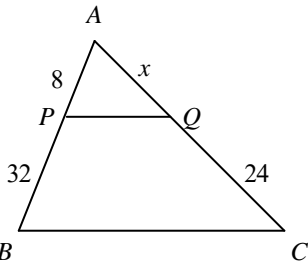
A. 9   B. 8   C. 12   D. 6

_____ 43. Write the ratios for sin X and cos X.

X

12

5

Z   Y

$\sqrt{119}$
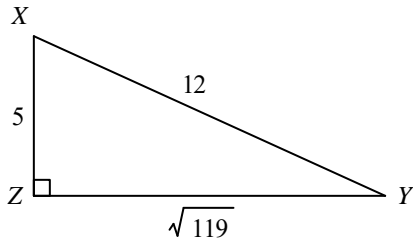
A. $\sin X = \sqrt{119}, \cos X = 5$

C. $\sin X = \dfrac{\sqrt{119}}{5}, \cos X = \dfrac{5}{\sqrt{119}}$

B. $\sin X = \dfrac{\sqrt{119}}{12}, \cos X = \dfrac{5}{12}$

D. $\sin X = \dfrac{5}{\sqrt{119}}, \cos X = \dfrac{\sqrt{119}}{5}$

Are the polygons similar? If they are, write a similarity statement and give the scale factor.
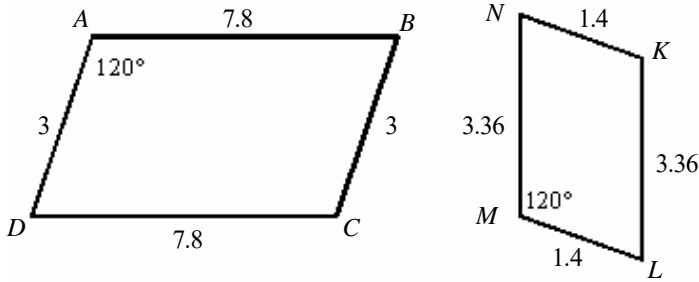
Not drawn to scale.

____ 44.
    A. $ABCD \sim KLMN$; 7.8 : 1.4   C. The polygons are not similar.
    B. $ABCD \sim NKLM$; 3 : 3.36   D. $ABCD \sim KLMN$; 3 : 1.4

____ 45. In $\triangle QRS$, $QR = 4$, $RS = 15$, and $m\angle R = 36$. In $\triangle UVT$, $VT = 8$, $TU = 32$, and $m\angle T = 36$.
    A. $\triangle SRQ \sim \triangle UTV$; $\dfrac{1}{2}$ C. $\triangle QRS \sim \triangle VTU$; $\dfrac{15}{32}$
    B. $\triangle RSQ \sim \triangle TUV$; $\dfrac{1}{2}$ D. The triangles are not similar.
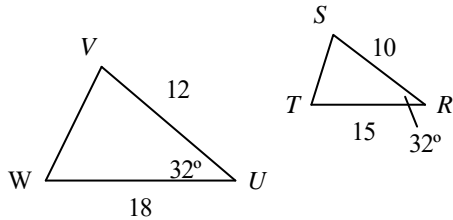
Not drawn to scale.

____ 46.
    A. $\triangle RST \sim \triangle VWU$; $\dfrac{6}{5}$ C. $\triangle RST \sim \triangle UVW$; $\dfrac{5}{6}$
    B. $\triangle RST \sim \triangle WUV$; $\dfrac{5}{6}$ D. The triangles are not similar.

_____ 47. Find the length of $\overset{\frown}{YPX}$. Leave your answer in terms of π.

X

Y

6 m

P
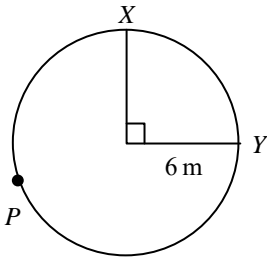
  A. 18π m   B. 9π m   C. 540π m   D. 3π m

_____ 48. Write a rule in function notation to describe the transformation that is a reflection across the x-axis.

  A. $R_{y=0}(x,y)$ C. $R_{y=x}(x,y)$
  B. $R_{x=0}(x,y)$ D. $R_{x=y}(x,y)$

_____ 49. Find the length of the hypotenuse.

45°

$3\sqrt{2}$
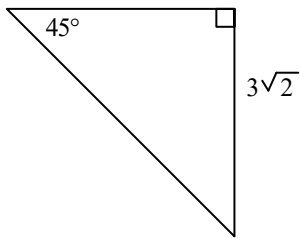
  A. 6   B. 12   C. 18   D. 5

Find the area of the triangle. Give the answer to the nearest tenth. The drawing may not be to scale.

_____ 50.

4.7 m

47°

6.1 m
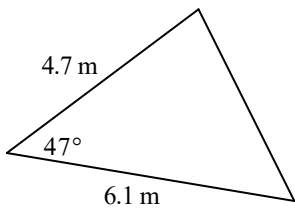
  A. $19.6\ m^2$ B. $10.5\ m^2$ C. $9.8\ m^2$ D. $21.0\ m^2$

_____ 51. Find the degree measure of an angle of $\dfrac{11\pi}{6}$ radians.

  A. $\dfrac{11\pi}{1080}°$ B. $5.76°$ C. $330°$ D. $330\pi°$

_____ 52. A low-wattage radio station can be heard only within a certain distance from the station. On the graph below, the circular region represents that part of the city where the station can be heard, and the center of the circle represents the location of the station. Which equation represents the boundary for the region where the station can be heard?
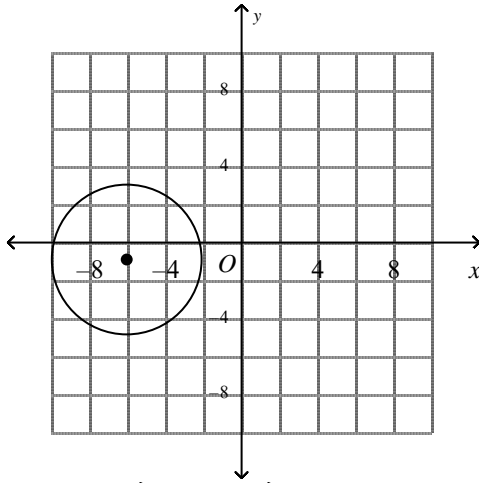
A. $(x+6)^2 + (y+1)^2 = 16$

B. $(x-6)^2 + (y-1)^2 = 16$

C. $(x+6)^2 + (y+1)^2 = 32$

D. $(x-6)^2 + (y-1)^2 = 32$

_____ 53. Find the glide reflection image of the black triangle for the composition $(R_{x=1} \circ T_{\langle 0,-7 \rangle})$.

A.
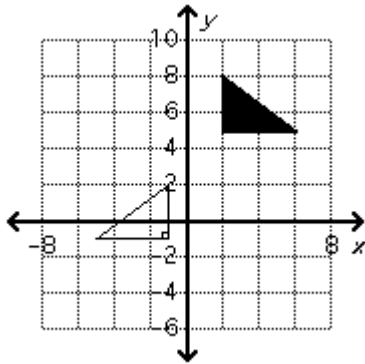
C.
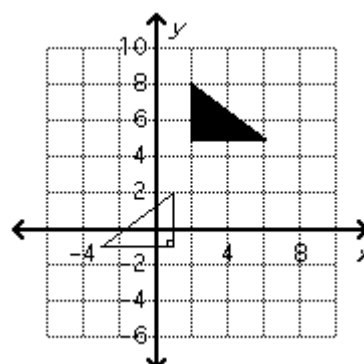
B.
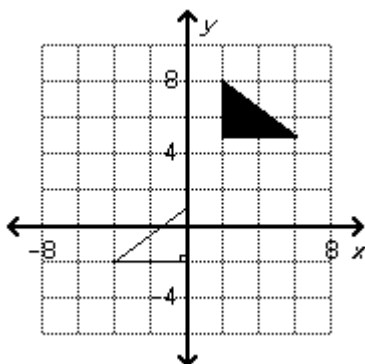
D.
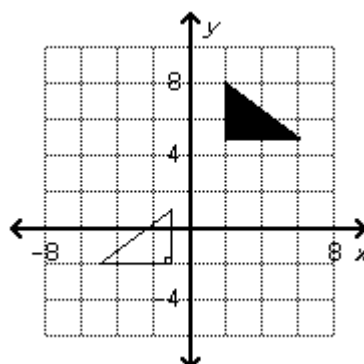
54. Pierre built the model shown in the diagram below for a social studies project. He wants to be able to show the inside of his model, so he sliced the figure as shown. Describe the cross section he created.
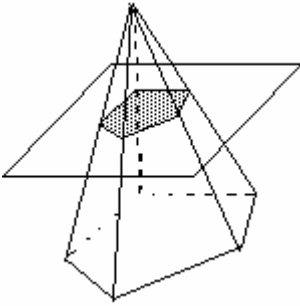
A. hexagon   B. pentagon   C. pyramid   D. rectangle

Use the given circle. Find the length *s* to the nearest tenth.

55.

$\frac{5\pi}{6}$

5 m

s
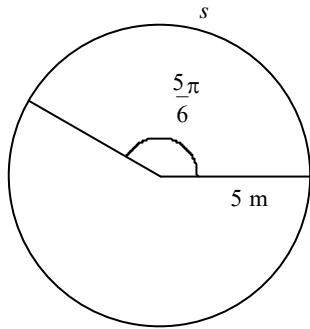
A. 26.2 m   B. 2.6 m   C. 4.2 m   D. 13.1 m

56. Find the measure of $\overset{\frown}{ABC}$.
The figure is not drawn to scale.
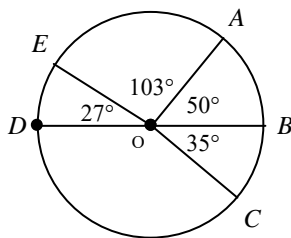
A. 85   B. 95   C. 275   D. 75

57. What is the value of *x*?
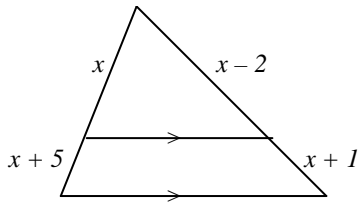
A. 7.5   B. 2.5   C. 5   D. 10

Find the geometric mean of the pair of numbers.

58. 6 and 7

A. $\sqrt{42}$ B. 42   C. 7   D. $4\sqrt{3}$

Find the value of *x*. Round to the nearest tenth.

59.
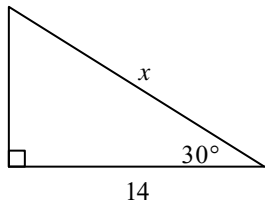
Not drawn to scale

A. 12.1   B. 16.3   C. 12.5   D. 16.2

60. Find the area of a sector with a central angle of 190° and a diameter of 7.9 cm. Round to the nearest tenth.

A. 3.3 cm^2 B. 103.5 cm^2 C. 8.3 cm^2 D. 25.9 cm^2

61. The two rectangles are similar. Which is the correct proportion for corresponding sides?
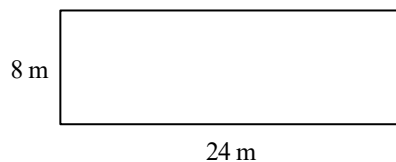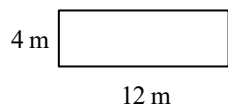
A. $\dfrac{12}{8} = \dfrac{24}{4}$ B. $\dfrac{4}{12} = \dfrac{24}{8}$ C. $\dfrac{12}{4} = \dfrac{8}{24}$ D. $\dfrac{12}{4} = \dfrac{24}{8}$

Write the standard equation for the circle.

_____ 62. center (–6, –8), that passes through (0, 0)

A. $(x-6)^2 + (y-8)^2 = 196$

B. $(x+6)^2 + (y+8)^2 = 14$

C. $(x-6)^2 + (y-8)^2 = 10$

D. $(x+6)^2 + (y+8)^2 = 100$

_____ 63. Use the circle below. What is the measure of θ (in radians) of the central angle?

5π in.

θ

15 in.

A. $\dfrac{\pi}{15}$

B. $\dfrac{\pi}{10}$

C. $\dfrac{\pi}{3}$

D. $\dfrac{\pi}{75}$

α =120

r =12

O
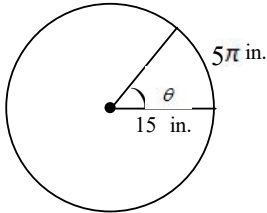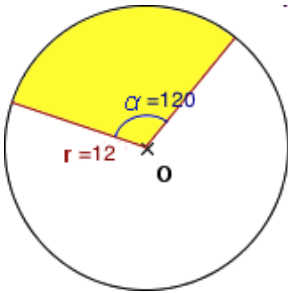
64.   What is the area of the following sector? (approximate pi to 3.14)

A. 452.16 sq. units
B. 120 sq. units
C. 150.72 sq. units
D. 1,356.48 sq. units

65. Find the value of the x

U

I

H

x + 19

T

30 + x

V
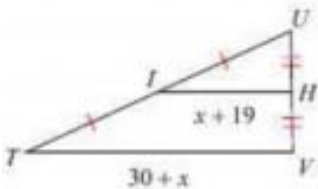
Geometry Semester B CBE   **REVIEW**
Answer Section

1. ANS: A   PTS: 1   DIF: L3   REF: 11-1 Circles and Arcs
   OBJ: 11-1.1 To find the measures of central angles and arcs   STA: (10)(B) | (12)(B)
   TOP: 11-1 Problem 1 Naming Arcs   KEY: major arc | minor arc | semicircle
2. ANS: B   PTS: 1   DIF: L3
   REF: 13-1 Areas of Parallelograms and Triangles
   OBJ: 13-1.1 To find the areas of parallelograms and triangles   STA: (11)(A)| (11)(B)
   TOP: 13-1 Problem 1 Finding the Area of a Parallelogram   KEY: area | parallelogram | base | height
3. ANS: D   PTS: 1   DIF: L3   REF: 9-1 Similar Polygons
   OBJ: 9-1.1 To identify and apply similar polygons   STA: (7)(B)
   TOP: 9-1 Problem 3 Using Similar Polygons
   KEY: corresponding sides | proportion | similar polygons
4. ANS: C   PTS: 1   DIF: L2   REF: 10-2 Special Right Triangles
   OBJ: 10-2.1 To use the properties of 45-45-90 and 30-60-90 triangles
   STA: (6)(D)| (9)(B)   TOP: 10-2 Problem 4 Using the Length of One Side
   KEY: special right triangle | leg | hypotenuse
5. ANS: C   PTS: 1   DIF: L3   REF: 10-2 Special Right Triangles
   OBJ: 10-2.1 To use the properties of 45-45-90 and 30-60-90 triangles
   STA: (6)(D)| (9)(B)   TOP: 10-2 Problem 4 Using the Length of One Side
   KEY: special right triangle | leg | hypotenuse
6. ANS: D   PTS: 1   DIF: L2
   REF: 14-6 Surface Areas and Volumes of Spheres
   OBJ: 14-6.1 To find the surface area and volume of a sphere   STA: (10)(A)| (10)(B)| (11)(C)| (11)(D)
   TOP: 14-6 Problem 3 Finding the Volume of a Sphere
   KEY: volume of a sphere | sphere | volume formulas | volume
7. ANS: C   PTS: 1   DIF: L3
   REF: 12-4 Angle Measures and Segment Lengths
   OBJ: 12-4.1 To find measures of angles formed by chords, secants, and tangents
   STA: (5)(A)| (6)(A)| (6)(D)| (12)(A)   TOP: 12-4 Problem 2 Finding Angle Measures
   KEY: circle | secant | angle measure | arc measure | intersection outside the circle
8. ANS: B   PTS: 1   DIF: L3   REF: 11-4 Circles in the Coordinate Plane
   OBJ: 11-4.2 To write the equation of a circle   STA: (2)(B)| (12)(E)
   TOP: 11-4 Problem 5 Graphing a Circle Given Its Equation
   KEY: equation of a circle | center | radius | point on the circle | algebra
9. ANS: B   PTS: 1   DIF: L2
   REF: 15-1 Experimental and Theoretical Probability
   OBJ: 15-1.1 To calculate experimental and theoretical probability
   STA: (13)(C)   TOP: 15-1 Problem 3 Using Probabilities of Events and Their Complements
   KEY: probability | theoretical probability | complement of an event | outcome
10. ANS: D   PTS: 1   DIF: L3
    REF: 13-2 Areas of Trapezoids, Rhombuses, and Kites
    OBJ: 13-2.1 To find the area of a trapezoid, rhombus, or kite   STA: (6)(D)| (9)(B)| (11)(B)
    TOP: 13-2 Problem 1 Area of a Trapezoid   KEY: trapezoid | area
11. ANS: C   PTS: 1   DIF: L3
    REF: 14-5 Volumes of Pyramids and Cones
    OBJ: 14-5.1 To find the volume of a pyramid and of a cone   STA: (10)(B)| (11)(D)
    TOP: 14-5 Problem 3 Finding the Volume of a Cone

KEY: volume of a cone | volume formulas | volume | cone

12. ANS: C   PTS: 1   DIF: L3   REF: 11-2 Radian Measure
OBJ: 11-2.1 To use radian measure for angles   STA: (12)(B) | (12)(D)
TOP: 11-2 Problem 2 Using Dimensional Analysis
KEY: central angle | intercepted arc | radian

13. ANS: D   PTS: 1   DIF: L3
REF: 10-4 Angles of Elevation and Depression
OBJ: 10-4.1 To use angles of elevation and depression to solve problems
STA: (9)(A)   TOP: 10-4 Problem 3 Using the Angle of Depression
KEY: tangent | angles of elevation and depression | word problem | problem solving

14. ANS: D   PTS: 1   DIF: L4   REF: 9-4 Similarity in Right Triangles
OBJ: 9-4.1 To find and use relationships in similar right triangles
STA: (7)(B)| (8)(A)| (8)(B)   TOP: 9-4 Problem 6 Finding a Distance
KEY: corollaries of the geometric mean | multi-part question | word problem

15. ANS: D   PTS: 1   DIF: L3   REF: 10-3 Trigonometry
OBJ: 10-3.1 To use the sine, cosine, and tangent ratios to determine side lengths and angle measures in right triangles   STA: (9)(A)
TOP: 10-3 Problem 2 Using a Trigonometric Ratio to Find Distance
KEY: tangent | word problem | problem solving

16. ANS: C   PTS: 1   DIF: L4   REF: 12-1 Tangent Lines
OBJ: 12-1.1 To use properties of a tangent to a circle   STA: (6)(A)| (9)(B)| (12)(A)
TOP: 12-1 Problem 1 Finding Angle Measures
KEY: properties of tangents | tangent to a circle | Tangent Theorem

17. ANS: B   PTS: 1   DIF: L3
REF: 14-2 Surface Areas of Prisms and Cylinders
OBJ: 14-2.1 To find the surface area of a prism and a cylinder   STA: (10)(B) | (11)(C)
TOP: 14-2 Problem 3 Finding Total Surface Area of a Cylinder
KEY: surface area of a cylinder | cylinder | surface area formulas | surface area

18. ANS: A   PTS: 1   DIF: L3
REF: 14-3 Surface Areas of Pyramids and Cones
OBJ: 14-3.1 To find the surface area of a pyramid and a cone   STA: (9)(B)| (10)(B)| (11)(C)
TOP: 14-3 Problem 1 Finding the Total Surface Area of a Pyramid
KEY: surface area of a pyramid | surface area | surface area formulas | pyramid

19. ANS: C   PTS: 1   DIF: L3
REF: 10-1 The Pythagorean Theorem and Its Converse
OBJ: 10-1.1 To use the Pythagorean Theorem and its converse   STA: (6)(D)| (9)(B)
TOP: 10-1 Problem 3 Finding the Length of a Leg
KEY: Pythagorean Theorem | leg | hypotenuse | Pythagorean triple

20. ANS: A   PTS: 1   DIF: L3   REF: 12-1 Tangent Lines
OBJ: 12-1.1 To use properties of a tangent to a circle   STA: (6)(A)| (9)(B)| (12)(A)
TOP: 12-1 Problem 5 Circles Inscribed in Polygons
KEY: properties of tangents | tangent to a circle | pentagon

21. ANS: D   PTS: 1   DIF: L3   REF: 8-1 Translations
OBJ: 8-1.2 To find translation images of figures   STA: (3)(A)| (3)(C)| (6)(C)
TOP: 8-1 Problem 3 Finding the Image of a Translation
KEY: translation | transformation | image | preimage

22. ANS: B   PTS: 1   DIF: L4   REF: 9-5 Proportions in Triangles
OBJ: 9-5.1 To use the Triangle Proportionality Theorem and the Triangle-Angle-Bisector Theorem
STA: (5)(A)| (7)(B)| (8)(A)   TOP: 9-5 Problem 4 Finding a Length
KEY: corollary of Side-Splitter Theorem

23. ANS: C   PTS: 1   DIF: L3   REF: 9-5 Proportions in Triangles
OBJ: 9-5.1 To use the Triangle Proportionality Theorem and the Triangle-Angle-Bisector Theorem
STA: (5)(A)| (7)(B)| (8)(A)   TOP: 9-5 Problem 5 Using the Triangle-Angle-Bisector
Theorem
KEY: Triangle-Angle-Bisector Theorem

24. ANS: C   PTS: 1   DIF: L4   REF: 8-1 Translations
OBJ: 8-1.2 To find translation images of figures   STA: (3)(A)| (3)(C)| (6)(C)
TOP: 8-1 Problem 4 Writing a Rule to Describe a Translation   KEY: translation

25. ANS: A   PTS: 1   DIF: L3
REF: 12-4 Angle Measures and Segment Lengths
OBJ: 12-4.2 To find the lengths of segments associated with circles
STA: (5)(A)| (6)(A)| (6)(D)| (12)(A)   TOP: 12-4 Problem 4 Finding Segment Lengths
KEY: circle | chord | intersection inside the circle

26. ANS: C   PTS: 1   DIF: L3
REF: 12-4 Angle Measures and Segment Lengths
OBJ: 12-4.2 To find the lengths of segments associated with circles
STA: (5)(A)| (6)(A)| (6)(D)| (12)(A)   TOP: 12-4 Problem 4 Finding Segment Lengths
KEY: circle | intersection outside the circle | secant

27. ANS: B   PTS: 1   DIF: L2   REF: 12-2 Chords and Arcs
OBJ: 12-2.1 To use congruent chords, arcs, central angles, and perpendicular bisectors to chords
STA: (5)(A)| (5)(C)| (6)(A)| (9)(B)| (12)(A)
TOP: 12-2 Problem 4 Using Diameters and Chords
KEY: bisected chords | circle | perpendicular | perpendicular bisector | Pythagorean Theorem | chord

28. ANS: A   PTS: 1   DIF: L3   REF: 12-3 Inscribed Angles
OBJ: 12-3.1 To find the measure of an inscribed angle   STA: (5)(A)| (12)(A)
TOP: 12-3 Problem 1 Using the Inscribed Angle Theorem
KEY: circle | inscribed angle | intercepted arc | inscribed angle-arc relationship

29. ANS: D   PTS: 1   DIF: L3
REF: 13-4 Perimeters and Areas of Similar Figures
OBJ: 13-4.1 To find the perimeters and areas of similar polygons
STA: (10)(B)| (11)(A)   TOP: 13-4 Problem 2 Finding Ratios in Similar Figures
KEY: perimeter | area | similar figures

30. ANS: A   PTS: 1   DIF: L4   REF: 8-2 Reflections
OBJ: 8-2.1 To find reflection images of figures   STA: (3)(A)| (3)(C)
TOP: 8-2 Problem 1 Reflecting a Point Across a Line   KEY: reflection | line of reflection

31. ANS: D   PTS: 1   DIF: L2
REF: 15-1 Experimental and Theoretical Probability
OBJ: 15-1.1 To calculate experimental and theoretical probability
STA: (13)(C)   TOP: 15-1 Problem 2 Calculating Theoretical Probability
KEY: theoretical probability | probability | outcome | event

32. ANS: C   PTS: 1   DIF: L3   REF: 9-4 Similarity in Right Triangles
OBJ: 9-4.1 To find and use relationships in similar right triangles
STA: (7)(B)| (8)(A)| (8)(B)   TOP: 9-4 Problem 2 Identifying Similar Triangles
KEY: similar triangles | altitude

33. ANS: A   PTS: 1   DIF: L3   REF: 9-4 Similarity in Right Triangles
OBJ: 9-4.1 To find and use relationships in similar right triangles
STA: (7)(B)| (8)(A)| (8)(B)   TOP: 9-4 Problem 2 Identifying Similar Triangles
KEY: similar triangles | altitude

34. ANS: B   PTS: 1   DIF: L3   REF: 8-3 Rotations
OBJ: 8-3.1 To draw and identify rotation images of figures   STA: (3)(A)| (3)(C)| (6)(C)

TOP: 8-3 Problem 2 Drawing Rotations in a Coordinate Plane
KEY: rotation | center of rotation | angle of rotation
35. ANS: B   PTS: 1   DIF: L2
REF: 13-4 Perimeters and Areas of Similar Figures
OBJ: 13-4.1 To find the perimeters and areas of similar polygons
STA: (10)(B)| (11)(A)   TOP: 13-4 Problem 3 Finding Areas Using Similar Figures
KEY: similar figures | area | trapezoid
36. ANS: A   PTS: 1   DIF: L2   REF: 10-3 Trigonometry
OBJ: 10-3.1 To use the sine, cosine, and tangent ratios to determine side lengths and angle measures in right
triangles   STA: (9)(A)
TOP: 10-3 Problem 2 Using a Trigonometric Ratio to Find Distance
KEY: tangent
37. ANS: A   PTS: 1   DIF: L3   REF: 12-1 Tangent Lines
OBJ: 12-1.1 To use properties of a tangent to a circle   STA: (6)(A)| (9)(B)| (12)(A)
TOP: 12-1 Problem 1 Finding Angle Measures
KEY: tangent to a circle | point of tangency | properties of tangents | central angle
38. ANS: D   PTS: 1   DIF: L2   REF: 9-5 Proportions in Triangles
OBJ: 9-5.1 To use the Triangle Proportionality Theorem and the Triangle-Angle-Bisector Theorem
STA: (5)(A)| (7)(B)| (8)(A)   TOP: 9-5 Problem 4 Finding a Length
KEY: corollary of Side-Splitter Theorem
39. ANS: B   PTS: 1   DIF: L3   REF: 11-3 Areas of Circles and Sectors
OBJ: 11-3.1 To find the areas of circles, sectors, and segments of circles
STA: (9)(B)| (11)(B)| (12)(C)   TOP: 11-3 Problem 3 Finding the Area of a Segment of a Circle
KEY: sector | circle | area | central angle
40. ANS: D   PTS: 1   DIF: L3   REF: 9-4 Similarity in Right Triangles
OBJ: 9-4.1 To find and use relationships in similar right triangles
STA: (7)(B)| (8)(A)| (8)(B)   TOP: 9-4 Problem 5 Using the Corollaries
KEY: corollaries of the geometric mean | proportion
41. ANS: B   PTS: 1   DIF: L3   REF: 13-3 Areas of Regular Polygons
OBJ: 13-3.1 To find the area of a regular polygon   STA: (9)(B)| (11)(A)
TOP: 13-3 Problem 3 Using Special Triangles to Find Area
KEY: regular polygon | area | apothem | radius | octagon
42. ANS: D   PTS: 1   DIF: L2   REF: 9-5 Proportions in Triangles
OBJ: 9-5.1 To use the Triangle Proportionality Theorem and the Triangle-Angle-Bisector Theorem
STA: (5)(A)| (7)(B)| (8)(A)   TOP: 9-5 Problem 3 Using the Triangle Proportionality
Theorem
KEY: Side-Splitter Theorem
43. ANS: B   PTS: 1   DIF: L3   REF: 10-3 Trigonometry
OBJ: 10-3.1 To use the sine, cosine, and tangent ratios to determine side lengths and angle measures in right
triangles   STA: (9)(A)   TOP: 10-3 Problem 1 Writing Trigonometric Ratios
KEY: cosine | sine
44. ANS: C   PTS: 1   DIF: L4   REF: 9-1 Similar Polygons
OBJ: 9-1.1 To identify and apply similar polygons   STA: (7)(B)
TOP: 9-1 Problem 2 Determining Similarity   KEY: similar polygons | scale factor
45. ANS: D   PTS: 1   DIF: L3   REF: 9-1 Similar Polygons
OBJ: 9-1.1 To identify and apply similar polygons   STA: (7)(B)
TOP: 9-1 Problem 2 Determining Similarity
KEY: similar polygons | corresponding sides | corresponding angles | scale factor
46. ANS: C   PTS: 1   DIF: L3   REF: 9-1 Similar Polygons
OBJ: 9-1.1 To identify and apply similar polygons   STA: (7)(B)

TOP: 9-1 Problem 2 Determining Similarity
KEY: similar polygons | corresponding sides | corresponding angles | scale factor

47. ANS: B   PTS: 1   DIF: L3   REF: 11-1 Circles and Arcs
OBJ: 11-1.2 To find the circumference and arc length   STA: (10)(B) | (12)(B)
TOP: 11-1 Problem 4 Finding Arc Length   KEY: arc | circumference

48. ANS: A   PTS: 1   DIF: L4   REF: 8-2 Reflections
OBJ: 8-2.1 To find reflection images of figures   STA: (3)(A)| (3)(C)
TOP: 8-2 Problem 1 Reflecting a Point Across a Line   KEY: reflection | line of reflection

49. ANS: A   PTS: 1   DIF: L3   REF: 10-2 Special Right Triangles
OBJ: 10-2.1 To use the properties of 45-45-90 and 30-60-90 triangles
STA: (6)(D)| (9)(B)   TOP: 10-2 Problem 1 Finding the Length of the Hypotenuse
KEY: special right triangle | hypotenuse

50. ANS: B   PTS: 1   DIF: L3   REF: 13-5 Trigonometry and Area
OBJ: 13-5.1 To find areas of regular polygons and triangles using trigonometry
STA: (9)(A)| (11)(A)   TOP: 13-5 Problem 3 Finding Area
KEY: area of a triangle | area | sine

51. ANS: C   PTS: 1   DIF: L3   REF: 11-2 Radian Measure
OBJ: 11-2.1 To use radian measure for angles   STA: (12)(B) | (12)(D)
TOP: 11-2 Problem 2 Using Dimensional Analysis
KEY: central angle | intercepted arc | radian

52. ANS: A   PTS: 1   DIF: L4   REF: 11-4 Circles in the Coordinate Plane
OBJ: 11-4.1 To find the center and radius of a circle   STA: (2)(B)| (12)(E)
TOP: 11-4 Problem 3 Writing the Equation of a Circle
KEY: center | circle | coordinate plane | radius | equation of a circle | word problem

53. ANS: B   PTS: 1   DIF: L3
REF: 8-5 Compositions of Rigid Transformations
OBJ: 8-5.1 To find compositions of rigid transformations, including glide reflections
STA: (3)(A)| (3)(B)   TOP: 8-5 Problem 3 Finding a Glide Reflection Image
KEY: isometry | glide reflection

54. ANS: B   PTS: 1   DIF: L3
REF: 14-1 Three-Dimensional Figures and Cross Sections
OBJ: 14-1.2 To visualize cross sections of space figures   STA: (10)(A)
TOP: 14-1 Problem 3 Describing a Cross Section   KEY: cross section | word problem

55. ANS: D   PTS: 1   DIF: L3   REF: 11-2 Radian Measure
OBJ: 11-2.2 To find the length of an arc of a circle   STA: (12)(B) | (12)(D)
TOP: 11-2 Problem 3 Finding the Length of an Arc
KEY: central angle | intercepted arc | radian

56. ANS: A   PTS: 1   DIF: L3   REF: 11-1 Circles and Arcs
OBJ: 11-1.1 To find the measures of central angles and arcs   STA: (10)(B) | (12)(B)
TOP: 11-1 Problem 2 Finding the Measures of Arcs   KEY: major arc | measure of an arc | arc

57. ANS: C   PTS: 1   DIF: L4   REF: 9-5 Proportions in Triangles
OBJ: 9-5.1 To use the Triangle Proportionality Theorem and the Triangle-Angle-Bisector Theorem
STA: (5)(A)| (7)(B)| (8)(A)   TOP: 9-5 Problem 3 Using the Triangle Proportionality
Theorem
KEY: Side-Splitter Theorem

58. ANS: A   PTS: 1   DIF: L4   REF: 9-4 Similarity in Right Triangles
OBJ: 9-4.1 To find and use relationships in similar right triangles
STA: (7)(B)| (8)(A)| (8)(B)   TOP: 9-4 Problem 3 Finding the Geometric Mean
KEY: geometric mean | proportion

59. ANS: D   PTS: 1   DIF: L3   REF: 10-3 Trigonometry

OBJ: 10-3.1 To use the sine, cosine, and tangent ratios to determine side lengths and angle measures in right triangles   STA: (9)(A)
TOP: 10-3 Problem 2 Using a Trigonometric Ratio to Find Distance
KEY: cosine
60.   ANS: D   PTS: 1   DIF: L3   REF: 11-3 Areas of Circles and Sectors
OBJ: 11-3.1 To find the areas of circles, sectors, and segments of circles
STA: (9)(B)| (11)(B)| (12)(C)   TOP: 11-3 Problem 2 Finding the Area of a Sector of a Circle
KEY: sector | circle | area | central angle
61.   ANS: D   PTS: 1   DIF: L3   REF: 9-1 Similar Polygons
OBJ: 9-1.1 To identify and apply similar polygons   STA: (7)(B)
TOP: 9-1 Problem 1 Understanding Similarity
KEY: similar polygons | corresponding sides
62.   ANS: D   PTS: 1   DIF: L2   REF: 11-4 Circles in the Coordinate Plane
OBJ: 11-4.1 To find the center and radius of a circle   STA: (2)(B)| (12)(E)
TOP: 11-4 Problem 4 Using the Center and a Point on a Circle
KEY: equation of a circle | center | radius | point on the circle
63.   ANS: C   PTS: 1   DIF: L3   REF: 11-2 Radian Measure
OBJ: 11-2.1 To use radian measure for angles   STA: (12)(B) | (12)(D)
TOP: 11-2 Problem 1 Finding the Radian Measure of An Angle   KEY: intercepted arc | radian
64.   ANS:
C

PTS: 1
65.   ANS:
x = -8

PTS: 1