Name: _____ **Class:** _____ **Date:** _____ **ID: A**

Geometry EOC Practice Test #3

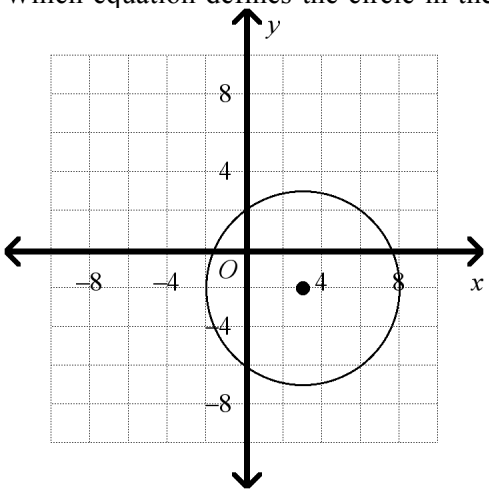
Multiple Choice
Identify the choice that best completes the statement or answers the question.

____ 1. Which regular polyhedron has 12 petagonal faces?
a. dodecahedron
b. tetrahedron
c. icosahedron
d. cube

____ 2. Melissa used a compass and a ruler to construct two parallel lines and a transversal. Which of the following statements is a conjecture that Melissa can make about the angles formed by the parallel lines and the transversal.

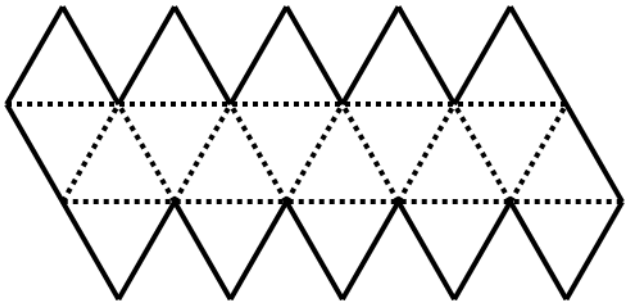
a. Pairs of same side interior angles are congruent.
b. Pairs of alternate interior angles are congruent.
c. Pairs of alternate exterior angles are supplementary.
d. Pairs of corresponding angles are complementary.

____ 3. Which equation defines the circle in the graph?



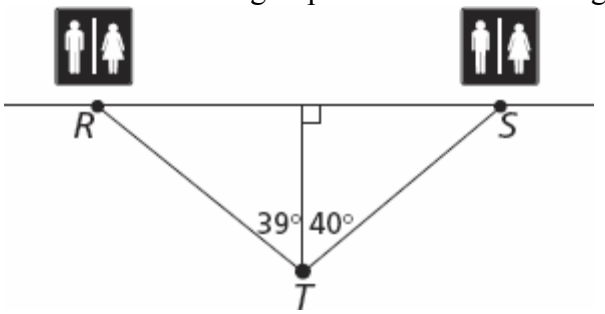
a. $(x + 3)^2 + (y - 2)^2 = 25$
b. $(x + 3)^2 + (y - 2)^2 = 18$
c. $(x - 3)^2 + (y + 2)^2 = 18$
d. $(x - 3)^2 + (y + 2)^2 = 25$

____ 4. The net below represents an icosahedron. How many faces does an icosahedron have?



a. 10
b. 12
c. 15
d. 20

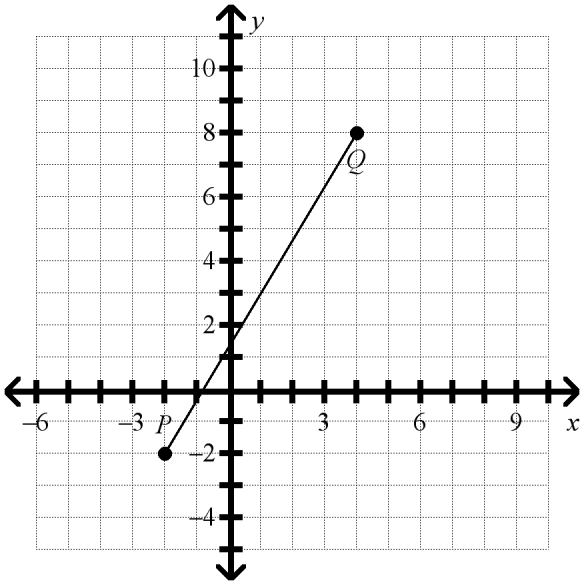
____ 5. A tourist is standing at point *T* in the following diagram.



The tourist wants to go to the nearest restroom facility. Which of the following statements is correct?

a. Restroom facility *R* is closer.
b. Restroom facility *S* is closer.
c. Both restroom facilities are the same distance from the tourist.
d. The only distance that can be determined correctly is *RS*.

____ 6. What is the midpoint of $\overline{PQ}$?

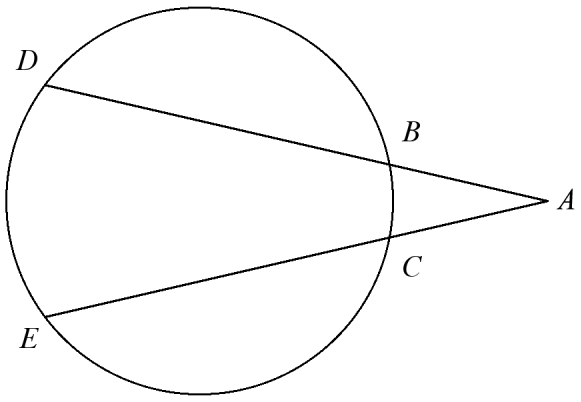


a. (1, 4) b. (0, 4) c. (0, 3) d. (1, 3)

____ 7. When writing a coordinate proof, which of the following would you use to prove that the diagonals of a quadrilateral are congruent?

a. the slope formula
b. the distance formula
c. the point-slope formula
d. the midpoint formula

____ 8. $m\overset{\frown}{DE} = 128$ and $m\overset{\frown}{BC} = 63$. What is $m\angle A$?



a. 32.5 b. 65 c. 95.5 d. 96.5

____ 9. What is the converse of the statement below?

"If today is Friday, then tomorrow is Saturday."

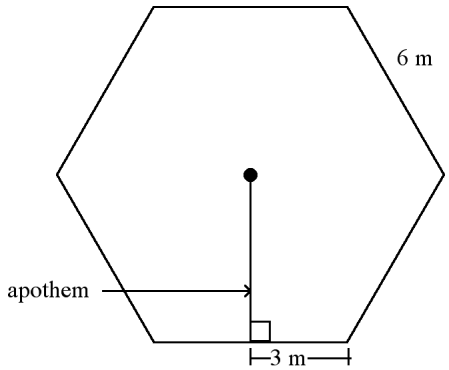
a. If tomorrow is not Saturday, then today is not Friday.

b. If today is Saturday, then tomorrow is not Friday.

c. If tomorrow is Saturday, then today is Friday.

d. If today is not Friday, then tomorrow is not Saturday.

____ 10. Find the area of a regular hexagon with side length 6 m. Round to the nearest tenth.



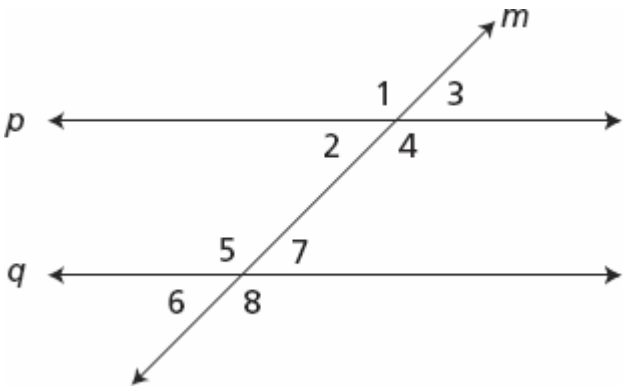
a. $46.8\ m^2$

b. $54\ m^2$

c. $93.5\ m^2$

d. $187.1\ m^2$

____ 11. In the figure below, $p \parallel q$.



Which of these statements is NOT true?

a. $m\angle 1 = m\angle 4$

b. $m\angle 6 = m\angle 2$

c. $m\angle 6 + m\angle 3 = 180°$

d. $m\angle 2 + m\angle 5 = 180°$

____ 12. The dimensions of a rectangle are multiplied by a factor of 2 to form a new rectangle. Which of the following best describes the relationship between the perimeter of the old rectangle and the perimeter of the new rectangle?

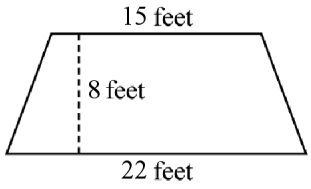
a. The perimeter of the new rectangle is half the original rectangle.

b. The perimeter of the new rectangle is twice the original rectangle.

c. The perimeter of the new rectangle is four times the original rectangle.

d. The perimeter of the new rectangle is one-fourth the original rectangle.

____ 13. Nancy is covering a wall in her attic with wallpaper. The wall is trapezoid-shaped with top and bottom bases of 15 feet and 22 feet. The height of the wall is 8 feet. How much wallpaper will she need to cover the wall?



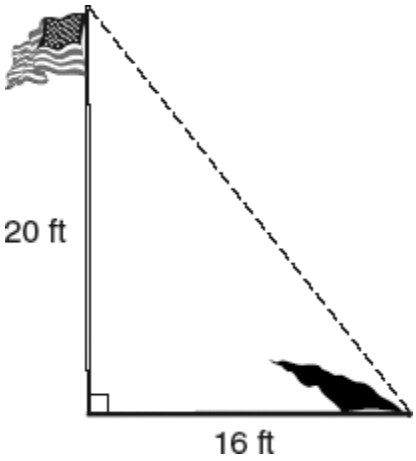
a. 296 square feet

b. 148 square feet

c. 102 square feet

d. 78 square feet

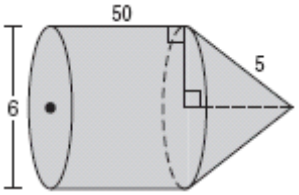
____ 14. The picture below represents a 20-foot-tall flagpole that casts a 16-foot-long shadow.



The dashed line in the figure represents the point where the shadow ends to the top of the flag. What is the approximate angle of elevation formed by the ground and the dashed line?

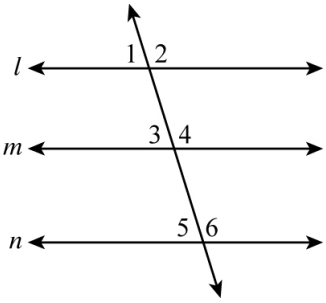
a. 37°
b. 39°
c. 51°
d. 53°

____ 15. Find the surface area to the nearest tenth.



a. 546.6 units^2 b. 989.6 units^2 c. 1017.9 units^2 d. 1046.2 units^2

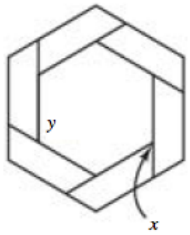
____ 16. Adrian constructed 3 parallel lines as part of an art project. He also drew a line passing through each of the parallel lines. Some of the angles formed by the intersection of line t and lines l, m, and n are numbered in the diagram below.



Which conjecture can Adrian make about the angles formed by line t and lines l, m, and n?

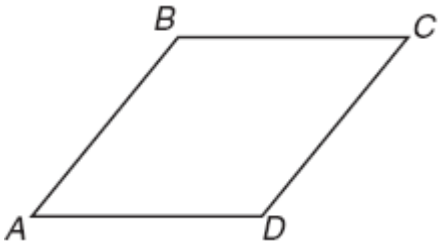
a. Angles 2, 3, and 4 are congruent.
b. Angles 1 and 3 are supplementary.
c. Angles 2 and 4 are congruent.
d. Angles 4 and 6 are supplementary.

____ 17. Suppose you want to build a mirror with the frame shown. The outer edges of the frame form a regular polygon. What is the measure of $\angle y$?



a. 144° b. 120° c. 60° d. 36°

____ 18. Look at parallelogram *ABCD* below.



How could you prove that *ABCD* is a rhombus?

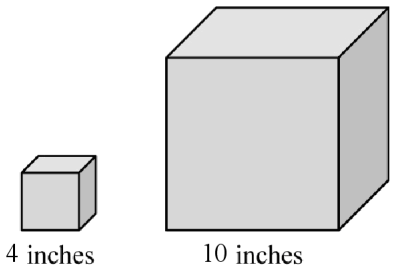
a. Show that the diagonals are perpendicular.

b. Show that the diagonals are congruent.

c. Show that both pairs of opposite angles are congruent.

d. Show that two pairs of opposite sides are congruent.

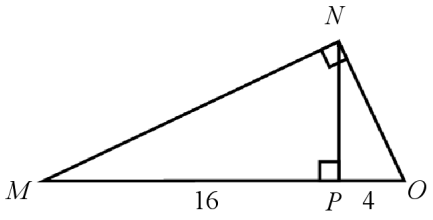
____ 19. Stephanie collects snow globes. The snow globes come in cube-shaped boxes as shown below.



How does the change in the length of the sides from the smaller cube to the larger cube affect the surface area?

a. The surface area increases by a factor of 2.
b. The surface area increases by a factor of 2.5.
c. The surface area increases by a factor of 6.25.
d. The surface area increases by a factor of 15.625.

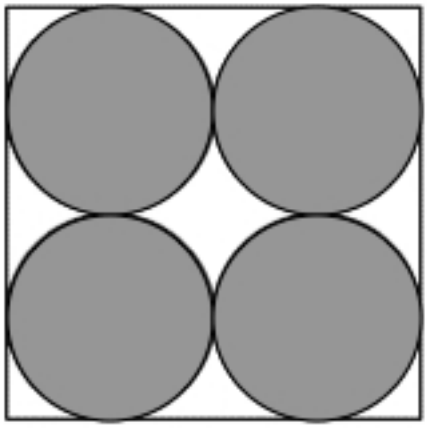
____ 20. In the figure below, $\overline{NP}$ is the altitude drawn to the hypotenuse of ΔMNO.



If $MP = 16$ and $PO = 4$, what is the length of the altitude?

a. 6
b. 8
c. 9
d. 12

____ 21. Four shaded circles, each of radius 8 centimeters, are packed in a square as shown. Which expression, in square centimeters, represents the area that is NOT shaded inside the square?



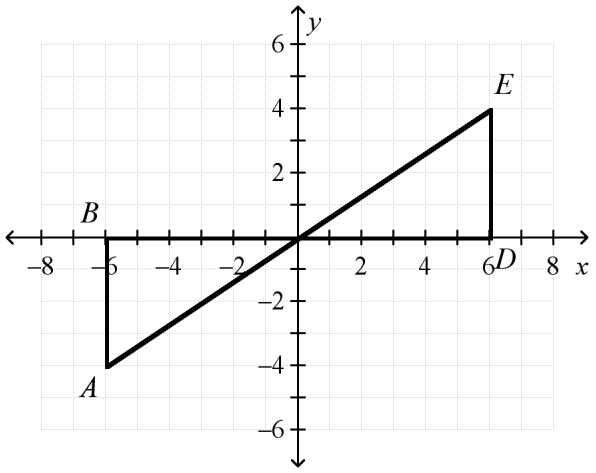
a. $32(32) - \pi(8)^2$

b. $4\pi(8)^2 - 32(32)$

c. $16(16) - 4\pi(8)^2$

d. $32(32) - 4\pi(8)^2$

____ 22. Given: $\overline{BD}$ and $\overline{AE}$ intersect at point C, point C is the midpoint of $\overline{BD}$, point C is the midpoint of $\overline{AE}$.



Which can be used to prove $\Delta ABC \cong \Delta EDC$?

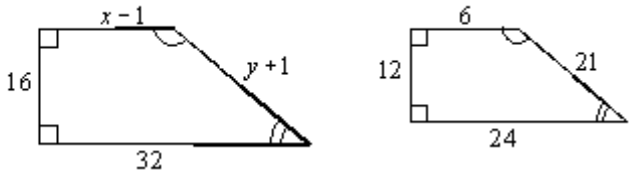
a. ASA

c. SAS

b. SSS

d. AAA

____ 23. What is the value of x for the similar polygons?



a. $x = \frac{11}{2}$

c. $x = 9$

b. $x = 8$

d. $x = 10$

____ 24. The coordinates of endpoint D in $\overline{CD}$ are at $D(5, 5)$. If the midpoint of the segment is at $M(1, -1)$, what are the coordinates of point C?

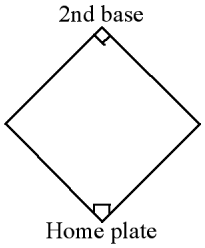
a. (3, 2)

b. (–3, –7)

c. (–2, –6)

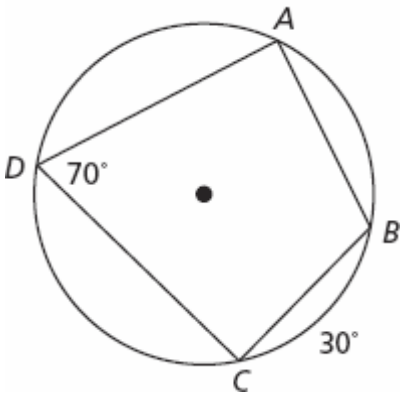
d. (–3, –8)

____ 25. The junior league baseball diamond at a playground is a square with sides that measure 65 feet. About how long would a straight line be from home plate to second base? Round your answer to the nearest tenth.



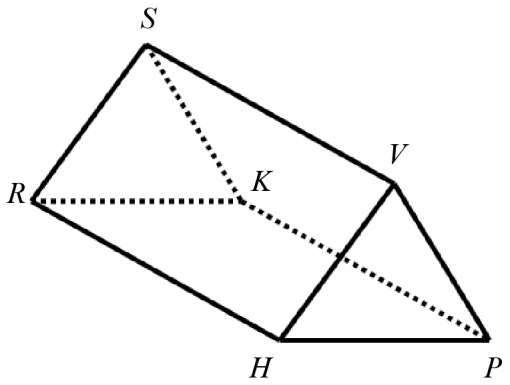
a. 91.9 feet
b. 130 feet
c. 65 feet
d. 8,450 feet

____ 26. What is the measure of arc *AB*?



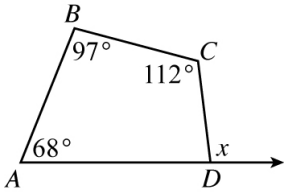
a. 40°
b. 100°
c. 110°
d. 140°

____ 27. Which statement is NOT true about the figure?



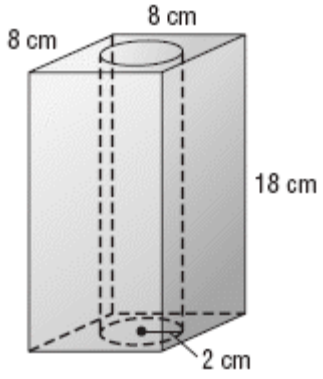
a. It has 6 vertices.
b. It has 8 edges.
c. It has 5 faces.
d. It is a triangular prism.

____ 28. Three angles of quadrilateral *ABCD* have measures 68°, 97°, and 112°. What is the value of *x*?



a. 7° b. 83° c. 97° d. 277°

____ 29. A square-based prism has a cylindrical hole bored through the middle as shown in the diagram below.



What is the approximate remaining volume of the prism? Use 3.14 for π.

a. 226.08 cubic centimeters
b. 247.68 cubic centimeters
c. 925.92 cubic centimeters
d. 1,052 cubic centimeters

____ 30. Which equation defines the circle with center (5, –4) and radius 3?

a. $(x-5)^2+(y+4)^2=9$

b. $(x+5)^2+(y-4)^2=9$

c. $(x+4)^2+(y-5)^2=3$

d. $(x+5)^2+(y-4)^2=3$

____ 31. Quadrilateral *CDEF* has vertices *C*(8, 2), *D*(7, –4), and *E*(1, –5). What are the coordinates of vertex *F* if *CDEF* is a parallelogram?

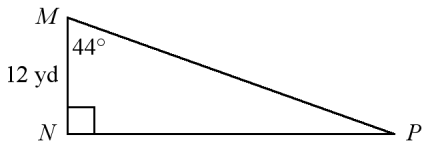
a. (2, 2)

b. (1, 1)

c. (2, 1)

d. (3, 3)

____ 32. In the diagram below, $m\angle M = 44°$ and $MN = 12$ yards. What is the length of $\overline{MP}$ to the nearest tenth?



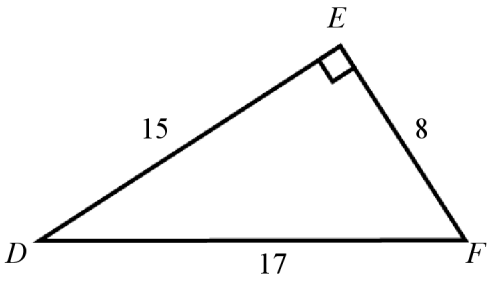
a. 8.6 yards

b. 16.7 yards

c. 17 yards

d. 17.3 yards

____ 33. What is $\sin D$ in the right triangle shown below? Express your answer as a fraction in lowest terms.



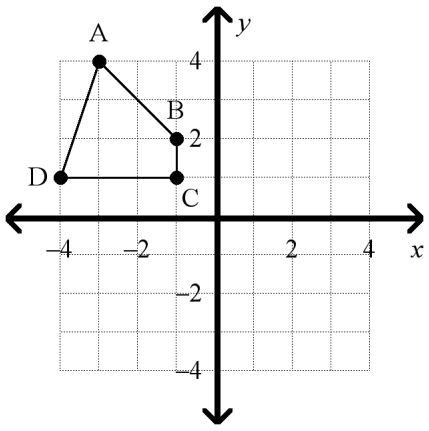
a. $\frac{8}{15}$

b. $\frac{8}{17}$

c. $\frac{15}{17}$

d. $\frac{17}{8}$

____ 34. Figure *ABCD* is shown below on the coordinate plane.



Which of the following transformations will produce an image with a vertex at (1, 1)?

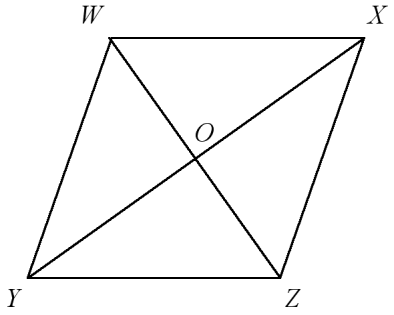
a. Translate figure *ABCD* 2 units to the right and 2 units down.

b. Reflect figure *ABCD* across the *x*-axis.

c. Reflect figure *ABCD* across the *y*-axis.

d. Translate figure *ABCD* 4 units to the right and 2 units up.

____ 35. Complete this statement: For parallelogram *WXYZ*, $\overline{XO} \cong$ ___?___.
What definition or theorem justifies your answer?



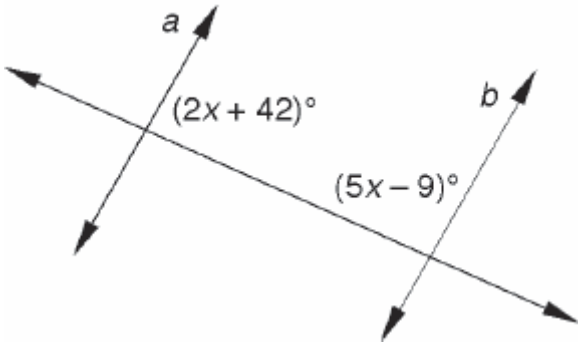
a. $\overline{WO}$; the diagonals of a parallelogram bisect each other.

b. $\overline{ZO}$; the diagonals of a parallelogram bisect each other.

c. $\overline{YO}$; the diagonals of a parallelogram bisect each other.

d. $\overline{WZ}$; the diagonals of a parallelogram bisect each other.

____ 36. For what value of x is $a \parallel b$?



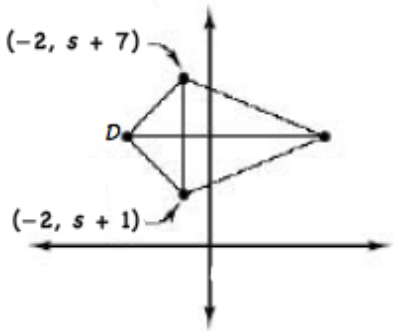
a. 17

c. 33

b. 21

d. 51

____ 37. The figure shown is a kite. What is the y-coordinate of point D?



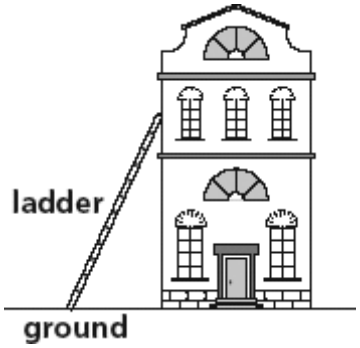
a. $\frac{s+9}{2}$

c. $2s+5$

b. -2

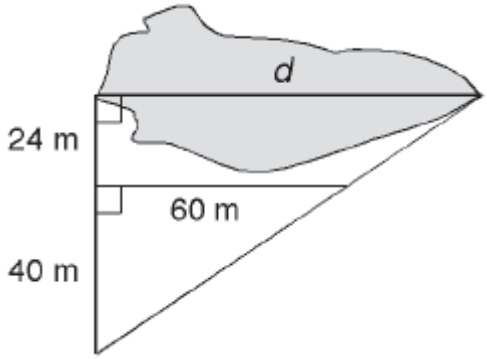
d. $s+4$

____ 38. The base of a 12-foot ladder is 5 feet from a building. To the nearest degree, what angle does the ladder make with the ground?



a. 23°
b. 25°
c. 65°
d. 82°

____ 39. A landowner wants to find the distance *d* across a pond. The two overlapping right triangles shown are similar. Using the measurements shown, what is *d*?

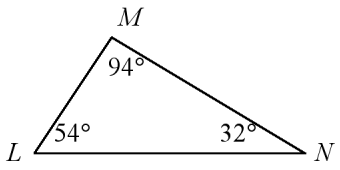


a. 36 meters
c. 96 meters
b. 76 meters
d. 124 meters

____ 40. Corey is 66 inches tall. At noon, Corey casts a shadow 108 inches long. At the same time, a tree casts a shadow 216 inches long. The right triangle formed by Corey and his shadow is similar to the right triangle formed by the tree and its shadow. How tall is the tree?

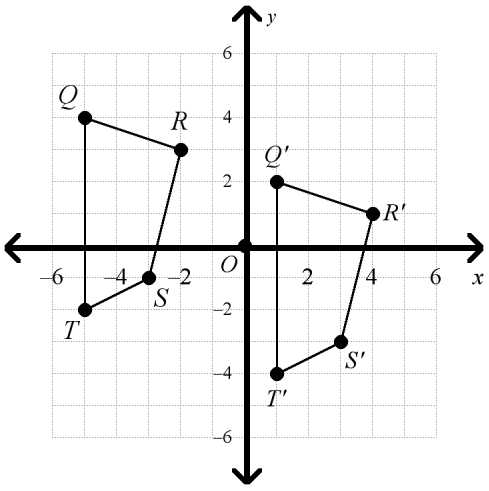
a. 132 inches
c. 153 inches
b. 145 inches
d. 160 inches

____ 41. What is the correct order of the sides of the triangle from longest to shortest?



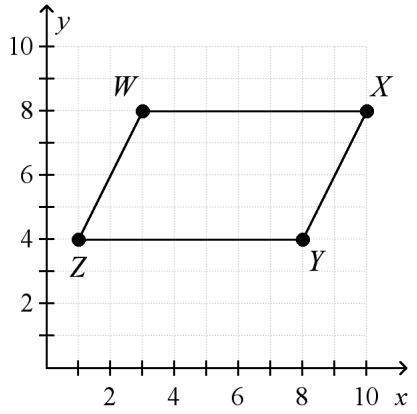
a. $\overline{LN}$, $\overline{LM}$, $\overline{MN}$
b. $\overline{LM}$, $\overline{MN}$, $\overline{LN}$
c. $\overline{LN}$, $\overline{MN}$, $\overline{LM}$
d. $\overline{MN}$, $\overline{LN}$, $\overline{ML}$

____ 42. What is a rule that describes the translation $QRST \rightarrow Q'R'S'T'$?



a. $(x,y) \rightarrow (x-6,y+2)$
b. $(x,y) \rightarrow (x+6,y-2)$
c. $(x,y) \rightarrow (x-2,y+6)$
d. $(x,y) \rightarrow (x+2,y-6)$

____ 43. If parallelogram *WXYZ* shown below is rotated 180° about the origin to create image $W'X'Y'Z'$, which of the following is **NOT** true?



a. $m\angle W = m\angle W'$

c. $m\angle X' + m\angle W' = 180$

b. $Y'Z' = 7$

d. $X'Y' > XY$

____ 44. How do you write the contrapositive of the conditional statement below?

"If $m\angle 1 = 60°$, then $\angle 1$ is acute."

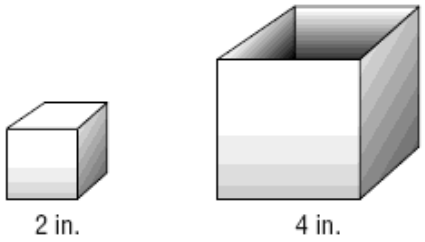
a. If $m\angle 1 = 60°$, then $\angle 1$ is not acute.

b. If $\angle 1$ is not acute, then $m\angle 1 \neq 60°$.

c. If $\angle 1$ is acute, then $m\angle 1 = 60°$.

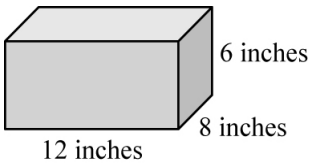
d. If $m\angle 1 \neq 60°$, then $\angle 1$ is not acute.

____ 45. How many two inch cubes will fit inside the four inch cubic box?



a. 4 b. 6 c. 8 d. 16

____ 46. Francesco built a box to store his baseball cards. The box is shown below.



Francesco needed more storage and built a similar box that was one-half of each the length, the width, and the height of the first box. By what factor does the change in dimension between the two boxes affect the volume?

a. The volume of the smaller box is $\frac{1}{16}$ of the volume of the larger box.

b. The volume of the smaller box is $\frac{1}{8}$ of the volume of the larger box.

c. The volume of the smaller box is $\frac{1}{4}$ of the volume of the larger box.

d. The volume of the smaller box is $\frac{1}{2}$ of the volume of the larger box.

____ 47. If $\Delta MNO \cong \Delta PQR$, which of the following can you NOT conclude as being true?

a. $\overline{MN} \cong \overline{PR}$

b. $\angle M \cong \angle P$

c. $\overline{NO} \cong \overline{QR}$

d. $\angle N \cong \angle Q$

____ 48. The sum of the measures of the interior angles of a convex polygon is 1260°. Classify the polygon by its number of sides.

a. hexagon b. septagon c. nonagon d. 14-gon

____ 49. What is the inverse of the statement below?

"If you live in Tallahassee, then you live in Florida."

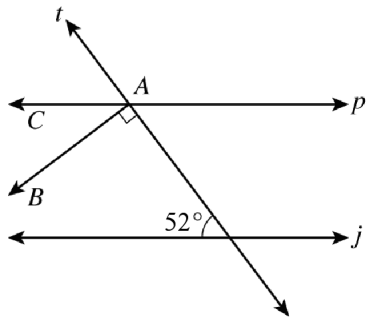
a. If you do not live in Florida, then you do not live in Tallahassee.

b. If you do not live in Florida, then you live in Tallahassee.

c. If you do not live in Tallahassee, then you do not live in Florida.

d. If you live in Florida, then you live in Tallahassee.

____ 50. In this drawing, line p is parallel to line j and line t is perpendicular to $\overrightarrow{AB}$.



What is the measure of $\angle BAC$?

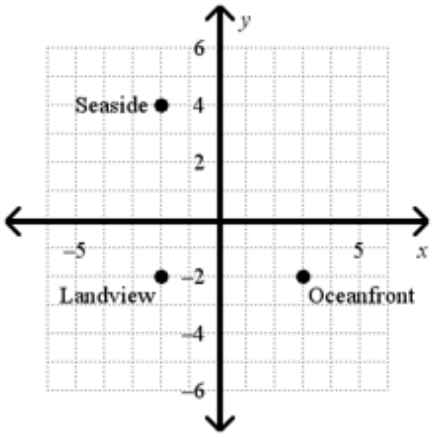
a. 128° b. 118° c. 38° d. 28°

____ 51. What word **best** completes the following sentence?

A conditional statement can have a ____ of *true* or *false*.

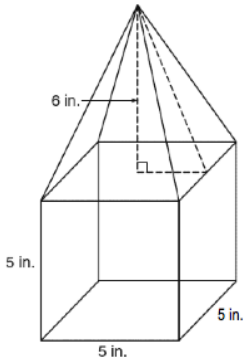
a. hypothesis
b. truth value
c. counterexample
d. conclusion

____ 52. Each unit on the map represents 5 miles. What is the best estimate of the distance from Oceanfront to Seaside?



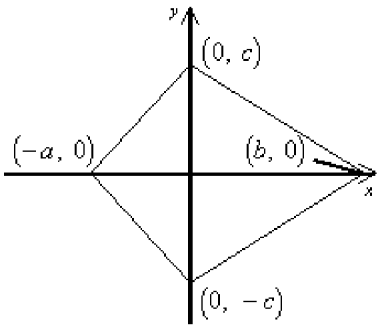
a. about 8 miles
b. about 10 miles
c. about 39 miles
d. about 50 miles

____ 53. What is the volume of the figure below?



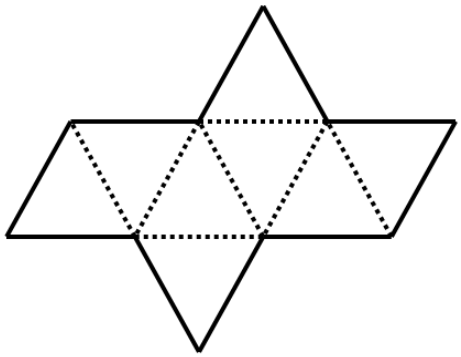
a. 215 cubic inches
b. 200 cubic inches
c. 190 cubic inches
d. 175 cubic inches

____ 54. Which coordinates are the vertices of a figure that is similar to the figure pictured below?



a. $(-2a, 0), (0, 2c), (2b, 0), (0, -2c)$
b. $(\frac{1}{2}a,0),(0,\frac{1}{2}c),(2b,0),(0,2c)$
c. $(-a + 1, 0), (1, c), (b, 1), (0, -c + 1)$
d. $(2a, 0), (0, 4c), (-2b, 0), (0, 2c)$

____ 55. The net below represents a regular polyhedron. How many vertices does the figure have?



a. 6
b. 7
c. 8
d. 9

Geometry EOC Practice Test #3
Answer Section

MULTIPLE CHOICE

1. ANS: A PTS: 1 STA: MA.912.G.7.1
2. ANS: B PTS: 1 DIF: Moderate REF: Geom: 2-1, 2-2, 3-1, 3-2
   STA: MA.912.G.8.4
3. ANS: D PTS: 1 STA: MA.912.G.6.6
4. ANS: D PTS: 1 DIF: Low REF: Geom: 1-7, 1-7 Extend
   STA: MA.912.G.7.1
5. ANS: A PTS: 1 STA: MA.912.G.4.7
6. ANS: D PTS: 1 STA: MA.912.G.1.1
7. ANS: B PTS: 1 STA: MA.912.G.3.4
8. ANS: A PTS: 1 STA: MA.912.G.6.4
9. ANS: C PTS: 1 DIF: Low REF: Geom: 2-3
   STA: MA.912.D.6.2
10. ANS: C PTS: 1 STA: MA.912.G.2.5
11. ANS: C PTS: 1 STA: MA.912.G.1.3
12. ANS: B PTS: 1 STA: MA.912.G.2.7
13. ANS: B PTS: 1 DIF: Low REF: Geom: 11-2
    STA: MA.912.G.2.5
14. ANS: C PTS: 1 STA: MA.912.T.2.1
15. ANS: C PTS: 1 STA: MA.912.G.7.5
16. ANS: C PTS: 1 DIF: Moderate REF: Geom: 2-1, 2-2, 3-1, 3-2
    STA: MA.912.G.8.4
17. ANS: B PTS: 1 STA: MA.912.G.2.2
18. ANS: A PTS: 1 STA: MA.912.G.3.4
19. ANS: C PTS: 1 DIF: Low REF: Geom: 12-4
    STA: MA.912.G.7.7
20. ANS: B PTS: 1 DIF: Moderate REF: Geom: 5-2
    STA: MA.912.G.5.2
21. ANS: D PTS: 1 STA: MA.912.G.2.5
22. ANS: C PTS: 1 DIF: Moderate REF: Geom: 4-3, 4-4, 4-5
    STA: MA.912.G.4.6 | MA.912.G.8.5
23. ANS: C PTS: 1 STA: MA.912.G.2.3
24. ANS: B PTS: 1 DIF: Moderate REF: Geom: 1-3
    STA: MA.912.G.1.1
25. ANS: A PTS: 1 STA: MA.912.G.5.4
26. ANS: C PTS: 1 STA: MA.912.G.6.4
27. ANS: B PTS: 1 STA: MA.912.G.7.2
28. ANS: C PTS: 1 DIF: Moderate REF: Geom: 6-1
    STA: MA.912.G.2.2
29. ANS: C PTS: 1 STA: MA.912.G.7.5
30. ANS: A PTS: 1 STA: MA.912.G.6.6

31. ANS: C PTS: 1 DIF: High REF: Geom: 6-2
STA: MA.912.G.3.3
32. ANS: B PTS: 1 STA: MA.912.T.2.1
33. ANS: B PTS: 1 DIF: Moderate REF: Geom: 8-4
STA: MA.912.T.2.1
34. ANS: C PTS: 1 STA: MA.912.G.2.4
35. ANS: C PTS: 1 STA: MA.912.G.3.4
36. ANS: B PTS: 1 STA: MA.912.G.1.3
37. ANS: D PTS: 1 STA: MA.912.G.3.3
38. ANS: C PTS: 1 STA: MA.912.T.2.1
39. ANS: C PTS: 1 STA: MA.912.G.2.3
40. ANS: A PTS: 1 STA: MA.912.G.2.3
41. ANS: C PTS: 1 STA: MA.912.G.4.7
42. ANS: B PTS: 1 STA: MA.912.G.2.4
43. ANS: D PTS: 1 DIF: Low REF: Geom: 9-3
STA: MA.912.G.2.4
44. ANS: B PTS: 1 DIF: Low REF: Geom: 2-3
STA: MA.912.D.6.2
45. ANS: C PTS: 1 STA: MA.912.G.7.5
46. ANS: B PTS: 1 DIF: Moderate REF: Geom: 12-6
STA: MA.912.G.7.7
47. ANS: A PTS: 1 STA: MA.912.G.4.6
48. ANS: C PTS: 1 STA: MA.912.G.2.2
49. ANS: C PTS: 1 DIF: Low REF: Geom: 2-3
STA: MA.912.D.6.2
50. ANS: C PTS: 1 DIF: Moderate REF: Geom: 3-1, 3-2
STA: MA.912.G.1.3
51. ANS: B PTS: 1 STA: MA.912.D.6.2
52. ANS: C PTS: 1 STA: MA.912.G.1.1
53. ANS: D PTS: 1 STA: MA.912.G.7.5
54. ANS: A PTS: 1 STA: MA.912.G.3.3
55. ANS: A PTS: 1 DIF: Low REF: Geom: 1-7, 1-7 Extend
STA: MA.912.G.7.1