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

Geometry EOC Practice Test #1

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

____ 1. Write a conditional statement from the following statement:

A horse has 4 legs.

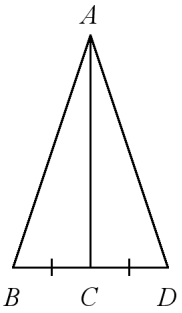
a. If it has 4 legs, then it is a horse.

b. Every horse has 4 legs.

c. If it is a horse, then it has 4 legs.

d. It has 4 legs and it is a horse.

____ 2. What other information is needed in order to prove the triangles congruent using the SAS Congruence Postulate?



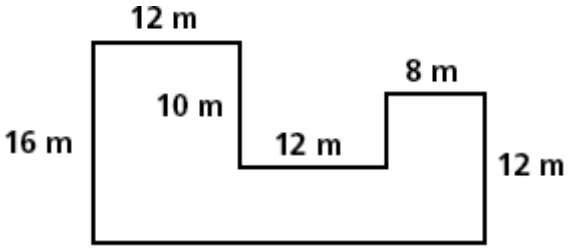
a. $\angle BAC \cong \angle DAC$

b. $\overline{AC} \perp \overline{BD}$

c. $\overline{AB} \parallel \overline{AD}$

d. $\overline{AC} \cong \overline{BD}$

____ 3. Assume all angles are right angles. What is the area of the figure?



a. 1536 square meters

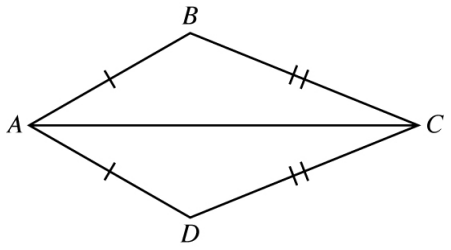
b. 408 square meters

c. 360 square meters

d. 102 square meters

____ 4. In the proof below, what is the missing reason?

Given: $ABCD$ is a kite
Prove: $\angle B \cong \angle D$



Statement	Reason
1. $\overline{AB} \cong \overline{AD}$ and $\overline{BC} \cong \overline{CD}$	1. Definition of kite
2. $\overline{AC} \cong \overline{AC}$	2. Reflexive Property of equality
3. $\triangle ABC \cong \triangle ADC$	3. SSS
4. $\angle B \cong \angle D$	4. ?

a. SAS

b. CPCTC

c. SSS

d. AAS

____ 5. How do you write the inverse 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.

____ 6. What is the contrapositive of the statement below?

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

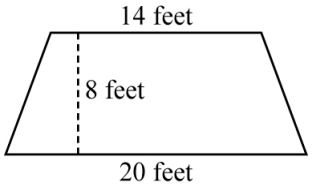
a. If tomorrow is not Saturday, then today is not Friday.

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.

____ 7. Lina is covering a wall in her attic with wallpaper. The wall is trapezoid-shaped with top and bottom bases of 14 feet and 20 feet. The height of the wall is 8 feet. How much wallpaper will she need to cover the wall?



a. 24 square feet

b. 48 square feet

c. 136 square feet

d. 272 square feet

____ 8. You are reducing a map of dimensions 2 feet by 3 feet to fit to a piece of paper 8 inches by 10 inches. What are the dimensions of the largest possible map that can fit on the page?

a. $6\frac{2}{3}$ inches by 10 inches

c. 8 inches by $6\frac{2}{3}$ inches

b. $5\frac{1}{3}$ inches by 10 inches

d. 8 inches by 10 inches

____ 9. A bell tower is 17 meters tall. It casts a long shadow on the ground below. The tip of the shadow of the bell tower is 51 meters from the base of the bell tower. At the same time, a tall elm tree casts a shadow that is 63 meters long. If the right triangle formed by the tower and its shadow is similar to the right triangle formed by the elm and its shadow, how tall is the elm to the nearest tenth?

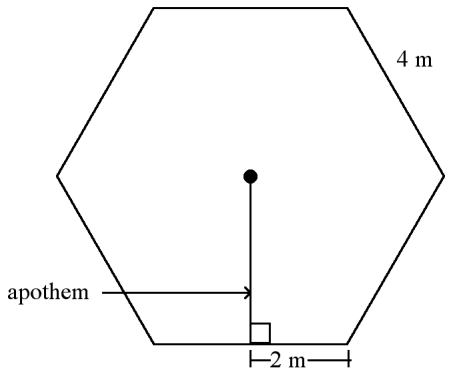
a. 13.8 meters

c. 189 meters

b. 21 meters

d. 3.7 meters

____ 10. Find the area of a regular hexagon with side length 4 m. Round to the nearest tenth.



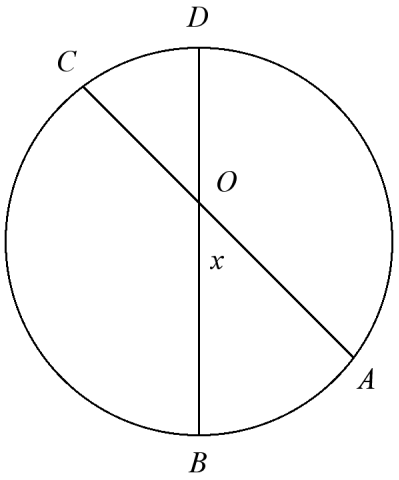
a. 83.1 m^2

b. 24 m^2

c. 41.6 m^2

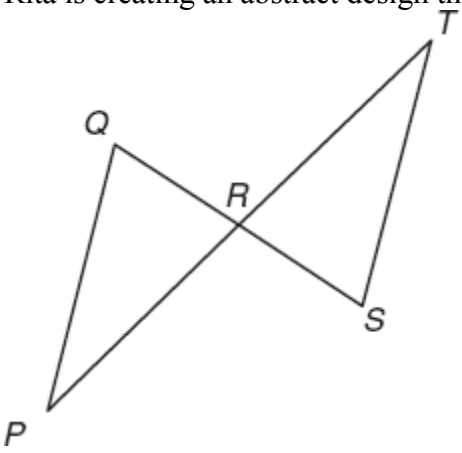
d. 20.8 m^2

____ 11. What is the value of x for $m\overset{\frown}{AB} = 45$ and $m\overset{\frown}{CD} = 42$?



a. 3 b. 43.5 c. 66 d. 87

____ 12. Rita is creating an abstract design that includes the figure below.

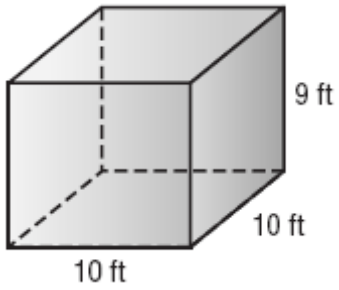


She knows that $\angle PQR \cong \angle TSR$. What additional information would she need to prove that $\triangle PQR \cong \triangle TSR$ using ASA?

a. $\angle QPR \cong \angle SRT$ c. $\overline{PR} \cong \overline{TR}$

b. $\overline{QP} \cong \overline{ST}$ d. $\overline{QR} \cong \overline{SR}$

____ 13. Rebecca is loading medical supply boxes into a crate. Each supply box is 1.5 feet tall, 1 foot wide, and 2 feet deep. The crate is 9 feet high, 10 feet wide, and 10 feet deep.



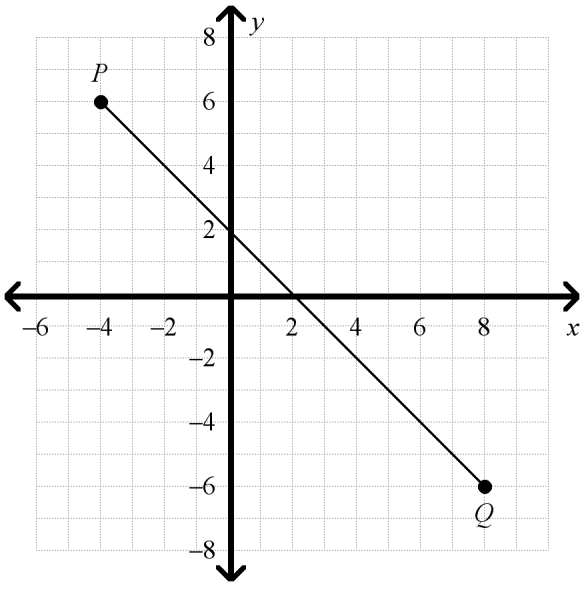
What is the maximum number of supply boxes can she pack in this crate?

a. 200 b. 300 c. 450 d. 600

____ 14. What is the sum of the measures of the interior angles of a 14-sided polygon?

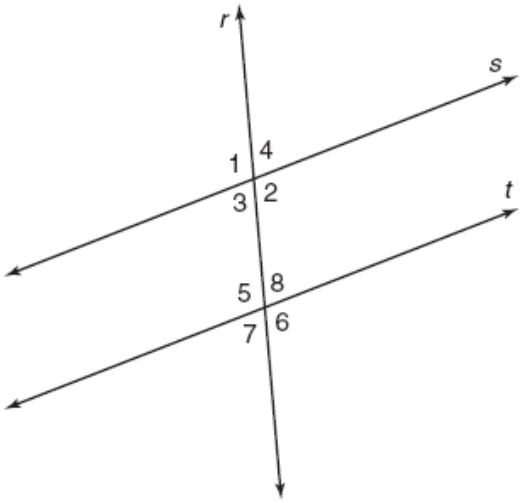
a. 1,980 b. 2,160 c. 2,520 d. 2,880

____ 15. What is the midpoint of $\overline{PQ}$?



a. (2, 0) b. (2, 1) c. (1, 1) d. (1, 0)

____ 16. Lines *s* and *t* are parallel and *r* is a transversal.



Which angles are congruent to ∠4?

a. ∠2, ∠5, ∠8

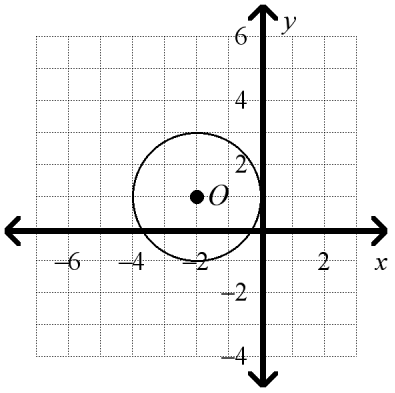
b. ∠2, ∠6, ∠8

c. ∠3, ∠5, ∠7

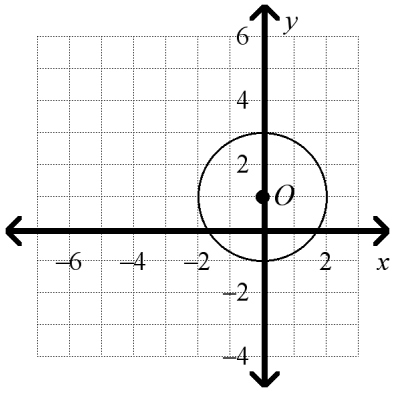
d. ∠3, ∠7, ∠8

____ 17. 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 $(x+2)^2+(y-1)^2=4$. What is the graph that shows the position and radius of the wheels?

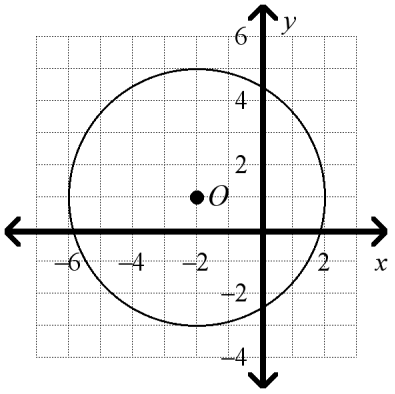
a.



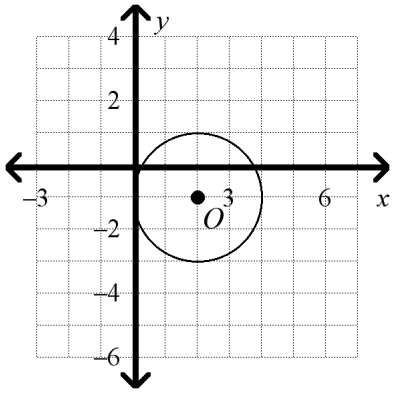
c.



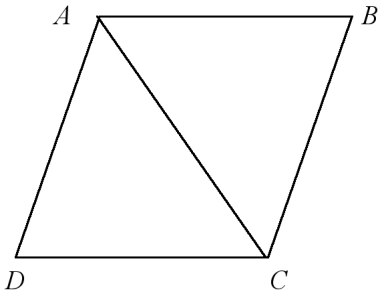
b.



d.



____ 18. *ABCD* is a rhombus. How do you complete the explanation that states why $\Delta ABC \cong \Delta CDA$?



$\overline{AB} \cong \overline{CD}$ and $\overline{BC} \cong \overline{DA}$ by the definition of rhombus. $\overline{AC} \cong \overline{AC}$ by the Reflexive Property of Congruence, so $\Delta ABC \cong \Delta CDA$ by _____.

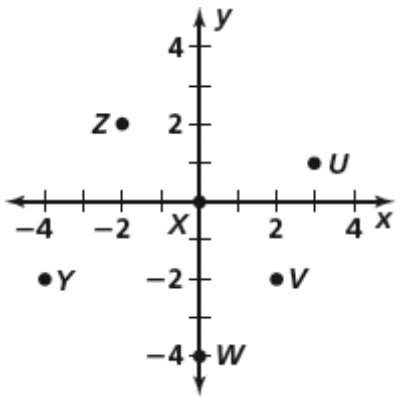
a. ASA

b. AAS

c. SAS

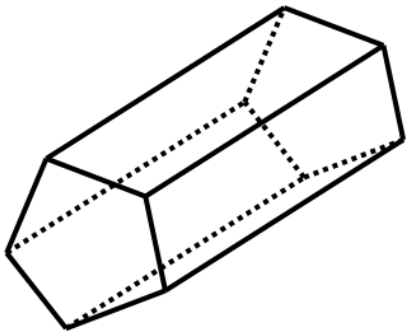
d. SSS

____ 19. What is the *y*-coordinate of the midpoint of $\overline{WU}$?



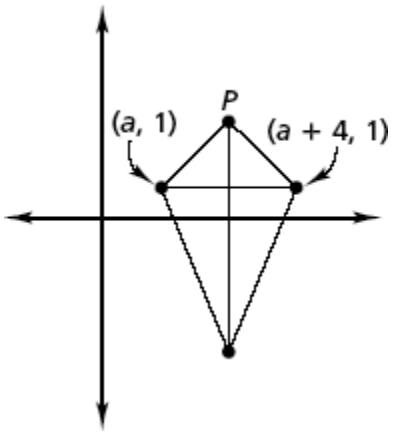
a. –2.5 b. –1.5 c. –0.5 d. 1.5

____ 20. How many vertices does the polyhedron below have?



a. 8
b. 10
c. 12
d. 20

____ 21. The figure shown is a kite. What is the x-coordinate of point P?



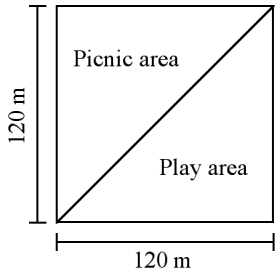
a. $\frac{a}{2}+4$

b. $\frac{a+4}{2}$

c. $a+2$

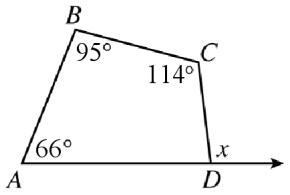
d. $2a+4$

____ 22. A community is building a square park with sides that measure 120 meters. To separate the picnic area from the play area, the park is split by a diagonal line from opposite corners. Determine the approximate length of the diagonal line that splits the square. If necessary, round your answer to the nearest meter.



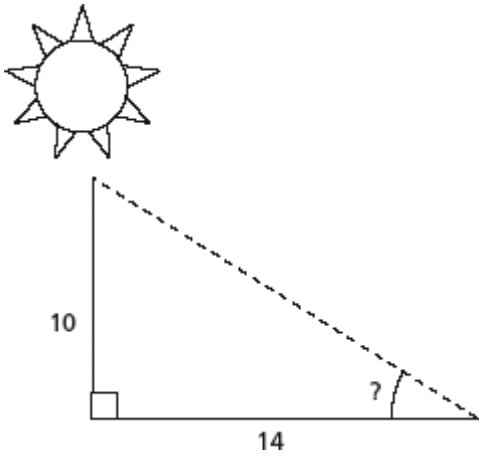
a. 28,800 meters
b. 170 meters
c. 240 meters
d. 120 meters

____ 23. Three angles of quadrilateral *ABCD* have measures 66°, 95°, and 114°. What is the value of *x*?



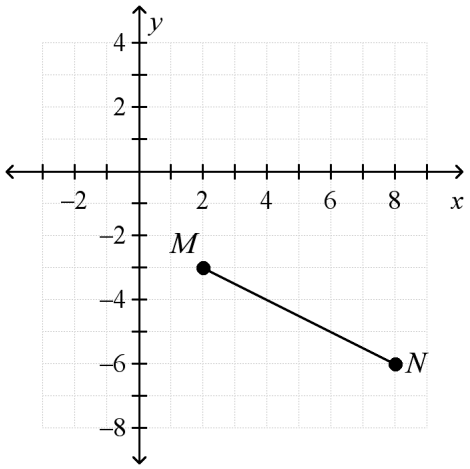
a. 85° b. 95° c. 161° d. 275°

____ 24. At a certain time, a vertical pole 10 feet tall casts a 14-foot shadow. What is the angle of elevation of the sun to the nearest degree?



a. 36°
b. 44°
c. 46°
d. 54°

____ 25. To the nearest tenth, what is the length, in units, of $\overline{MN}$?

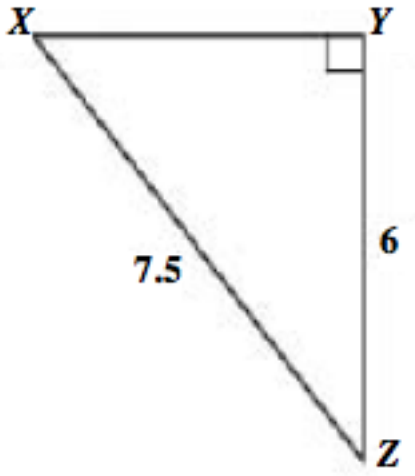


a. 6.0 b. 6.7 c. 9.0 d. 9.1

____ 26. Michael used a compass and a ruler to construct two parallel lines and a transversal. Which of the following statements is a conjecture that Michael can make about the angles formed by the parallel lines and the transversal.

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

____ 27. In ΔXYZ, what is the cosine ratio of $\angle X$?



a. $\frac{9}{15}$

b. $\frac{9}{12}$

c. $\frac{12}{15}$

d. $\frac{15}{12}$

____ 28. If $\Delta DNP \cong \Delta HKF$, which of the following is NOT true?

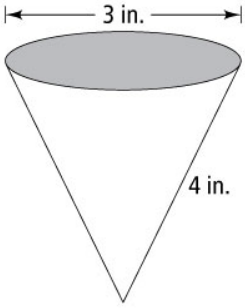
a. $\overline{NP} \cong \overline{KF}$

b. $\overline{DP} \cong \overline{HF}$

c. $\angle D \cong \angle H$

d. $\angle P \cong \angle K$

____ 29. To the nearest square inch, how much paper is needed to make the drinking cup below?



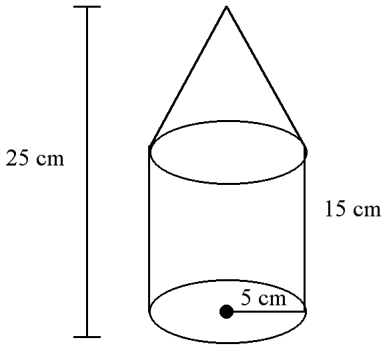
a. 38 square inches

b. 19 square inches

c. 7 square inches

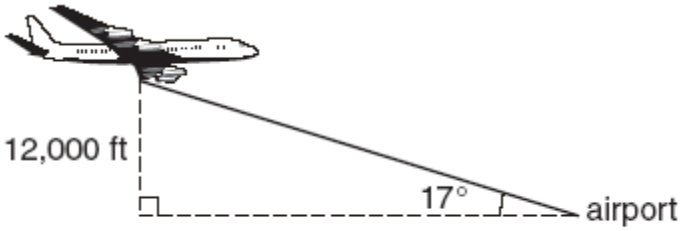
d. 24 square inches

____ 30. Find the volume of the figure below. Round to the nearest square centimeter.



a. 576 cm^3 b. 785 cm^3 c. 1440 cm^3 d. 1963 cm^3

____ 31. A plane is flying at an altitude of 12,000 feet and is preparing to land at a nearby airport. The angle from the airport to the plane is 17°.



Note: Figure not drawn to scale.

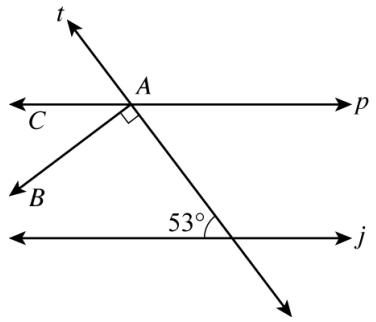
To the nearest tenth of a foot, how far is the airport from the plane?
a. 3,668.8 feet
b. 12,548.3 feet
c. 39,250.2 feet
d. 41,043.6 feet

____ 32. Quadrilateral *RSTU* has vertices *R*(–6, –3), *S*(3, 3), and *T*(4, –1). What are the coordinates of vertex *U* if *RSTU* is a parallelogram?

a. (–5, –6) c. (–6, –7)

b. (–5, –7) d. (–6, –8)

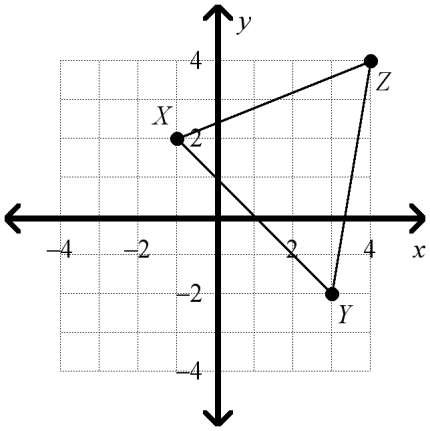
____ 33. In this drawing, line p is parallel to line j and line t is perpendicular to $\overrightarrow{AB}$.



What is the measure of $\angle BAC$?

a. 37° b. 53° c. 90° d. 127°

____ 34. If triangle XYZ is rotated 90º clockwise about the origin to form triangle $X'Y'Z'$, what are the coordinates of Y'?



a. (2, –3)

b. (–2, 3)

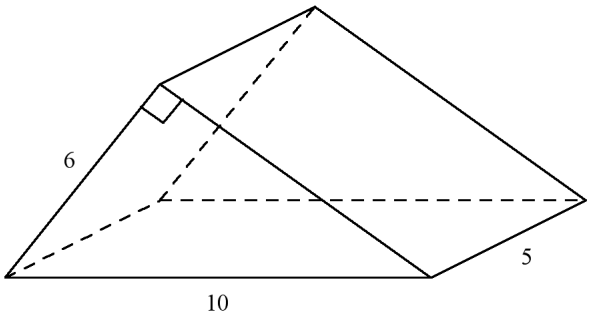
c. (–2, –3)

d. (–3, –2)

____ 35. A triangle is dilated by a scale factor of $\frac{1}{3}$ to produce a new triangle. Which of the following best describes the relationship between the perimeter of the original triangle compared to the perimeter of the new triangle?

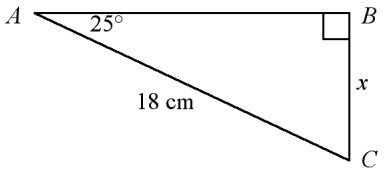
a. The perimeter of the new triangle is $\frac{1}{3}$ that of the original triangle.
b. The perimeter of the new triangle is 3 times that of the original triangle.
c. The perimeter of the new triangle is $\frac{1}{9}$ that of the original triangle.
d. The perimeter of the new triangle is 9 times that of the original triangle.

____ 36. *Find the surface area of the prism below.* .



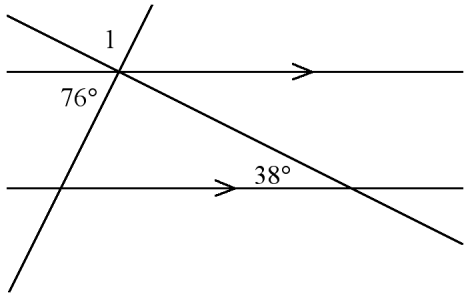
a. 120 units^2
b. 144 units^2
c. 168 units^2
d. 180 units^2

____ 37. What is the approximate value of x in the diagram below?



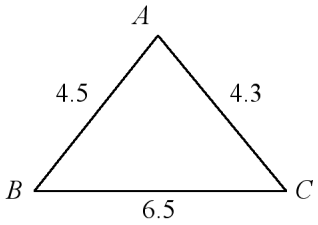
a. 7.6 centimeters
b. 8.4 centimeters
c. 16.3 centimeters
d. 19.9 centimeters

____ 38. What is $m\angle 1$?



a. 114°
b. 104°
c. 76°
d. 66°

____ 39. What is the correct order of the angle measures of the triangle from smallest to largest?



a. $\angle B, \angle C, \angle A$
b. $\angle A, \angle B, \angle C$
c. $\angle B, \angle A, \angle C$
d. $\angle A, \angle C, \angle B$

____ 40. What is the equation of a circle that has center (–6, 2) and radius $\sqrt{106}$?

a. $(x - 6)^2 + (y + 2)^2 = \sqrt{106}$
b. $(x + 6)^2 + (y - 2)^2 = \sqrt{106}$
c. $(x - 6)^2 + (y + 2)^2 = 106$
d. $(x + 6)^2 + (y - 2)^2 = 106$

____ 41. Warren and his dad are preparing to go sailing for the first time this year. The two diagrams show the boat's mast in different positions as they use a winch to raise it. Notice that the length of the mast and the distance from the bottom of the mast to the winch are the same in each diagram. Which of the following best describes the relationship of the cable from the top of the mast in both Diagrams 1 and 2?

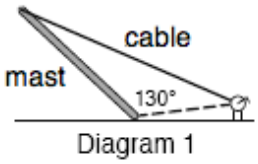


Diagram 1

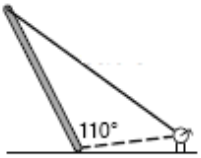
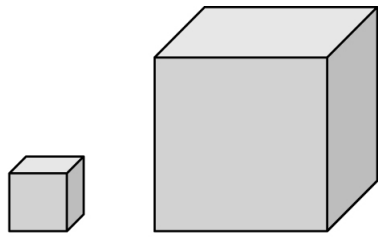


Diagram 2

a. The cables are of equal length in both diagrams.
b. The cable is longer in Diagram 1 than it is in Diagram 2.
c. The cable is longer in Diagram 2 than it is in Diagram 1.
d. The length of the cables cannot be determined in either Diagram 1 or 2.

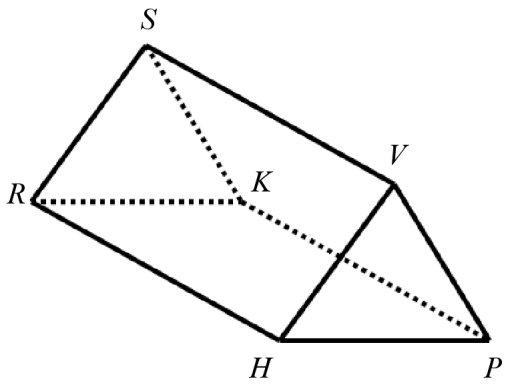
____ 42. Aaron collects snow globes. The snow globes come in cube-shaped boxes as shown below.



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

a. The volume increases by a factor of 8.
b. The volume increases by a factor of 27.
c. The volume increases by a factor of 64.
d. The volume increases by a factor of 16.

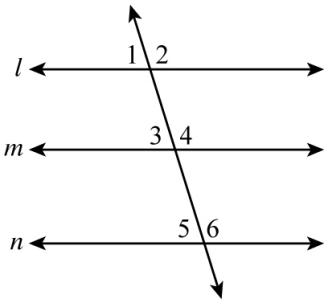
____ 43. Which of the following correctly shows the number of faces, edges, and vertices of the triangular prism below?



a. 5 faces, 6 edges, 9 vertices
b. 5 faces, 9 edges, 6 vertices
c. 6 faces, 9 edges, 5 vertices
d. 6 faces, 10 edges, 6 vertices

____ 44. Which represents the faces of a icosahedron?
a. 3 triangles
b. 10 triangles
c. 16 triangles
d. 20 triangles

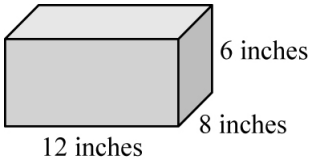
____ 45. Carlos constructed 3 parallel lines as part of an art project. He also drew a line passing through each of the parallel lines. Some of the angles formed by the intersection of line *t* and lines *l*, *m*, and *n* are numbered in the diagram below.



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

a. Angles 1, 2, and 3 are congruent.
b. Angles 1, 3, and 5 are congruent.
c. Angles 2 and 4 are supplementary.
d. Angles 1 and 5 are supplementary.

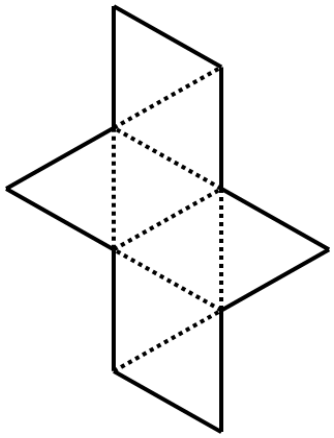
____ 46. Martin built a box to store his video games. The box is shown below.



Martin needed more storage and built a similar box that was one-third 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 surface area?

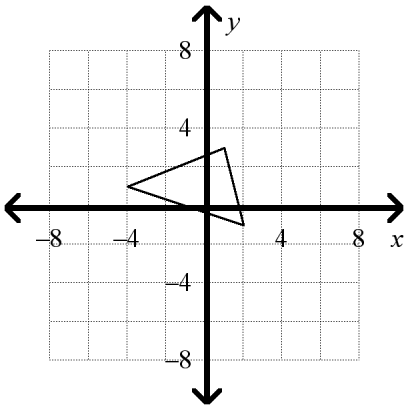
a. The surface area of the smaller box is $\frac{1}{3}$ of the surface area of the larger box.
b. The surface area of the smaller box is $\frac{1}{6}$ of the surface area of the larger box.
c. The surface area of the smaller box is $\frac{1}{9}$ of the surface area of the larger box.
d. The surface area of the smaller box is $\frac{2}{3}$ of the surface area of the larger box.

____ 47. The net below represents a regular polyhedron, or Platonic Solid. How many edges does the Platonic Solid have?

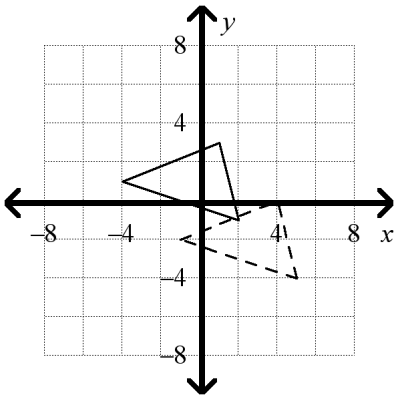


a. 6
b. 8
c. 10
d. 12

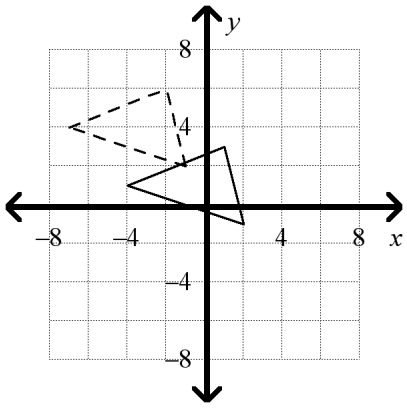
____ 48. What is the translation image of the triangle shown after a translation with the rule $(x, y) \rightarrow (x - 3, y + 3)$?



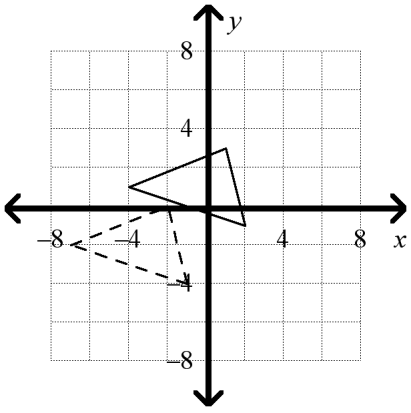
a.



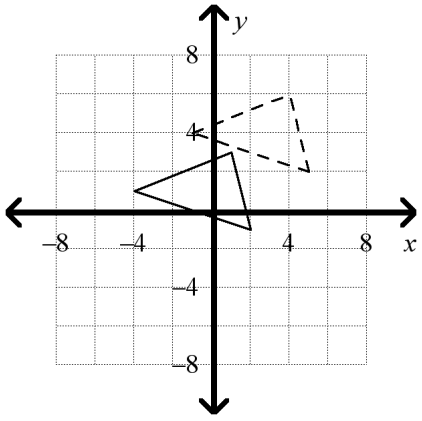
c.



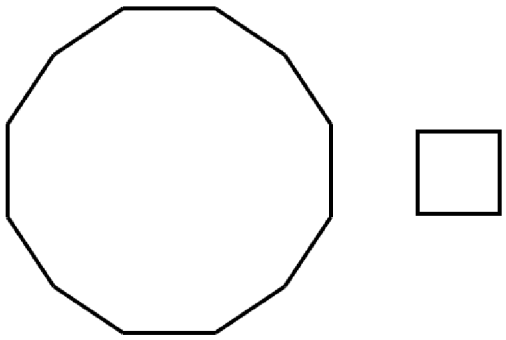
b.



d.



____ 49. A uniform tessellation is made using three different regular polygons. Two of the polygons are shown below.



What must the measure of an interior angle of the third polygon be in order to tessellate the plane?

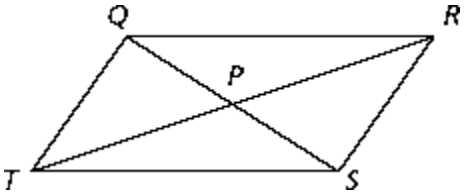
a. 60°

b. 120°

c. 160°

d. 240°

____ 50. Which of the following would be enough information to prove that quadrilateral *QRST* is a parallelogram?



a. $\overline{QR} \cong \overline{ST}$

b. $\overline{QR} \parallel \overline{ST}$

c. $\overline{QP} \cong \overline{PS}$ and $\overline{TP} \cong \overline{PR}$

d. Two pairs of sides are congruent.

____ 51. What is the converse and the truth value of the converse of the following conditional statement?

If an angle is a right angle, then its measure is 90°.

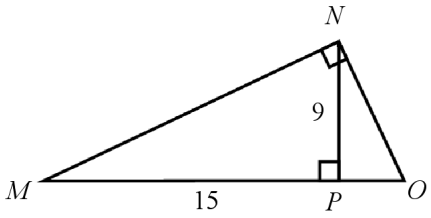
a. If an angle is NOT a right angle, then its measure is 90°.
False

b. If an angle is NOT a right angle, then its measure is NOT 90°.
True

c. If an angle has a measure of 90°, then it is a right angle.
False

d. If an angle has a measure of 90°, then it is a right angle.
True

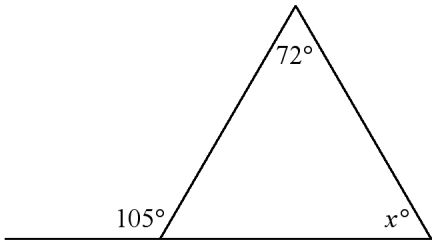
____ 52. In the figure below, $\overline{NP}$ is the altitude drawn to the hypotenuse of ΔMNO.



If $NP = 9$ and $MP = 15$, what is the length of $\overline{OP}$?

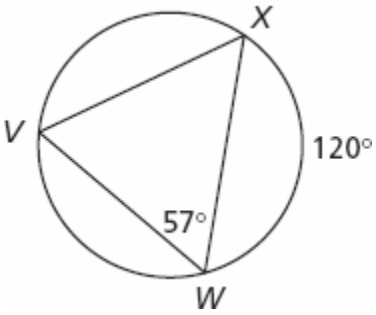
a. 7.2
b. 6.2
c. 5.4
d. 4.8

____ 53. What is the value of x?



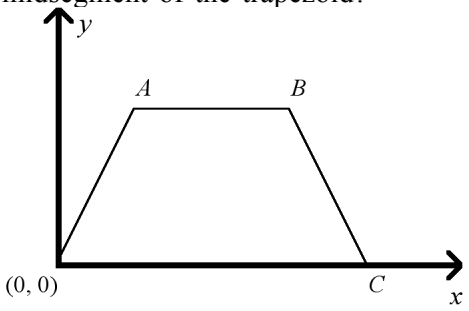
a. 33 b. 75 c. 147 d. 162

____ 54. What is the measure of $\angle VXW$?



a. 120°
c. 60°
b. 63°
d. 57°

____ 55. The vertices of the trapezoid is represented by $A(4a, 4b)$, $B(4c, 4b)$, and $C(4d, 0)$. What is the midpoint of the midsegment of the trapezoid?



a. $(a + c + d, b)$
c. $(a + c + d, 2b)$
b. $(2c, 2b)$
d. $(2a + 2d, 2b)$

Geometry EOC Practice Test #1
Answer Section

MULTIPLE CHOICE

1. ANS: C PTS: 1 STA: MA.912.D.6.2
2. ANS: B PTS: 1 STA: MA.912.G.4.6
3. ANS: C PTS: 1 STA: MA.912.G.2.5
4. ANS: B PTS: 1 DIF: Moderate REF: Geom: 6-6
   STA: MA.912.D.6.4 | MA.912.G.3.4 | MA.912.G.8.5
5. ANS: D PTS: 1 DIF: Low REF: Geom: 2-3
   STA: MA.912.D.6.2
6. ANS: A PTS: 1 DIF: Low REF: Geom: 2-3
   STA: MA.912.D.6.2
7. ANS: C PTS: 1 DIF: Low REF: Geom: 11-2
   STA: MA.912.G.2.5
8. ANS: A PTS: 1 STA: MA.912.G.2.3
9. ANS: B PTS: 1 STA: MA.912.G.2.3
10. ANS: C PTS: 1 STA: MA.912.G.2.5
11. ANS: B PTS: 1 STA: MA.912.G.6.4
12. ANS: D PTS: 1 STA: MA.912.G.2.3
13. ANS: B PTS: 1 STA: MA.912.G.7.5
14. ANS: B PTS: 1 STA: MA.912.G.2.2
15. ANS: A PTS: 1 STA: MA.912.G.1.1
16. ANS: D PTS: 1 STA: MA.912.G.1.3
17. ANS: A PTS: 1 STA: MA.912.G.6.6
18. ANS: D PTS: 1 STA: MA.912.G.3.4
19. ANS: B PTS: 1 STA: MA.912.G.1.1
20. ANS: B PTS: 1 DIF: Low REF: Geom: 1-7
    STA: MA.912.G.7.1
21. ANS: C PTS: 1 STA: MA.912.G.3.3
22. ANS: B PTS: 1 STA: MA.912.G.5.4
23. ANS: B PTS: 1 DIF: Moderate REF: Geom: 6-1
    STA: MA.912.G.2.2
24. ANS: A PTS: 1 STA: MA.912.T.2.1
25. ANS: B PTS: 1 DIF: Moderate REF: Geom: 1-3
    STA: MA.912.G.1.1
26. ANS: A PTS: 1 DIF: Moderate REF: Geom: 2-1, 2-2, 3-1, 3-2
    STA: MA.912.G.8.4
27. ANS: A PTS: 1 STA: MA.912.T.2.1
28. ANS: D PTS: 1 DIF: Moderate REF: Geom: 4-3
    STA: MA.912.G.4.6
29. ANS: B PTS: 1 STA: MA.912.G.7.5
30. ANS: C PTS: 1 STA: MA.912.G.7.5
31. ANS: D PTS: 1 STA: MA.912.T.2.1

32. ANS: B PTS: 1 DIF: High REF: Geom: 6-2
STA: MA.912.G.3.3
33. ANS: A PTS: 1 DIF: Moderate REF: Geom: 3-1, 3-2
STA: MA.912.G.1.3
34. ANS: C PTS: 1 STA: MA.912.G.2.4
35. ANS: A PTS: 1 STA: MA.912.G.2.7
36. ANS: C

	Feedback
A	
B	
C	
D	

PTS: 1 STA: MA.912.G.7.5
37. ANS: A PTS: 1 STA: MA.912.T.2.1
38. ANS: D PTS: 1 STA: MA.912.G.1.3
39. ANS: A PTS: 1 STA: MA.912.G.4.7
40. ANS: D PTS: 1 STA: MA.912.G.6.6
41. ANS: B PTS: 1 STA: MA.912.G.4.7
42. ANS: B PTS: 1 DIF: Low REF: Geom: 12-4
STA: MA.912.G.7.7
43. ANS: B PTS: 1 DIF: Moderate REF: Geom: 1-7
STA: MA.912.G.7.2
44. ANS: D PTS: 1 STA: MA.912.G.7.1
45. ANS: B PTS: 1 DIF: Moderate REF: Geom: 2-1, 2-2, 3-1, 3-2
STA: MA.912.G.8.4
46. ANS: C PTS: 1 DIF: Moderate REF: Geom: 12-6
STA: MA.912.G.7.7
47. ANS: D PTS: 1 DIF: Low REF: Geom: 1-7, 1-7 Extend
STA: MA.912.G.7.1
48. ANS: C PTS: 1 STA: MA.912.G.2.4
49. ANS: B PTS: 1 DIF: High REF: Geom: 9-4 Extend
STA: MA.912.G.2.4
50. ANS: C PTS: 1 STA: MA.912.G.3.4
51. ANS: D PTS: 1 STA: MA.912.D.6.2
52. ANS: C PTS: 1 DIF: Moderate REF: Geom: 5-2
STA: MA.912.G.5.2
53. ANS: A PTS: 1 STA: MA.912.G.2.2
54. ANS: B PTS: 1 STA: MA.912.G.6.4
55. ANS: C PTS: 1 STA: MA.912.G.3.3