Georgia Milestones Assessment System

Geometry Formula Sheet

Below are the formulas you may find useful as you work the problems. However, some of the formulas may not be used. You may refer to this page as you take the test.

Geometry Formulas

Perimeter

The perimeter of a polygon is equal to the sum of the length of its sides.

Distance Formula

$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

Coordinates of point which partitions a directed line segment AB at the ratio of $a:b$ from $A(x_1, y_1)$ to $B(x_2, y_2)$

$(x, y) = \frac{bx_1 + ax_2}{b + a}, \frac{by_1 + ay_2}{b + a}$

OR

$(x, y) = \left(x_1 + \frac{a}{a + b}(x_2 - x_1), y_1 + \frac{a}{a + b}(y_2 - y_1)\right)$

Circumference of a Circle

$C = \pi d$ or $C = 2\pi r$

$\pi \approx 3.14$

Arc Length of a Circle

Arc Length $= \frac{2\pi r\theta}{360}$

Area

Triangle	$A = \frac{1}{2}bh$
Rectangle	$A = bh$
Circle	$A = \pi r^2$

Area of a Sector of a Circle

$Area\ of\ Sector = \frac{\pi r^2\theta}{360}$

Pythagorean Theorem

$a^2 + b^2 = c^2$

Trigonometric Relationships

$\sin\theta = \frac{opp}{hyp}$; $\cos\theta = \frac{adj}{hyp}$; $\tan\theta = \frac{opp}{adj}$

Equation of a Circle

$(x - h)^2 + (y - k)^2 = r^2$

Volume

Cylinder	$V = \pi r^2 h$
Pyramid	$V = \frac{1}{3}Bh$
Cone	$V = \frac{1}{3}\pi r^2 h$
Sphere	$V = \frac{4}{3}\pi r^3$

Statistics Formulas

Conditional Probability

$P(A/B) = \frac{P(A\ and\ B)}{P(B)}$

Multiplication Rule for Independent Events

$P(A\ and\ B) = P(A) \cdot P(B)$

Addition Rule

$P(A\ or\ B) = P(A) + P(B) - P(A\ and\ B)$

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.

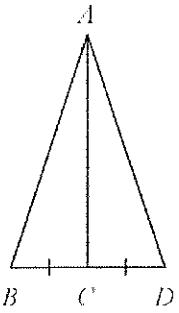
a. If it has 4 legs, then it is a horse.

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?



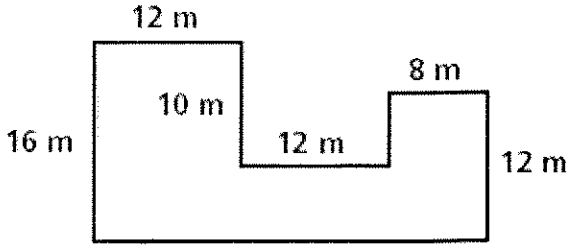
a. $\angle BAC \cong \angle DAC$

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

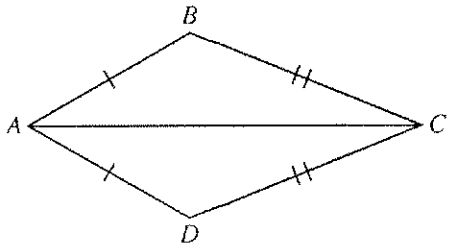
b. 408 square meters

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."

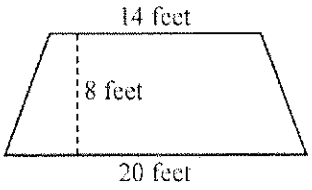
a. If tomorrow is not Saturday, then today is not Friday.

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?

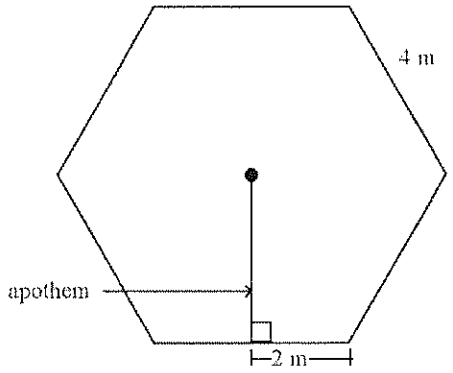
a. 13.8 meters

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.



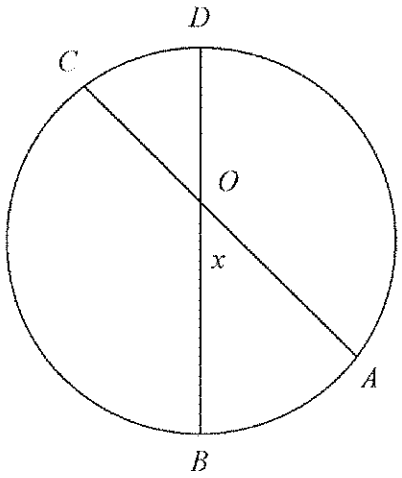
a. 83.1 m^2

b. 24 m^2

c. 41.6 m^2

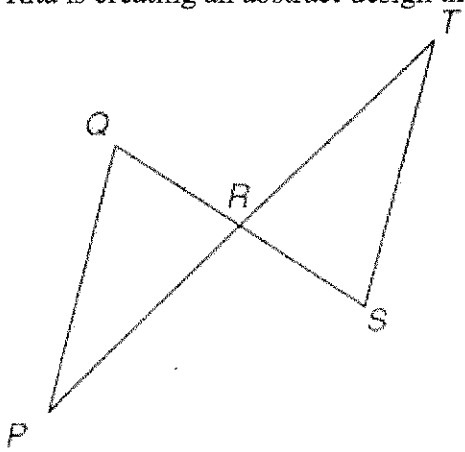
d. 20.8 m^2

____ 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?

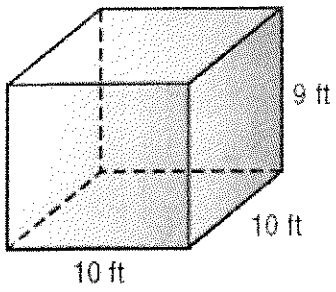
a. $\angle QPR \cong \angle SRT$

b. $\overline{QP} \cong \overline{ST}$

c. $\overline{PR} \cong \overline{TR}$

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.



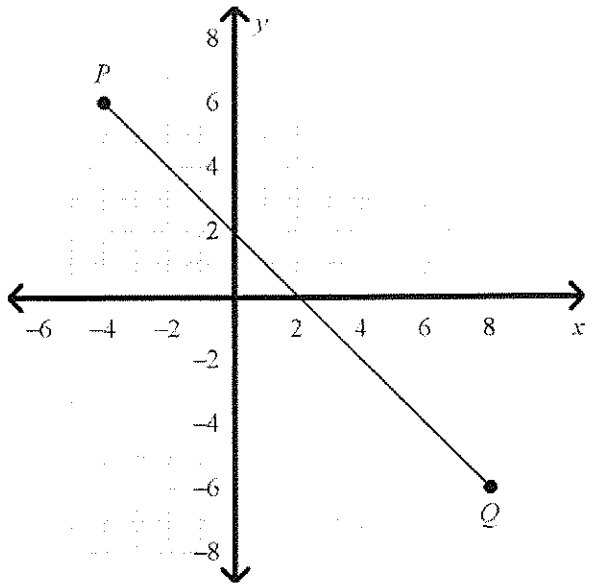
What is the maximum number of supply boxes can she pack in this crate?

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?

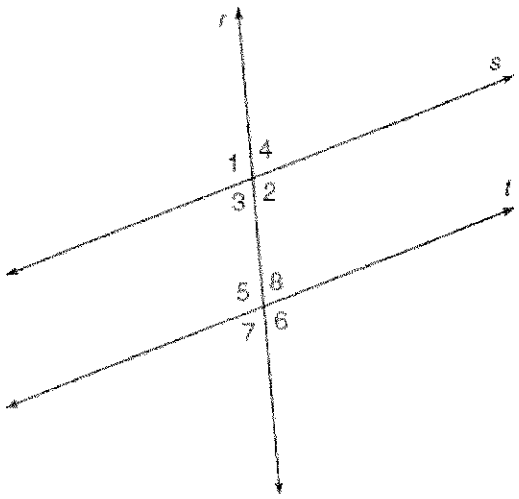
a. 1,980 b. 2,160 c. 2,520 d. 2,880

_____ 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 $\angle 4$?

a. $\angle 2, \angle 5, \angle 8$

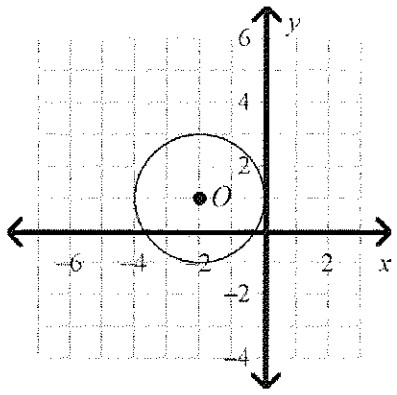
b. $\angle 2, \angle 6, \angle 8$

c. $\angle 3, \angle 5, \angle 7$

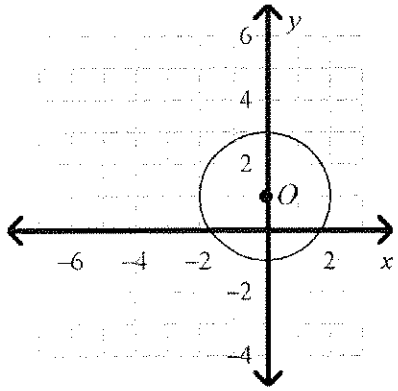
d. $\angle 3, \angle 7, \angle 8$

_____ 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?

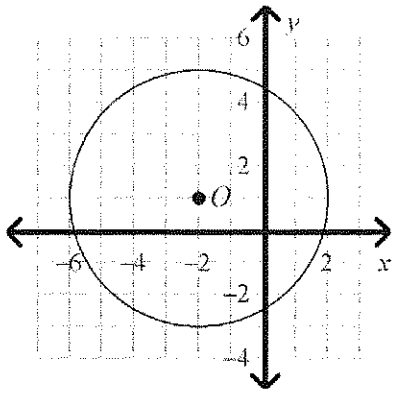
a.



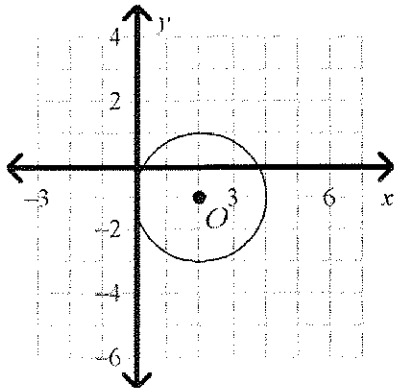
c.



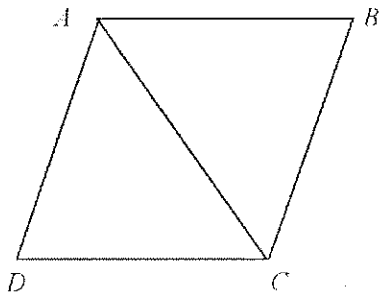
b.



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 _____.

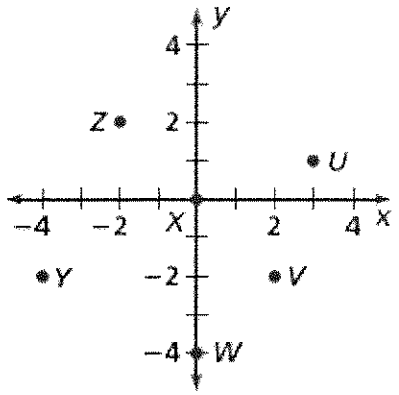
a. ASA

b. AAS

c. SAS

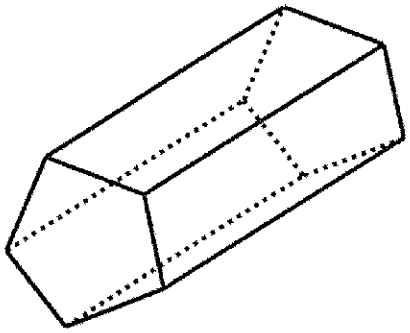
d. SSS

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



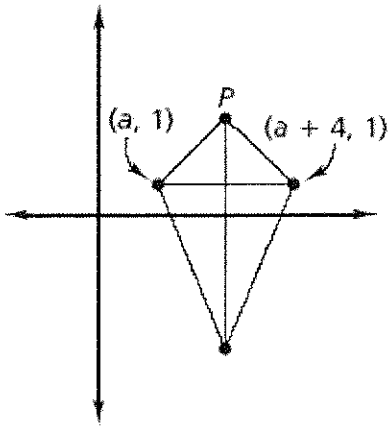
a. −2.5 b. −1.5 c. −0.5 d. 1.5

_____ 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?



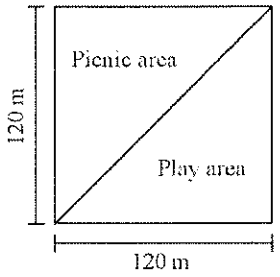
a. $\frac{a}{2}+4$

c. $a+2$

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

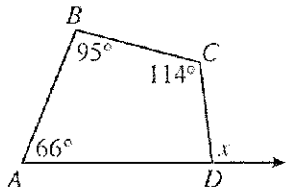
d. $2a+4$

____ 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.



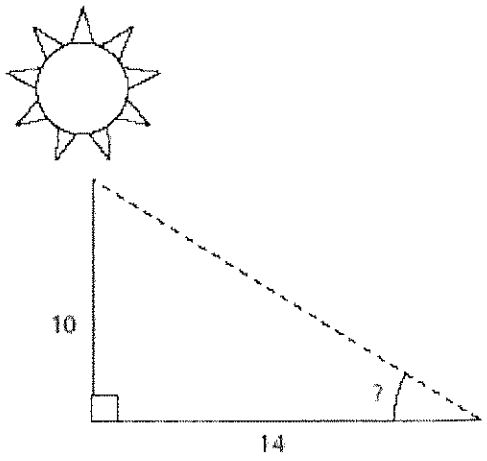
a. 28,800 meters
b. 170 meters
c. 240 meters
d. 120 meters

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



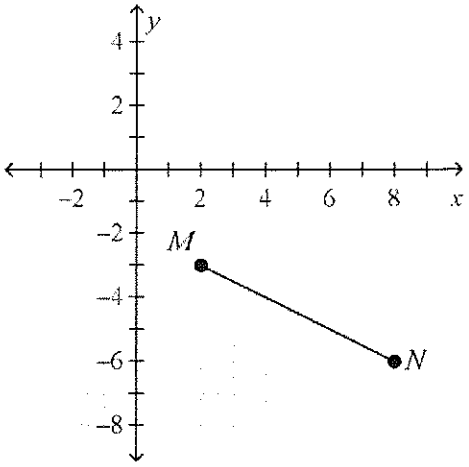
a. 85° b. 95° c. 161° d. 275°

_____ 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 $\overline{MN}$?

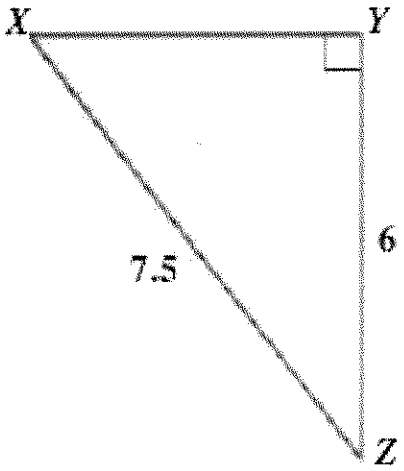


a. 6.0 b. 6.7 c. 9.0 d. 9.1

_____ 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?

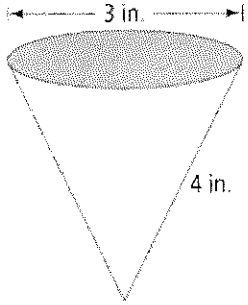
a. $\overline{NP} \cong \overline{KF}$

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?



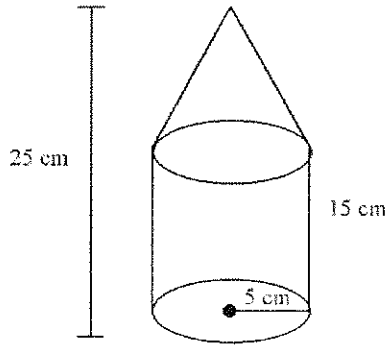
a. 38 square inches

b. 19 square inches

c. 7 square inches

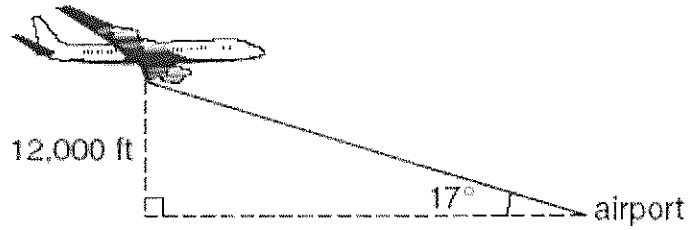
d. 24 square inches

____ 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)

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