Geometry Test Review 9-26-13

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

1. If $m\angle AOC = 85^\circ$, $m\angle BOC = 2x + 10$, and $m\angle AOB = 4x - 15$, find the degree measure of $\angle BOC$ and $\angle AOB$. The diagram is not to scale.

   a. $m\angle BOC = 30^\circ$; $m\angle AOB = 55^\circ$           c. $m\angle BOC = 45^\circ$; $m\angle AOB = 40^\circ$
   b. $m\angle BOC = 40^\circ$; $m\angle AOB = 45^\circ$           d. $m\angle BOC = 55^\circ$; $m\angle AOB = 30^\circ$

2. If $m\angle DEF = 122$, then what are $m\angle FEG$ and $m\angle HEG$? The diagram is not to scale.

   a. $m\angle FEG = 122$, $m\angle HEG = 58$           c. $m\angle FEG = 68$, $m\angle HEG = 122$
   b. $m\angle FEG = 58$, $m\angle HEG = 132$           d. $m\angle FEG = 58$, $m\angle HEG = 122$

3. If $m\angle EOF = 26$ and $m\angle FOG = 38$, then what is the measure of $\angle EOG$? The diagram is not to scale.

   a. 64           b. 12           c. 52           d. 76
4. How are the two angles related?
   a. vertical  
   b. supplementary  
   c. complementary  
   d. adjacent

5. Name an angle supplementary to $\angle COD$.
   a. $\angle AOE$  
   b. $\angle COA$  
   c. $\angle BOD$  
   d. $\angle COB$

6. Name an angle complementary to $\angle COD$.
   a. $\angle EOD$  
   b. $\angle AOC$  
   c. $\angle EOA$  
   d. $\angle COB$
7. Name an angle vertical to \( \angle DGE \).

8. Name an angle adjacent to \( \angle DGE \).

9. Supplementary angles are two angles whose measures have a sum of ____.
Complementary angles are two angles whose measures have a sum of ____.

10. Two angles whose sides are opposite rays are called ____ angles. Two coplanar angles with a common side, a common vertex, and no common interior points are called ____ angles.
11. In the figure shown, $m\angle AED = 120$. Which of the following statements is false?

- a. $m\angle AEB = 60$
- b. $\angle BEC$ and $\angle CED$ are adjacent angles.
- c. $m\angle BEC = 120$
- d. $\angle AED$ and $\angle BEC$ are adjacent angles.

12. What can you conclude from the information in the diagram?

- a. 1. $\overline{PQ} \cong \overline{RQ}$
   2. $\overline{TR} \cong \overline{TS}$
   3. $\angle TRS$ and $\angle PRQ$ are vertical angles
- b. 1. $\overline{PQ} \cong \overline{PR}$
   2. $\overline{TR} \cong \overline{TS}$
   3. $\angle TRS$ and $\angle PRQ$ are adjacent angles
- c. 1. $\overline{PQ} \cong \overline{RQ}$
   2. $\angle RUT$ is a right angle
   3. $\angle RTU$ and $\angle STU$ are vertical angles
- d. 1. $\overline{PQ} \cong \overline{PR}$
   2. $\angle RUT$ is a right angle
   3. $\angle RTU$ and $\angle STU$ are adjacent angles

13. The complement of an angle is 25°. What is the measure of the angle?

- a. 75°
- b. 155°
- c. 65°
- d. 165°
14. \( \angle DFG \) and \( \angle JKL \) are complementary angles. \( m\angle DFG = x + 5 \), and \( m\angle JKL = x - 9 \). Find the measure of each angle.
   a. \( \angle DFG = 47, \angle JKL = 53 \)  
   b. \( \angle DFG = 47, \angle JKL = 43 \)  
   c. \( \angle DFG = 52, \angle JKL = 48 \)  
   d. \( \angle DFG = 52, \angle JKL = 38 \)

15. \( \angle 1 \) and \( \angle 2 \) are a linear pair. \( m\angle 1 = x - 39 \), and \( m\angle 2 = x + 61 \). Find the measure of each angle.
   a. \( \angle 1 = 79, \angle 2 = 101 \)  
   b. \( \angle 1 = 40, \angle 2 = 140 \)  
   c. \( \angle 1 = 40, \angle 2 = 150 \)  
   d. \( \angle 1 = 79, \angle 2 = 111 \)

16. Angle \( A \) and angle \( B \) are a linear pair. If \( m\angle A = 3m\angle B \), find \( m\angle A \) and \( m\angle B \).
   a. 45, 135  
   b. 22.5, 67.5  
   c. 67.5, 22.5  
   d. 135, 45

17. \( SQ \) bisects \( \angle RST \), and \( m\angle RSQ = 3x - 9 \). Write an expression for \( \angle RST \). The diagram is not to scale.
   a. \( 6x - 9 \)  
   b. \( 6x - 18 \)  
   c. \( 3x - 9 \)  
   d. \( 1.5x - 4.5 \)

18. \( MO \) bisects \( \angle LMN \), \( m\angle LMO = 6x - 22 \), and \( m\angle NMO = 2x + 34 \). Solve for \( x \) and find \( m\angle LMN \). The diagram is not to scale.
   a. \( x = 13, m\angle LMN = 56 \)  
   b. \( x = 13, m\angle LMN = 112 \)  
   c. \( x = 14, m\angle LMN = 62 \)  
   d. \( x = 14, m\angle LMN = 124 \)
19. \( \overline{MO} \) bisects \( \angle LMN \), \( m\angle LMN = 5x - 23 \), \( m\angle LMO = x + 32 \). Find \( m\angle NMO \). The diagram is not to scale.

\[ L \quad O \quad N \quad M \]

\[ m\angle LMN = 5x - 23, \quad m\angle LMO = x + 32 \]

\[ \text{a. 61} \quad \text{b. 45.75} \quad \text{c. 91.5} \quad \text{d. 66} \]

20. Which point is the midpoint of \( \overline{AE} \)?

\[ A \quad -8 \quad -6 \quad -4 \quad -2 \quad 0 \quad 2 \quad 4 \quad 6 \quad 8 \quad B \]

\[ \text{a. 1.5} \quad \text{b. -1} \quad \text{c. 2.5} \quad \text{d. 0.5} \]

21. Find the coordinates of the midpoint of the segment whose endpoints are \( H(8, 2) \) and \( K(6, 10) \).

\[ a. (7, 6) \quad b. (1, 4) \quad c. (14, 12) \quad d. (2, 8) \]

22. \( M \) is the midpoint of \( \overline{CF} \) for the points \( C(3, 4) \) and \( F(9, 8) \). Find \( MF \).

\[ a. \sqrt{13} \quad b. 2\sqrt{13} \quad c. 26 \quad d. 13 \]

23. \( M(9, 8) \) is the midpoint of \( \overline{RS} \). The coordinates of \( S \) are \( (10, 10) \). What are the coordinates of \( R? \)

\[ a. (9.5, 9) \quad b. (11, 12) \quad c. (18, 16) \quad d. (8, 6) \]

24. \( T(8, 15) \) is the midpoint of \( \overline{CD} \). The coordinates of \( D \) are \( (8, 20) \). What are the coordinates of \( C? \)

\[ a. (8, 17.5) \quad b. (8, 30) \quad c. (8, 10) \quad d. (8, 25) \]

25. Find the distance between points \( P(8, 2) \) and \( Q(3, 8) \) to the nearest tenth.

\[ a. 11 \quad b. 7.8 \quad c. 61 \quad d. 14.9 \]

26. Noam walks home from school by walking 8 blocks north and then 6 blocks east. How much shorter would his walk be if there were a direct path from the school to his house? Assume that the blocks are square.

\[ a. 14 \text{ blocks} \quad b. 10 \text{ blocks} \quad c. 4 \text{ blocks} \quad d. The distance would be the same. \]
27. Each unit on the map represents 5 miles. What is the actual distance from Oceanfront to Seaside?

![Map Diagram]

a. about 10 miles  
   b. about 50 miles  
   c. about 8 miles  
   d. about 40 miles

28. Find the perimeter of the rectangle. The drawing is not to scale.

![Rectangle Diagram]

a. 151 feet  
   b. 208 feet  
   c. 161 feet  
   d. 104 feet

29. Jose wants to put a fence around his rectangular garden. His garden measures 33 feet by 39 feet. The garden has a path around it that is 3 feet wide. How much fencing material does Jose need to enclose the garden and path?

a. 120 ft  
   b. 156 ft  
   c. 168 ft  
   d. 84 ft

30. Find the circumference of the circle in terms of $\pi$.

![Circle Diagram]

a. $156\pi$ in.  
   b. $39\pi$ in.  
   c. $1521\pi$ in.  
   d. $78\pi$ in.
31. Find the perimeter of $\triangle ABC$ with vertices $A(1, 1)$, $B(7, 1)$, and $C(1, 9)$.

- $114$ units
- $24$ units
- $28$ units
- $14$ units

32. If the perimeter of a square is $72$ inches, what is its area?
- $72$ in.$^2$
- $324$ in.$^2$
- $18$ in.$^2$
- $5,184$ in.$^2$

33. Find the area of a rectangle with base of $2$ yd and a height of $5$ ft.
- $10$ yd$^2$
- $30$ ft$^2$
- $10$ ft$^2$
- $30$ yd$^2$

34. Find the area of the circle in terms of $\pi$.
- $42\pi$ in.$^2$
- $1764\pi$ in.$^2$
- $441\pi$ in.$^2$
- $84\pi$ in.$^2$

35. Find the area of the circle to the nearest tenth. Use $3.14$ for $\pi$.
- $30.5$ in.$^2$
- $295.4$ in.$^2$
- $60.9$ in.$^2$
- $73.9$ in.$^2$
36. Find, to the nearest tenth, the area of the region that is inside the square and outside the circle. The circle has a diameter of 14 inches.

a. 42.1 in.$^2$  
b. 10.5 in.$^2$  
c. 153.9 in.$^2$  
d. 196 in.$^2$

37. The figure is formed from rectangles. Find the total area. The diagram is not to scale.

a. 104 ft$^2$  
b. 36 ft$^2$  
c. 80 ft$^2$  
d. 68 ft$^2$
MULTIPLE CHOICE

1. ANS: B  PTS: 1  DIF: L3  REF: 1-4 Measuring Angles
   OBJ: 1-4.1 Find and compare the measures of angles
   TOP: 1-4 Problem 4 Using the Angle Addition Postulate
   DOK: DOK 2

2. ANS: D  PTS: 1  DIF: L3  REF: 1-4 Measuring Angles
   OBJ: 1-4.1 Find and compare the measures of angles
   TOP: 1-4 Problem 4 Using the Angle Addition Postulate
   DOK: DOK 2

3. ANS: A  PTS: 1  DIF: L3  REF: 1-4 Measuring Angles
   OBJ: 1-4.1 Find and compare the measures of angles
   TOP: 1-4 Problem 4 Using the Angle Addition Postulate
   DOK: DOK 2

4. ANS: B  PTS: 1  DIF: L2  REF: 1-5 Exploring Angle Pairs
   OBJ: 1-5.1 Identify special angle pairs and use their relationships to find angle measures
   TOP: 1-5 Problem 1 Identifying Angle Pairs
   KEY: supplementary angles
   DOK: DOK 1

5. ANS: B  PTS: 1  DIF: L3  REF: 1-5 Exploring Angle Pairs
   OBJ: 1-5.1 Identify special angle pairs and use their relationships to find angle measures
   TOP: 1-5 Problem 1 Identifying Angle Pairs
   KEY: supplementary angles
   DOK: DOK 1

6. ANS: D  PTS: 1  DIF: L3  REF: 1-5 Exploring Angle Pairs
   OBJ: 1-5.1 Identify special angle pairs and use their relationships to find angle measures
   TOP: 1-5 Problem 1 Identifying Angle Pairs
   KEY: supplementary angles
   DOK: DOK 1

7. ANS: C  PTS: 1  DIF: L3  REF: 1-5 Exploring Angle Pairs
   OBJ: 1-5.1 Identify special angle pairs and use their relationships to find angle measures
   TOP: 1-5 Problem 1 Identifying Angle Pairs
   KEY: vertical angles
   DOK: DOK 1

8. ANS: B  PTS: 1  DIF: L3  REF: 1-5 Exploring Angle Pairs
   OBJ: 1-5.1 Identify special angle pairs and use their relationships to find angle measures
   TOP: 1-5 Problem 1 Identifying Angle Pairs
   KEY: vertical angles
   DOK: DOK 1
OBJ: 1-5.1 Identify special angle pairs and use their relationships to find angle measures
TOP: 1-5 Problem 1 Identifying Angle Pairs
KEY: supplementary angles | complementary angles DOK: DOK 1

OBJ: 1-5.1 Identify special angle pairs and use their relationships to find angle measures
TOP: 1-5 Problem 1 Identifying Angle Pairs
KEY: adjacent angles | vertical angles DOK: DOK 1

11. ANS: D PTS: 1 DIF: L4 REF: 1-5 Exploring Angle Pairs
OBJ: 1-5.1 Identify special angle pairs and use their relationships to find angle measures
TOP: 1-5 Problem 1 Identifying Angle Pairs
KEY: adjacent angles | supplementary angles | vertical angles DOK: DOK 2

OBJ: 1-5.1 Identify special angle pairs and use their relationships to find angle measures
TOP: 1-5 Problem 2 Making Conclusions From a Diagram
KEY: vertical angles | supplementary angles | adjacent angles | right angle | congruent segments DOK: DOK 1

OBJ: 1-5.1 Identify special angle pairs and use their relationships to find angle measures
TOP: 1-5 Problem 3 Finding Missing Angle Measures
KEY: complementary angles DOK: DOK 1

OBJ: 1-5.1 Identify special angle pairs and use their relationships to find angle measures
TOP: 1-5 Problem 3 Finding Missing Angle Measures
KEY: complementary angles DOK: DOK 2

15. ANS: B PTS: 1 DIF: L3 REF: 1-5 Exploring Angle Pairs
OBJ: 1-5.1 Identify special angle pairs and use their relationships to find angle measures
TOP: 1-5 Problem 3 Finding Missing Angle Measures
KEY: supplementary angles | linear pair DOK: DOK 2

OBJ: 1-5.1 Identify special angle pairs and use their relationships to find angle measures
TOP: 1-5 Problem 3 Finding Missing Angle Measures
KEY: supplementary angles | linear pair DOK: DOK 2

17. ANS: B PTS: 1 DIF: L3 REF: 1-5 Exploring Angle Pairs
OBJ: 1-5.1 Identify special angle pairs and use their relationships to find angle measures
TOP: 1-5 Problem 4 Using an Angle Bisector to Find Angle Measures
KEY: angle bisector DOK: DOK 2
18. ANS: D  PTS: 1  DIF: L3  REF: 1-5 Exploring Angle Pairs
OBJ: 1-5.1 Identify special angle pairs and use their relationships to find angle measures
TOP: 1-5 Problem 4 Using an Angle Bisector to Find Angle Measures
KEY: angle bisector

OBJ: 1-5.1 Identify special angle pairs and use their relationships to find angle measures
TOP: 1-5 Problem 4 Using an Angle Bisector to Find Angle Measures
KEY: angle bisector

20. ANS: D  PTS: 1  DIF: L3  REF: 1-7 Midpoint and Distance in the Coordinate Plane
OBJ: 1-7.1 Find the midpoint of a segment
NAT: G.3.b| G.4.a
TOP: 1-7 Problem 1 Finding the Midpoint
KEY: coordinate plane | Midpoint Formula

21. ANS: A  PTS: 1  DIF: L2  REF: 1-7 Midpoint and Distance in the Coordinate Plane
OBJ: 1-7.1 Find the midpoint of a segment
NAT: G.3.b| G.4.a
TOP: 1-7 Problem 1 Finding the Midpoint
KEY: segment length | segment | midpoint

22. ANS: A  PTS: 1  DIF: L3  REF: 1-7 Midpoint and Distance in the Coordinate Plane
OBJ: 1-7.1 Find the midpoint of a segment
NAT: G.3.b| G.4.a
TOP: 1-7 Problem 1 Finding the Midpoint
KEY: coordinate plane | Midpoint Formula

23. ANS: D  PTS: 1  DIF: L3  REF: 1-7 Midpoint and Distance in the Coordinate Plane
OBJ: 1-7.1 Find the midpoint of a segment
NAT: G.3.b| G.4.a
TOP: 1-7 Problem 2 Finding an Endpoint
KEY: coordinate plane | Midpoint Formula

24. ANS: C  PTS: 1  DIF: L2  REF: 1-7 Midpoint and Distance in the Coordinate Plane
OBJ: 1-7.1 Find the midpoint of a segment
NAT: G.3.b| G.4.a
TOP: 1-7 Problem 2 Finding an Endpoint
KEY: coordinate plane | Midpoint Formula

25. ANS: B  PTS: 1  DIF: L3  REF: 1-7 Midpoint and Distance in the Coordinate Plane
OBJ: 1-7.2 Find the distance between two points in the coordinate plane
NAT: G.3.b| G.4.a
TOP: 1-7 Problem 3 Finding Distance
KEY: Distance Formula | coordinate plane

DOK: DOK 2
26. **ANS: C**  
**PTS: 1**  
**DIF: L3**  
**REF:** 1-7 Midpoint and Distance in the Coordinate Plane  
**OBJ:** 1-7.2 Find the distance between two points in the coordinate plane  
**NAT:** G.3.bl G.4.a  
**STA:** MA-HS-M-S-MPA6| MA-HS-G-S-CG3| MA-HS-G-S-CG5| MA-HS-G-S-CG6  
**TOP:** 1-7 Problem 4 Finding Distance  
**KEY:** coordinate plane | Distance Formula | word problem | problem solving  
**DOK:** DOK 2  

27. **ANS: D**  
**PTS: 1**  
**DIF: L3**  
**REF:** 1-7 Midpoint and Distance in the Coordinate Plane  
**OBJ:** 1-7.2 Find the distance between two points in the coordinate plane  
**NAT:** G.3.bl G.4.a  
**STA:** MA-HS-M-S-MPA6| MA-HS-G-S-CG3| MA-HS-G-S-CG5| MA-HS-G-S-CG6  
**TOP:** 1-7 Problem 4 Finding Distance  
**KEY:** coordinate plane | Distance Formula | word problem | problem solving  
**DOK:** DOK 2  

28. **ANS: B**  
**PTS: 1**  
**DIF: L2**  
**REF:** 1-8 Perimeter, Circumference, and Area  
**OBJ:** 1-8.1 Find the perimeter or circumference of basic shapes  
**NAT:** M.1.cl M.1.fl M.2.al G.3.bl A.4.e  
**STA:** MA-HS-M-U-3| MA-HS-G-S-CG3  
**TOP:** 1-8 Problem 1 Finding the Perimeter of a Rectangle  
**KEY:** perimeter | rectangle  
**DOK:** DOK 1  

29. **ANS: C**  
**PTS: 1**  
**DIF: L4**  
**REF:** 1-8 Perimeter, Circumference, and Area  
**OBJ:** 1-8.1 Find the perimeter or circumference of basic shapes  
**NAT:** M.1.cl M.1.fl M.2.al G.3.bl A.4.e  
**STA:** MA-HS-M-U-3| MA-HS-G-S-CG3  
**TOP:** 1-8 Problem 1 Finding the Perimeter of a Rectangle  
**KEY:** perimeter | rectangle | word problem | problem solving  
**DOK:** DOK 2  

30. **ANS: D**  
**PTS: 1**  
**DIF: L3**  
**REF:** 1-8 Perimeter, Circumference, and Area  
**OBJ:** 1-8.1 Find the perimeter or circumference of basic shapes  
**NAT:** M.1.cl M.1.fl M.2.al G.3.bl A.4.e  
**STA:** MA-HS-M-U-3| MA-HS-G-S-CG3  
**TOP:** 1-8 Problem 2 Finding Circumference  
**KEY:** circle | circumference  
**DOK:** DOK 2  

31. **ANS: B**  
**PTS: 1**  
**DIF: L3**  
**REF:** 1-8 Perimeter, Circumference, and Area  
**OBJ:** 1-8.1 Find the perimeter or circumference of basic shapes  
**NAT:** M.1.cl M.1.fl M.2.al G.3.bl A.4.e  
**STA:** MA-HS-M-U-3| MA-HS-G-S-CG3  
**TOP:** 1-8 Problem 3 Finding Perimeter in the Coordinate Plane  
**KEY:** perimeter | triangle | coordinate plane | Distance Formula  
**DOK:** DOK 2  

32. **ANS: B**  
**PTS: 1**  
**DIF: L3**  
**REF:** 1-8 Perimeter, Circumference, and Area  
**OBJ:** 1-8.1 Find the perimeter or circumference of basic shapes  
**NAT:** M.1.cl M.1.fl M.2.al G.3.bl A.4.e  
**STA:** MA-HS-M-U-3| MA-HS-G-S-CG3  
**TOP:** 1-8 Problem 4 Finding Area of a Rectangle  
**KEY:** area | square  
**DOK:** DOK 2
33. ANS: B  PTS: 1  DIF: L2
REF: 1-8 Perimeter, Circumference, and Area
OBJ: 1-8.1 Find the perimeter or circumference of basic shapes
TOP: 1-8 Problem 4 Finding Area of a Rectangle  KEY: area | rectangle
DOK: DOK 1

34. ANS: C  PTS: 1  DIF: L3
REF: 1-8 Perimeter, Circumference, and Area
OBJ: 1-8.1 Find the perimeter or circumference of basic shapes
TOP: 1-8 Problem 5 Finding Area of a Circle  KEY: area | circle
DOK: DOK 1

35. ANS: D  PTS: 1  DIF: L2
REF: 1-8 Perimeter, Circumference, and Area
OBJ: 1-8.1 Find the perimeter or circumference of basic shapes
TOP: 1-8 Problem 5 Finding Area of a Circle  KEY: area | circle
DOK: DOK 1

36. ANS: A  PTS: 1  DIF: L3
REF: 1-8 Perimeter, Circumference, and Area
OBJ: 1-8.1 Find the perimeter or circumference of basic shapes
TOP: 1-8 Problem 6 Finding Area of an Irregular Shape  KEY: circle | square | area
DOK: DOK 2

37. ANS: D  PTS: 1  DIF: L2
REF: 1-8 Perimeter, Circumference, and Area
OBJ: 1-8.1 Find the perimeter or circumference of basic shapes
TOP: 1-8 Problem 6 Finding Area of an Irregular Shape  KEY: area | rectangle
DOK: DOK 2