DUVAL COUNTY
PUBLIC SCHOOLS

2014

Geometry

Spring Break

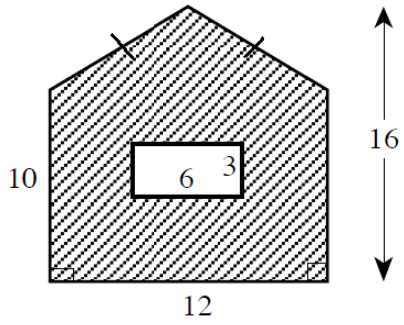
Practice

Name_____Date_____

Please Justify All Answers!

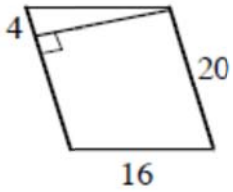
MA.912.G.2.5 - **Explain the derivation and apply formulas for perimeter and area of polygons (triangles, quadrilaterals, pentagons, etc.)**.

1. What is the area of the shaded region? Moderate Complexity



2. Find the Area of the parallelogram. Moderate Complexity

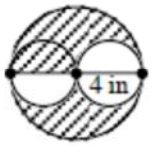
A. 320 units^2
B. 309.8 units^2
C. 288.8 units^2
D. 240.4 units^2



MA.912.G.6.5 – Solve real-world problems using measures of circumferences, arc length, and areas of circles and sectors.

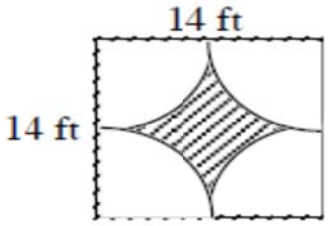
3. What is area of the shaded region above? Moderate Complexity

A. 16π in^2
B. 10π in^2
C. 8π in^2
D. 6π in^2



4. What is the area of the shaded region above? Moderate Complexity

A. 196 ft^2
B. 153.86 ft^2
C. 152.04 ft^2
D. 104.86 ft^2



MA.912.G.3.3 Use co-ordinate geometry to prove properties of congruent, regular and similar quadrilaterals.

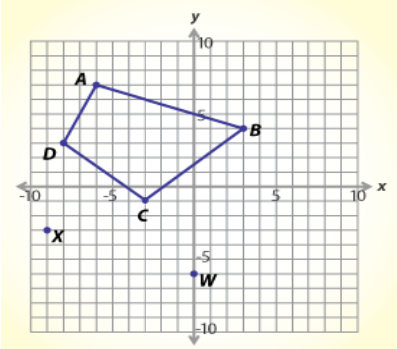
5. On the coordinate plane below, quadrilateral *ABCD* has vertices with integer coordinates. Quadrilateral *WXYZ* is congruent to quadrilateral *ABCD*. Which of the following could be possible coordinates for point *Y*?
Moderate Complexity

A. (-3, 2)

B. (-3, -8)

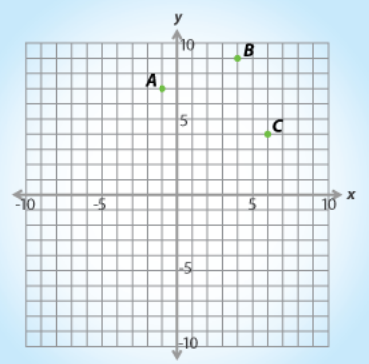
C. (-6, -1)

D. (-6, -11)



Quadrilateral ABCD

6. Fahran wants to draw a square on the coordinate plane. He has already drawn vertices *A*, *B*, and *C* with integer coordinates, as shown below. Which of the following coordinates for vertex *D* will complete Fahran's square?
Moderate Complexity

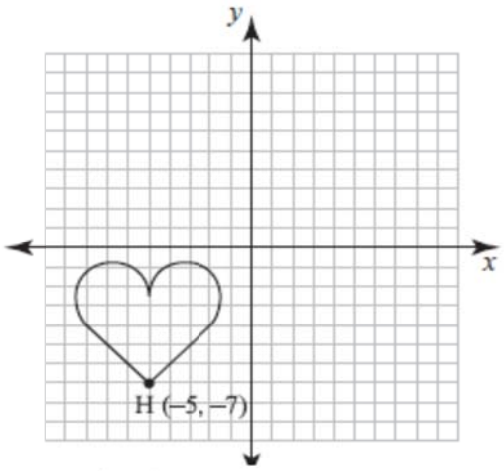


Vertices A, B, and C

A. D (4, 1) B. D (2, 2) C. D (1, 3) D. (1, 2)

MA.912.G.2.4: Apply transformations (translations, reflections, rotations, dilations, and scale factors) to polygons; to determine congruence, similarity, and symmetry. Know that images formed by translations, reflections, and rotations are congruent to the original shape. Create and verify tessellations of the plane using polygons.

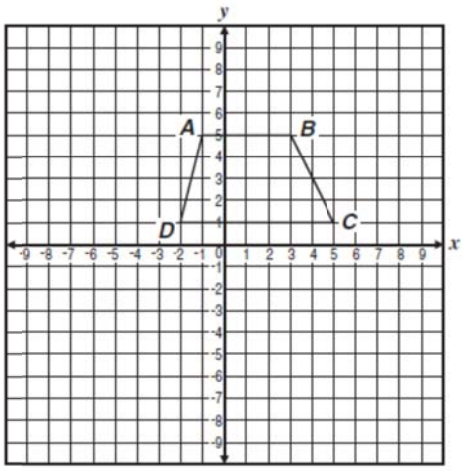
7. The point of the heart (H) has a coordinate of (–5, –7) as shown above. The heart is reflected over the *y*-axis and then reflected over the *x*-axis. After both reflections, what are the coordinates of the point H?
Moderate Complexity



A. (–5, –7) B. (–5, 7) C. (5, –7) D. (5, 7)

8. Trapezoid *ABCD* below is to be translated to trapezoid *A'B'C'D'* by the following motion rule. (*x* ,y) → (*x* + 3 , y - 4)
What are the coordinates of point D'? Moderate Complexity

A. (1, -3)
B. (2, 1)
C. (6, 1)
D. (8, -3)

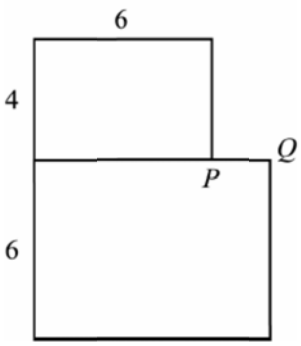


MA.912.G.4.6: Prove that triangles are congruent or similar and use the concept of corresponding parts of congruent triangles.

9. Rectangles A and B are similar rectangles. The length of the diagonal of Rectangle A is 13 inches, and the length of the diagonal of Rectangle B is 6.5 inches. What could be the length and width of both Rectangle A and Rectangle B? Moderate Complexity

A. Rectangle A: 5 in x 12 in, Rectangle B: 2.5 in x 6 in
B. Rectangle A: 4 in x 10 in, Rectangle B: 3 in x 7 in
C. Rectangle A: 7 in x 11 in, Rectangle B: 2 in x 5 in
D. Rectangle A: 6.5 in x 14 in, Rectangle B: 3.5 in x 8 in

10. The figure below shows two similar rectangles. What is the length of *PQ*? Moderate Complexity



MA.912.G.5.4 – Solve real-world problems involving right triangles. Also Assesses G51 and G53

11. The sizes of computer monitors and television screens are found by measuring the length of the diagonal of the rectangular screen. The 50-inch rectangular TV below has a bottom length of 41 inches. What is the height of the screen? Moderate Complexity

A. 9 inches
B. $3\sqrt{91}$ inches
C. $9\sqrt{91}$ inches
D. 819 inches

12. Solve the following problems. Low to Moderate Complexity

a) A 12 foot ladder is six feet from a wall. How high on the wall does the ladder touch?

b) A 6 foot ladder is one and a half feet from a wall. How high on the wall does the ladder touch?

c) Could 2, 3, and 6 represent the lengths of sides of a right angle triangle? Justify your answer.

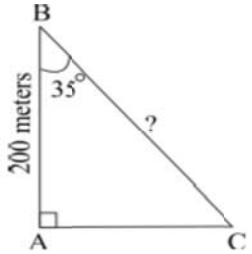
d) Could 8, 12, and 13 represent the lengths of sides of a right triangle? Justify your answer.

e) Could 5, 12, and 13 represent the lengths of sides of a right triangle? Justify your answer.

f) Could 9, 12, and 15 represent the lengths of sides of a right triangle? Justify your answer.

MA.912.T.2.1 Define trigonometric ratios (sine, cosine, tangent, cotangent, secant, cosecant) in terms of angles in right triangles

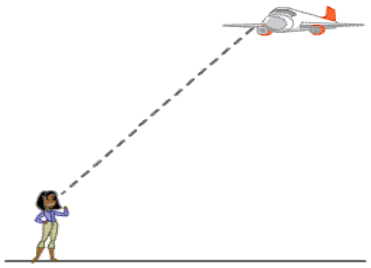
13. What is the distance, in meters, between point B and point C? Look at the diagram below. Moderate Complexity



A. 200cos35° B. 200tan35° C. 200/cos35° D. 200/sin35°

14. Derrica is looking at an airplane flying in the distance. If the airplane is traveling at an altitude of 2.5 miles and the distance from Derrica to the plane is 3 miles, what is the approximate angle of elevation from Derrica to the airplane? Round to the nearest degree. Moderate Complexity

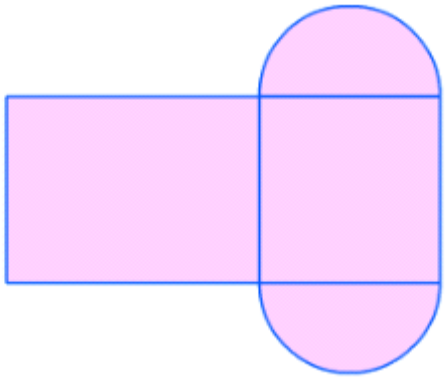
A. 60°
B. 56°
C. 30°
D. 34°



***MA.912.G.7.1 (Moderate) Describe and make regular, non-regular, and oblique polyhedra and sketch the net for a given polyhedron and vice versa.**
****MA.912.G.7.2 (Moderate) Describe the relationships between the faces, edges, and vertices of polyhedra**.

15. What solid is made by this net? Moderate Complexity

A. A half cylinder (cut in half vertically)
B. A cone
C. A cylinder
D. A half cone (cut in half vertically)



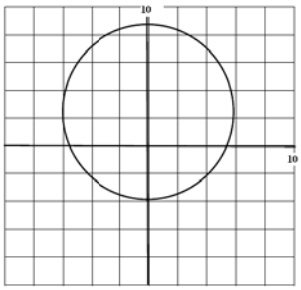
Benchmark: MA.912.G.6.6 (Moderate) Given the center and the radius, find the equation of a circle in the coordinate plane or given the equation of a circle in center-radius form, state the center and the radius of the circle.

16. Find the equation of the circle with radius 9 and center (4, -3). Moderate Complexity

A. $(x + 4)^2 + (y – 3)^2 = 9$
B. $(x + 4)^2 + (y – 3)^2 = 81$
C. $(x – 4)^2 + (y + 3)^2 = 81$
D. $(x – 4)^2 + (y + 3)^2 = 9$

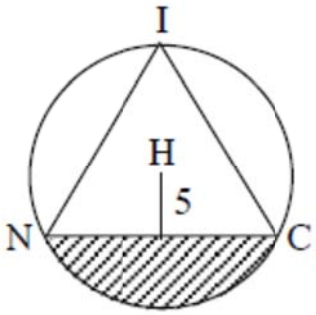
17. What equation of the circle best represents the graph on the coordinate plane? Moderate Complexity

A. $X^2 + (y - 2)^2 = 36$
B. $X^2 + (y - 2)^2 = 6$
C. $(x - 2)^2 + y^2 = 36$
D. $(x - 2)^2 + y^2 = 6$



***MA.912.G.6.5 (High) Solve real-world problems using measures of circumference, arc length, and areas of circles and sectors.**
****MA.912.G.6.2 (Low) Define and identify: circumference, radius, diameter, arc, arc length, chord, secant, tangent and concentric circles. **Assessed with MA.912.G.6.5**
****MA.912.G.6.4 (Moderate) Determine and use measures of arcs and related angles (central, inscribed, and intersections of secants and tangents). **Assessed with MA.912.G.6.5**

18. Find the area of the shaded region. High complexity

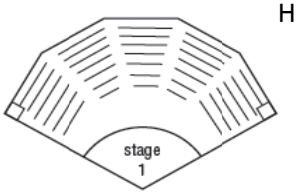


19. In the diagram for this problem, $\overline{BC} \parallel \overline{CF}$, $m\widehat{AB} = 48°$ *and* $m\widehat{BC} = 42°$. Which of the following measures is the greatest? High Complexity

A. $m\widehat{EF}$
B. $m\angle BEC$
C. $m\angle ECF$
D. $m\angle EDF$

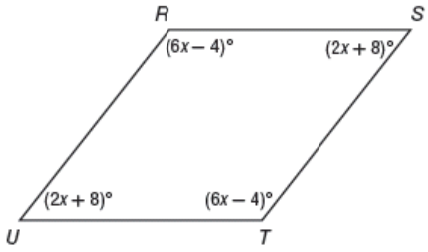
MA.912.G.2.2 Determine the measures of interior and exterior angles of polygons, justifying the method used.

20. **THEATER** A theater floor plan is shown in the figure. The upper five sides are part of a regular dodecagon. High Complexity



Find $m\angle 1$.

21. Find the measure of angle S. Moderate Complexity



A. 22° B. 52° C. 128° D. 136°

MA.912.G.1.1 Find the lengths and midpoints of line segments in two-dimensional coordinate systems.

22. To get from his high school to his home, Jamal travels 5.0 miles east and then 4.0 miles north. When Sheila goes to her home from the same high school, she travels 8.0 miles east and 2.0 miles south. What is the shortest distance, to the **nearest tenth of a mile**, between Jamal's home and Sheila's home? High Complexity

23. The midpoint of *AB* has coordinates of (5, 1). If the coordinates of *A* are (2, 3), what are the coordinates of *B*?

A. (8, 1)

B. (7, 0)

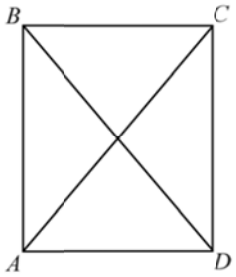
C. (8, 5)

D. (3.5, -2)

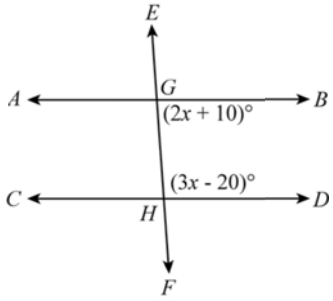
MA.912.G.1.3 Identify and use the relationships between special pairs of angles formed by parallel lines and transversals.

24. In the accompanying diagram of rectangle *ABCD*, m∡*BAC* (3x + 4)· , and m∡*ACD* (x + 28)· .
What is the m∡CAD? Moderate Complexity

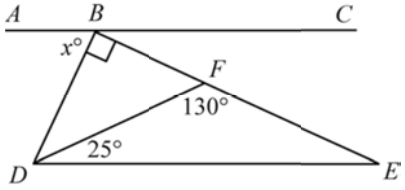
A. 12°
B. 37°
C. 40°
D. 50°



25. In the accompanying figure, two parallel lines $\overleftrightarrow{AB}$ and $\overleftrightarrow{CD}$ are cut by transversal $\overleftrightarrow{EF}$, which intersects $\overleftrightarrow{AB}$ at *G* and $\overleftrightarrow{CD}$ at *H*. If m∡*BGH* (2*x* l0)°, and m∡*GHD* (3*x* 20)°, what is the value of *x*? Moderate Complexity

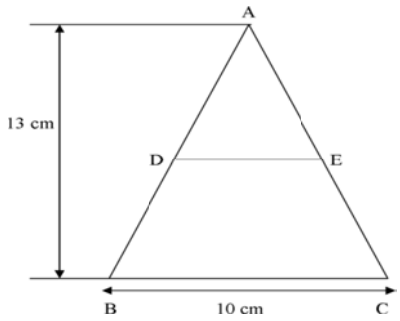


26. In the accompanying diagram, $\overline{ABC}$ || *DE*, m∡$\overline{FDE}$ 25°, m∡*DFE* 130°, and m∡*ABD* *x*°. What is the value of x? Moderate Complexity

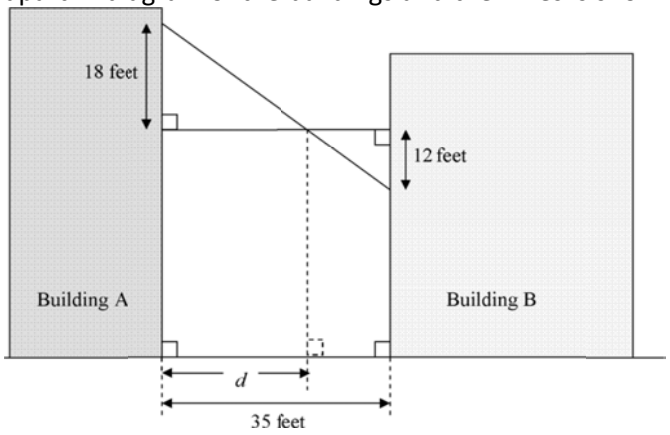


MA.912.G.2.3 Use properties of congruent and similar polygons to solve mathematical or real-world problems.

27. The diagram below shows an isosceles triangle *ABC*. The base *BC* measures 10 centimeters, and the triangle is 13 centimeters high. Points *D* and *E* are the midpoints of sides *AB* and *AC* respectively. High Complexity
What is the area, in square centimeters, of triangle *ADE*? | | | | | | | |



28. Two wires extend between two buildings that stand side by side. The wires intersect at one point. The two buildings, A and B, stand 35 feet apart. A diagram of the buildings and the wires is shown below. High Complexity



Based on the measurements given in the diagram, what is the length of *d*?
A. 15 feet
B. 18 feet
C. 20 feet
D. 21 feet

Answer Key

1) 138
2) B
3) B
4) C
5) A
6) B
7) D
8) A
9) A
10) 3
11) B
12) a) 10.4ft. b) 5.8ft. c)no d) no e) yes f)no
13) C
14) B
15) A
16) C
17) A
18) $100\pi - 25\sqrt{3}$ units^2
19) A
20) 750 degrees
21) B
22) 6.7
23) A
24) D
25) 65°
26) 38°
27) 16.25
28) D