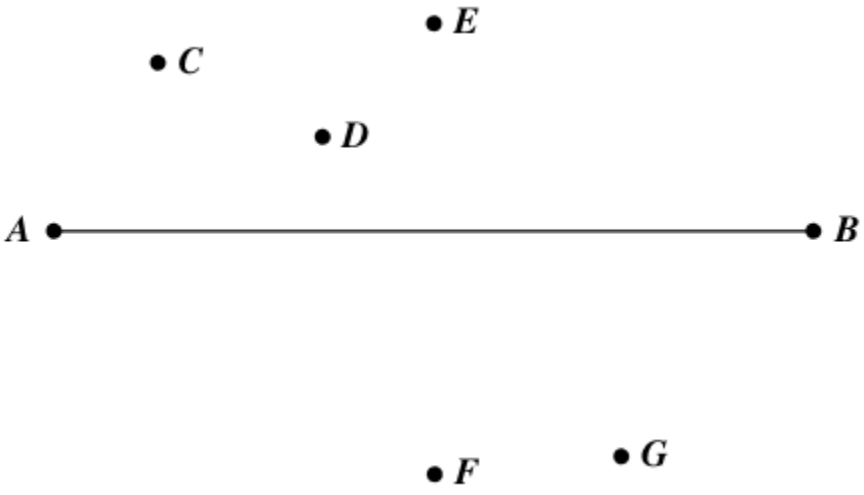
2010 Geometry SOL

Name _____

1. **A bisector of $\overline{AB}$ contains which line segment?**



A $\overline{CG}$

B $\overline{DF}$

C $\overline{DG}$

D $\overline{EF}$

2. **Lines m and r are cut by a transversal.**

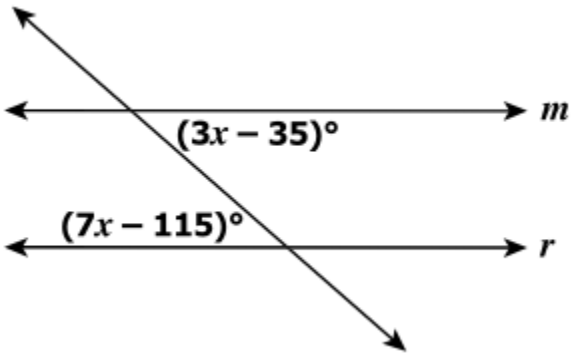
   What value of x will show that line m is parallel to line r ?

F 20

G 24

H 25

J 33



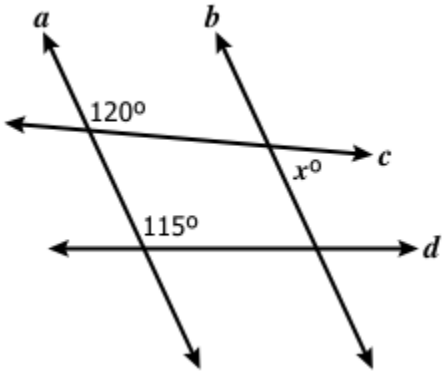
3. **If lines a and b are parallel, what is the value of x ?**

A 120

B 115

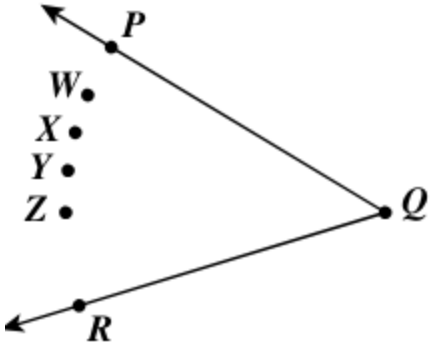
C 65

D 60



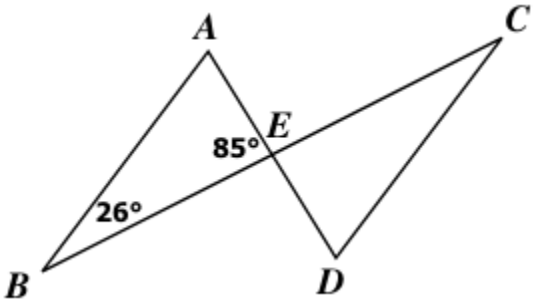
4. **Which point lies on the bisector of angle PQR ?**

F W
G X
H Y
J Z



5. **For what measure of $\angle D$ is $\overline{AB} \parallel \overline{DC}$ in this figure?**

A 26°
B 59°
C 69°
D 95°



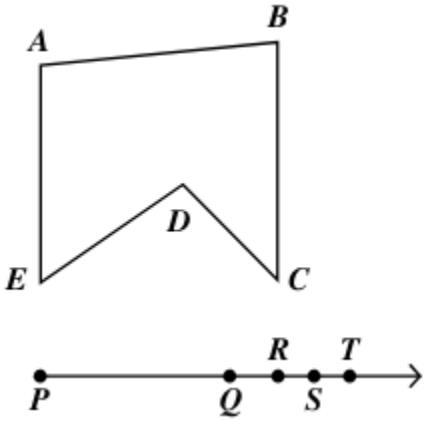
6. **Which line segment is congruent to $\overline{BC}$?**

F $\overline{PQ}$

G $\overline{PR}$

H $\overline{PS}$

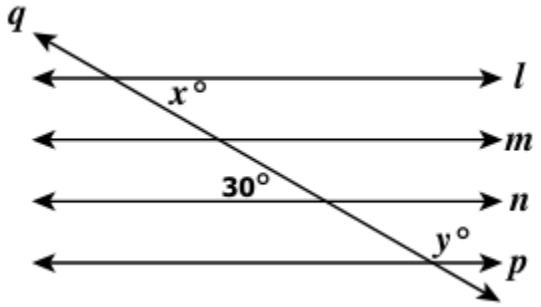
J $\overline{PT}$



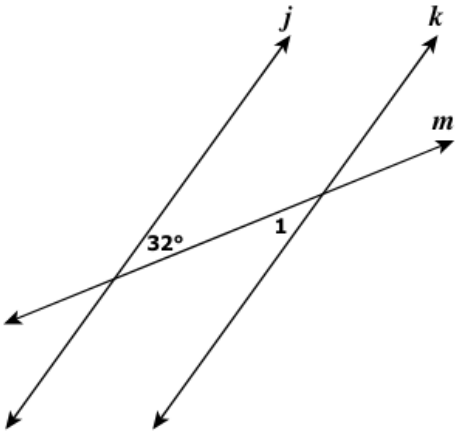
7. **In the figure shown, line q is a transversal of parallel lines l, m, n, and p.**

What are the values of x and y ?

A $x = 30,\ y = 30$
B $x = 30,\ y = 150$
C $x = 150,\ y = 30$
D $x = 150,\ y = 150$



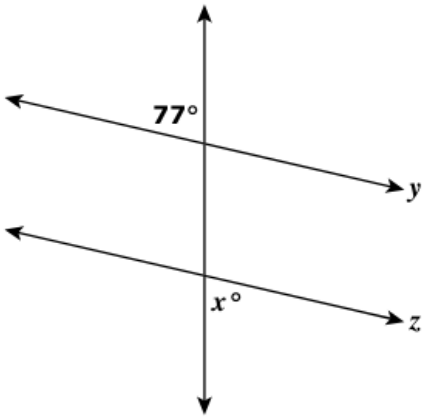
8. **In the figure shown, parallel lines j and k are cut by transversal m.**



What is $m\angle 1$?

F 32°
G 58°
H 122°
J 148°

9. **Lines y and z are cut by a transversal.**

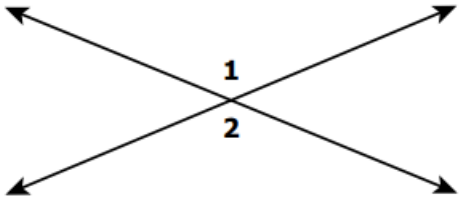


For what value of x is $y \parallel z$?

A 13
B 77
C 103
D 154

10. **In this figure, $m\angle 1 = (15x - 5)°$ and $m\angle 2 = (10x + 35)°$.**

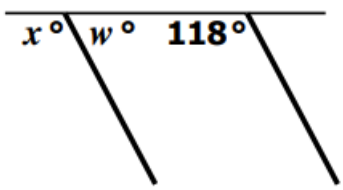
What is $m\angle 1$?



F 31°
G 65°
H 85°
J 115°

11. **This figure represents line segments painted on a parking lot to create parking spaces.**

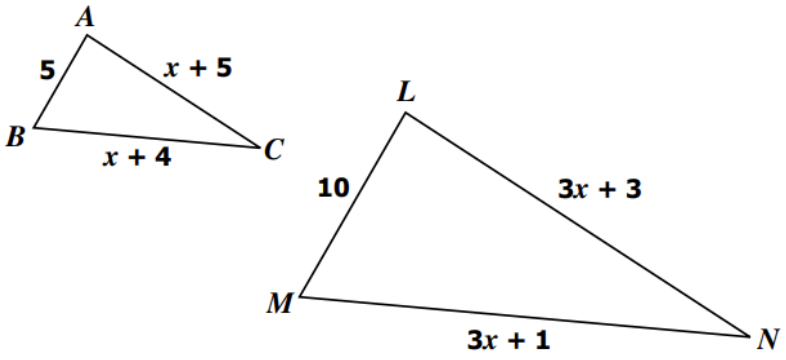
Which equation can be used to show that these line segments are parallel?



A $118 - w = x$
B $118 - x = w$
C $x + 118 = 180$
D $w + 118 = 180$

12. **Given:** $\triangle ABC \sim \triangle LMN$

What is the length of $\overline{AC}$ **?**



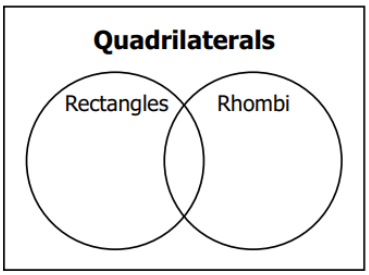
F 11
G 12
H 22
J 24

13. **Given the following measures of the sides of triangles, which is a right triangle?**

A 41 cm, 40 cm, 9 cm
B 45 ft, 40 ft, 35 ft
C 52 in., 50 in., 11 in.
D 45 yd, 35 yd, 25 yd

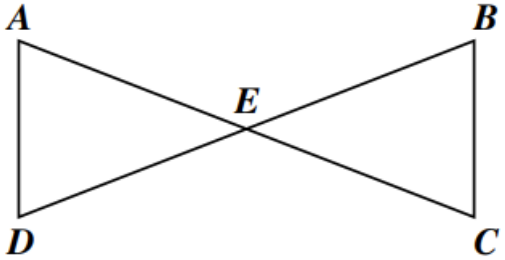
14. **Which of the following statements *must* be true about this Venn diagram?**

F All rectangles are rhombi.
G Some rhombi are rectangles.
H Quadrilaterals are not rhombi or rectangles.
J All quadrilaterals are rhombi and rectangles.



15. **Given: In this figure,** $\overline{AC}$ **and** $\overline{BD}$ **bisect each other.**

Based on the information given, which triangle congruence theorem could be used to prove $\triangle AED \cong \triangle CEB$ **?**



A Angle-Angle-Side (AAS)
B Angle-Side-Angle (ASA)
C Side-Angle-Side (SAS)
D Side-Side-Side (SSS)

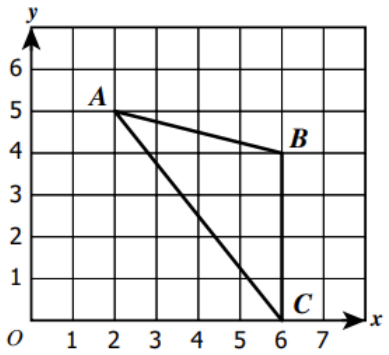
16. **Statement:** ***If lines are skew, then they are not coplanar.***

What is the contrapositive of the statement?

F If lines are not coplanar, then they are skew.
G If lines are not skew, then they are coplanar.
H If lines are coplanar, then they are not skew.
J If lines are skew, then they are coplanar.

17. **Coordinates $A(2, 5)$, $B(6, 4)$, and $C(6, 0)$ are connected to form $\triangle ABC$.**
If $\triangle CDA$ is congruent to $\triangle ABC$, what are the coordinates of D ?

A (1, 1)
B (1, 2)
C (2, 2)
D (2, 1)



18. **Let $p =$ *An equation is of the form $y = mx + b$.***
Let $q =$ *Its graph is a line.*

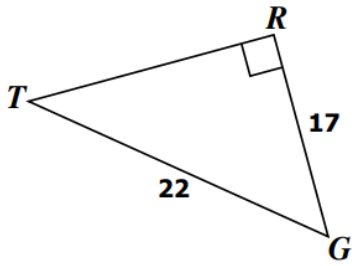
Argument: ***If an equation is of the form $y = mx + b$, then its graph is a line.***
The graph is not a line.
Therefore, the equation is not of the form $y = mx + b$.

Which of the following is the symbolic representation of the given argument?

F $\begin{array}{l} p \rightarrow q \\ \sim q \\ \therefore \sim p \end{array}$ **G** $\begin{array}{l} p \rightarrow q \\ q \\ \therefore p \end{array}$ **H** $\begin{array}{l} p \rightarrow q \\ \sim p \\ \therefore \sim q \end{array}$ **J** $\begin{array}{l} p \rightarrow q \\ p \\ \therefore q \end{array}$

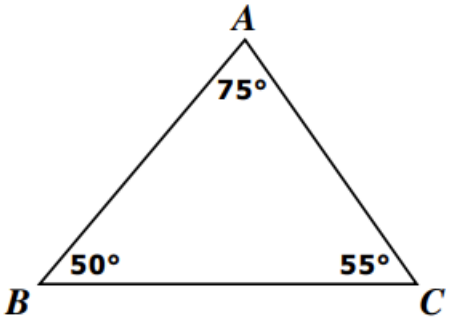
19. **$\triangle TRG$ is a right triangle.**
Which is closest to the length of $\overline{RT}$?

A 5
B 11
C 14
D 28



20. **Which list has the sides of $\triangle ABC$ ordered from longest to shortest?**

F $\overline{BC}$, $\overline{AC}$, $\overline{AB}$
G $\overline{AB}$, $\overline{AC}$, $\overline{BC}$
H $\overline{AC}$, $\overline{AB}$, $\overline{BC}$
J $\overline{BC}$, $\overline{AB}$, $\overline{AC}$

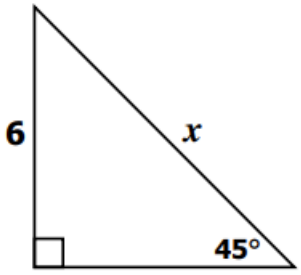


21. **Three survey markers are located on a map at points H, I, and J. A triangle is formed by connecting these markers by string so that $HI = 150$ feet, $HJ = 245$ feet, and $IJ = 365$ feet.**

Which statement is true about the measures of the angles of $\triangle HIJ$?

A $m\angle H$ is the smallest
B $m\angle H$ is the largest
C $m\angle I$ is the smallest
D $m\angle I$ is the largest

22. **In the figure, what is the value of x?**

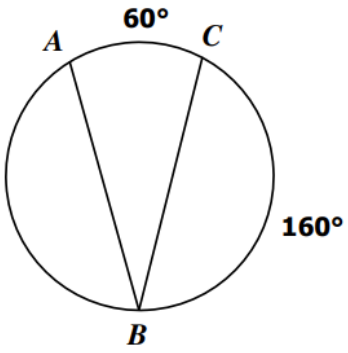


F 6
G $6\sqrt{2}$
H $6\sqrt{3}$
J 12

23. **Two sides of a triangle measure 14 inches and 8 inches. Which *cannot* be the length of the remaining side?**

A 6 in.
B 8 in.
C 14 in.
D 21 in.

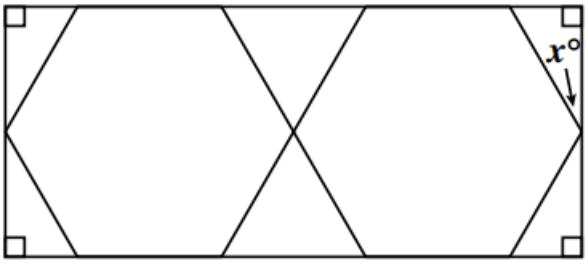
24. **In the circle, what is the measure of $\angle ABC$?**



F 30°
G 60°
H 120°
J 140°

25. **This figure shows a pattern of triangles and regular hexagons.**

What is the value of x?



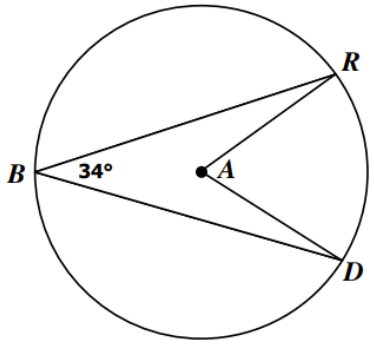
A 30
B 60
C 90
D 120

26. **Which figure has all sides of equal measure but not necessarily all angles of equal measure?**

F Square
G Rectangle
H Rhombus
J Trapezoid

27. **What is $m\angle DAR$ in circle A ?**

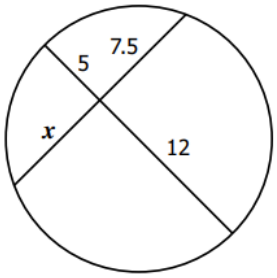
A 17°
B 34°
C 56°
D 68°



28. **Two chords intersect with the measures shown in the drawing.**

What is the value of x ?

F 8.0
G 9.5
H 10.0
J 14.5

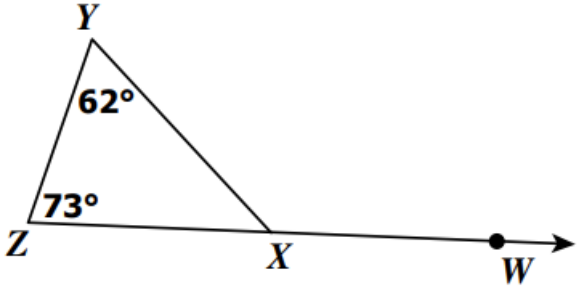


29. **In rectangle $ABCD$, the slope of $\overline{AB}$ is $\frac{1}{2}$. What is the slope of $\overline{CD}$?**

A -2
B $-\frac{1}{2}$
C $\frac{1}{2}$
D 2

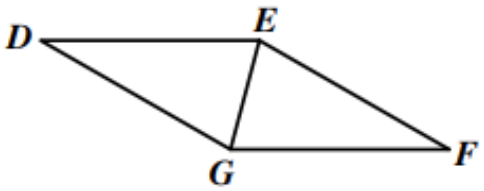
30. **In the figure shown, what is $m\angle WXY$?**

F 45°
G 107°
H 120°
J 135°



31. **$DEFG$ is a rhombus with $m\angle EFG = 28°$.**

What is $m\angle GDE$?



A 14°
B 28°
C 30°
D 56°

32. **This figure is a traffic sign in the shape of a regular octagon.**

What is the value of x ?

F 45
G 60
H 135
J 180

33. **A rectangular rug is 24 feet long and 10 feet wide. A rhombus design is formed inside the rug by joining the midpoints of each side of the rectangle. What is the length of each side of the rhombus?**

A 13 ft
B 26 ft
C 169 ft
D 240 ft

34. **A man who is 6 feet tall casts a shadow that is 4 feet long. At the same time, a nearby flagpole casts a shadow that is 18 feet long. How tall is the flagpole?**

F 10 ft **G** 12 ft **H** 22 ft **J** 27 ft

35. **A fish tank in the shape of a rectangular prism has these dimensions:**

- **length = 20 inches**
- **width = 10 inches**
- **height = 12 inches**

What is the volume of water in the tank when it is $\frac{4}{5}$ full?

A 1,120 cu in.
B 1,920 cu in.
C 2,400 cu in.
D 3,000 cu in.

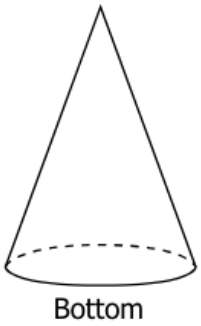
36. NOT ON SOL ANYMORE

37. **If a cube with side length 6 inches has its dimensions divided in half, what will be the volume of the new cube?**

A 108 cubic inches
B 54 cubic inches
C 27 cubic inches
D 9 cubic inches

38. NOT ON SOL ANYMORE, but I like it, so see wat you can do.

A right cone is placed on its circular base.
Which statement about the cone is *incorrect*?



F The view from the front is a triangle.
G The view from the bottom is a circle.
H The view from the top is a circle.
J The view from the left is a rhombus.

39. **A cone has a slant height of 10 centimeters and a lateral area of 60π square centimeters. What is the volume of a sphere with a radius equal to that of the cone?**

A 102π cm^3
B 144π cm^3
C 288π cm^3
D $1{,}333\pi$ cm^3

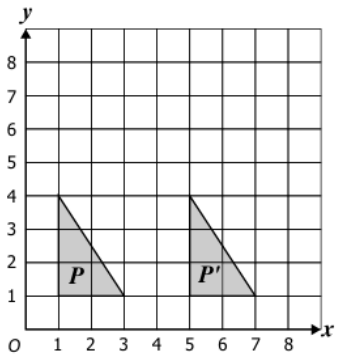
40. **Which line of reflection maps point K at $(-2, 2)$ to point K' at $(2, -2)$?**

F $y = 2$
G $y = x$
H x-axis
J y-axis

41. **If the coordinates of A are $(1, 1)$ and the midpoint of $\overline{AB}$ is $(-2, 0)$, then the coordinates of B are —**

A $(-0.5, 0.5)$
B $(0.5, 0.5)$
C $(-1, 0)$
D $(-5, -1)$

42. **Which transformation could move the triangle P to triangle P' in a single step?**



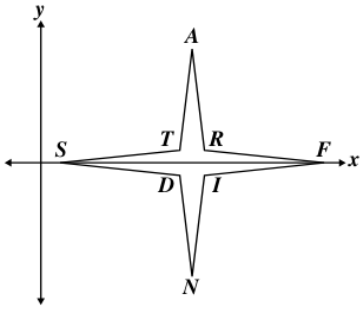
F Reflection over $x = 4$

G Rotation about $(2, 3)$

H Reflection over $y = 4$

J Translation

43. **Figure $STARFIND$ is symmetric with respect to the x-axis. The coordinates of point A are (8, 6). What are the coordinates of point N ?**



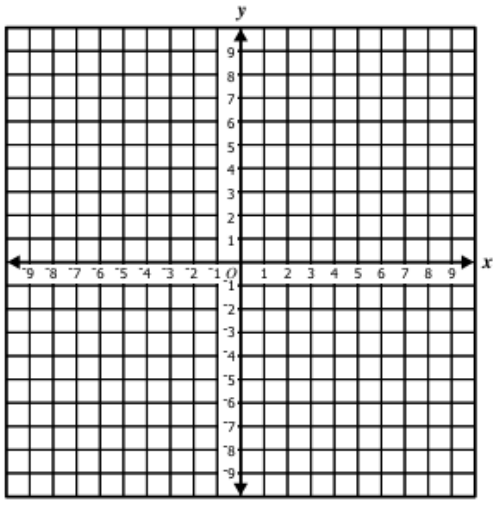
A $(8, -6)$

B $(6, -8)$

C $(-6, 8)$

D $(-8, 6)$

44. **Parallelogram $RSTV$ has coordinates $R(0, 0)$, $S(2, 4)$, $T(6, 0)$, and $V(4, -4)$. Which ordered pair represents the intersection of the diagonals of this parallelogram? (The coordinate grid may be used to help answer this question.)**



F $(2, 0)$

G $(3, 0)$

H $(3, 1)$

J $(4, -1)$

45. **A regular quadrilateral has what type of symmetry?**

A Line symmetry only

B Point symmetry only

C Both point and line symmetry

D Neither point nor line symmetry