

GEOMETRY SOL PRACTICE TEST
STRAND 1: Reasoning, Lines, and Transformations

1. Given an original statement of: *If a quadrilateral has four right angles, then it is a rectangle.*
 Match inverse, converse, contrapositive, and biconditional with its proper statement.
 Not all sentences will be matched.

If a quadrilateral does not have four right angles, then the figure is not a rectangle.	
If the figure is not a rectangle, then the quadrilateral has four right angles.	
A quadrilateral has four right angles if and only if the figure is a rectangle.	
If the figure is a rectangle, then it is a quadrilateral with four right angles.	
If a quadrilateral has four right angles, then it is not a rectangle.	
If the figure is not a rectangle, then it is not a quadrilateral with four right angles.	

Inverse
Converse
Contrapositive
Biconditional

2. The statement, “If you are not hyper, then you drink coffee,” is represented by which of the following symbols:

Let p = you drink coffee
 Let q = you are hyper

- A) $q \rightarrow p$ B) $q \rightarrow \sim p$
 C) $\sim q \rightarrow \sim p$ D) $\sim q \rightarrow p$

3. The music department needs to secure buses for a field trip.
 Listed below are the total of participants in each of the band, choir and orchestra.

- 60 students play in the band.
- 70 students sing in the choir.
- 50 students play in the orchestra.
- 12 students are in the band and orchestra.
- 10 students are in the band and choir.
- 5 students are in the choir and orchestra.
- 3 students are in the band, choir, and orchestra

How many students participated only in the choir?

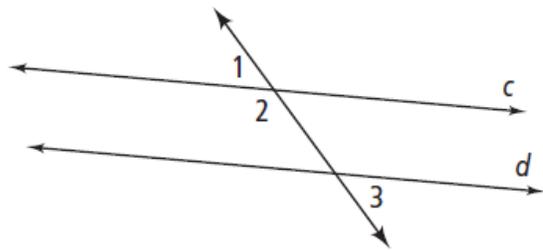
= _____ students

4. Which if-then statement follows from the pair of statements?

*If I pass my driving test, then I will get my driver's license.
If I get my driver's license, then I will drive my parent's car.*

- A) If I do not pass my driving test, then I will not drive my parent's car.
- B) If I pass my driving test, then I will drive my parent's car.
- C) If I drive my parent's car, then I got my driver's license.
- D) If I get my driver's license, then I did not pass my driving test.

5. Given $\angle 2$ is supplementary to $\angle 3$
Which statements would complete the proof that $c \parallel d$?

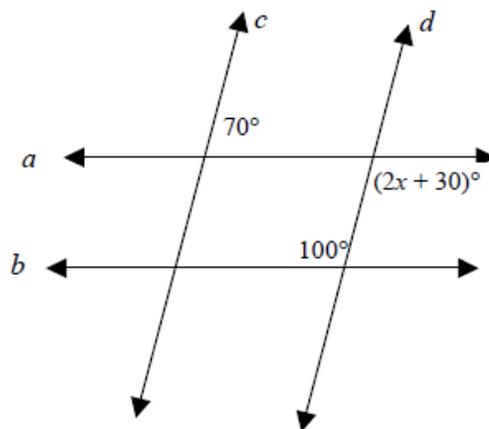


Subtraction Property of Equality
Substitution Property of Equality
Linear Pairs are Supplementary
Definition of Supplementary Angles
If Alt Ext Angles are congruent, then the lines are parallel
If Corresponding Angles are congruent, then the lines are parallel

Statements	Reasons
1. $\angle 2$ and $\angle 3$ are supplementary	1. Given
2. $\angle 2 + \angle 3 = 180$	2.
3. $\angle 1 + \angle 2 = 180$	3.
4. $\angle 1 + \angle 2 = \angle 2 + \angle 3$	4.
5. $\angle 1 \cong \angle 3$	5.
6. $c \parallel d$	6.

6. For what value of x will $a \parallel b$?

- A) 20
- B) 25
- C) 35
- D) 50



7. The map shows some streets in North Virginia Beach. Which labeled street is not parallel to the other labeled streets?

- A) 55th St.
- B) 54th St.
- C) 53rd St.
- D) 52nd St.

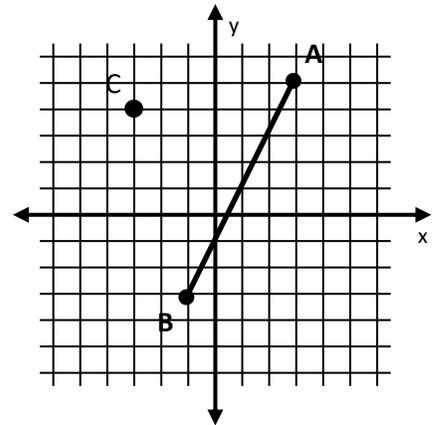


8. Line \overline{AB} has endpoints A(-4, 1) and B(2, 4). Match the distance, midpoint, and slope.

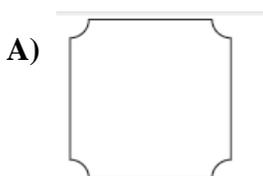
Distance:	Midpoint:	Slope:

$\frac{1}{2}$	$-\frac{1}{2}$	$3\sqrt{5}$	$3\sqrt{3}$	$\sqrt{21}$	2	-2	(-1, 2.5)	(-2, 5)	(8, 7)
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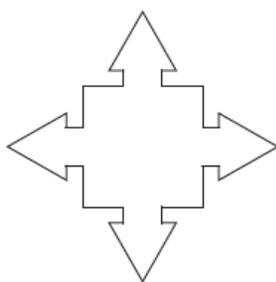
9. Given \overline{AB} and point C, plot another point D, so that $\overline{CD} \perp \overline{AB}$.



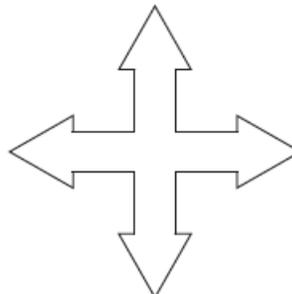
10. A graphic artist wants to design a logo with lines of symmetry. Which logo does *not* have exactly 4 lines of symmetry?



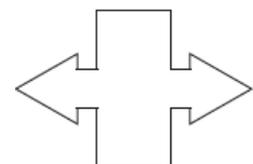
B)



C)

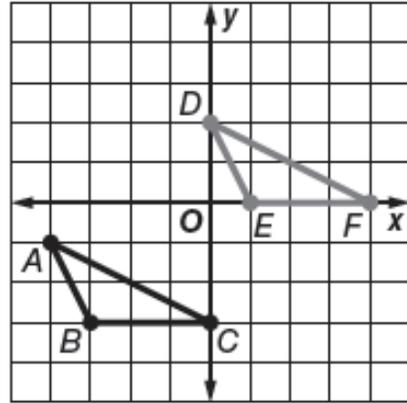


D)



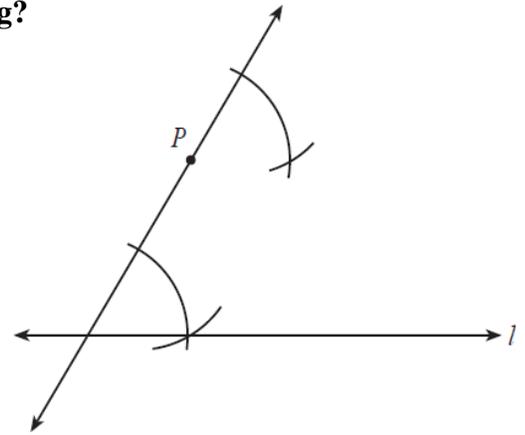
11. Triangle ABC and its image, triangle DEF , are shown. Which statement describes the type of transformation that occurred?

- A) The transformation is a rotation
- B) The transformation is a reflection
- C) The transformation is a translation
- D) The transformation is a dilation



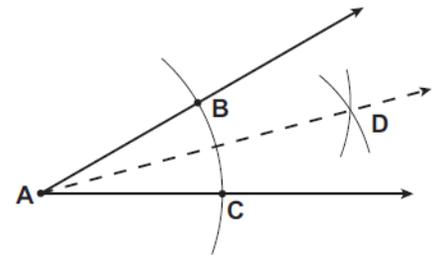
12. A student is using a straightedge and a compass to do the construction shown below. Which best describe the construction that the student is doing?

- A) A line through P parallel to line l
- B) A line through P intersecting line l
- C) A line through P congruent to line l
- D) A line through P perpendicular to line l

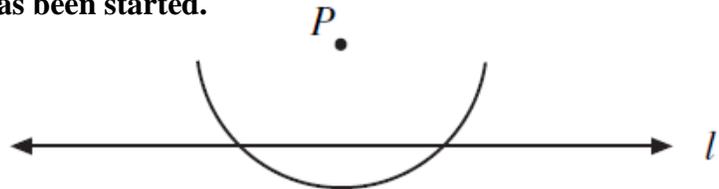


13. What is the first step in constructing the angle bisector of $\angle BAC$?

- A) Draw \overline{AD} .
- B) Draw a line segment connecting points B and C .
- C) From points B and C , draw equal arcs that intersect at D .
- D) From point A , draw an arc that intersects the sides of the angle at points B and C .



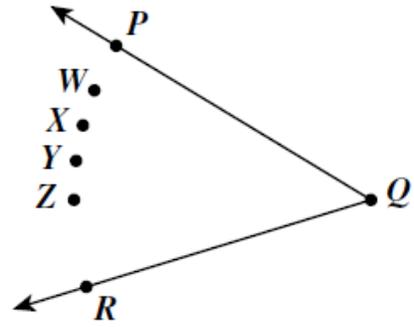
14. The first step of a straightedge and compass construction is shown below. Which best describes the construction that has been started.



- A) A perpendicular bisector of a line segment
- B) A perpendicular to a line at a point on the line
- C) A perpendicular to a line from a point not on the line
- D) A bisector of an angle

15. Which point lies on the bisector of angle PQR?

- A) W B) X
 C) Y D) Z

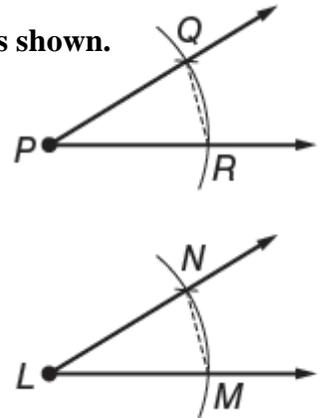


16. Which of the following is not part of constructing an angle congruent to a given angle?

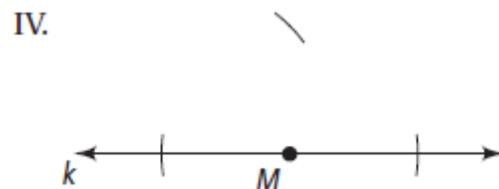
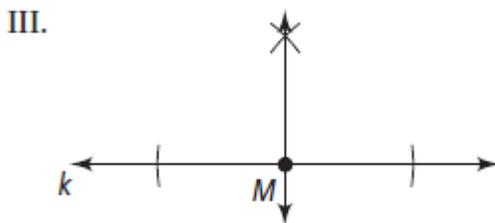
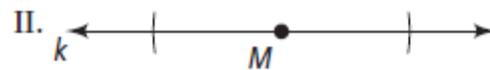
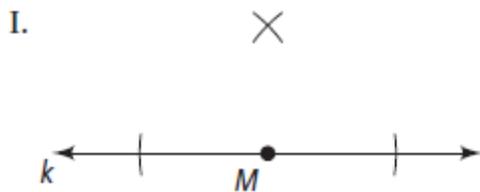
- A) Draw a ray and label the endpoint
 B) Use the same compass setting to draw a arc that intersects the first arc
 C) Draw an arc that intersects both sides of the given angle
 D) Draw an arc in the interior of the angle

17. An angle congruent to $\angle QPR$ is constructed. Then \overline{QR} and \overline{MN} are drawn as shown. Which segments are not necessarily equal in length?

- A) \overline{QR} and \overline{MN}
 B) \overline{PR} and \overline{MN}
 C) \overline{LM} and \overline{PR}
 D) \overline{PQ} and \overline{LN}



18. The diagrams below show the steps to construct a line perpendicular to line k through point M . Which of the following correctly orders the steps from first to last?



- A) III, I, IV, II B) I, II, III, IV C) II, IV, I, III D) II, I, IV, III