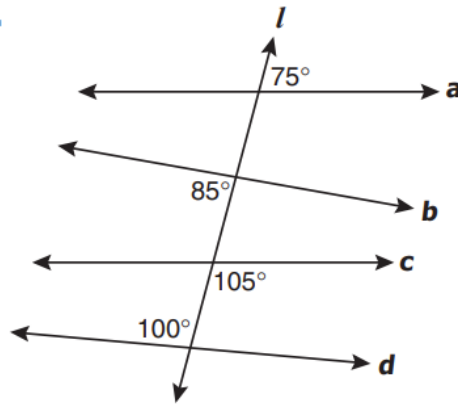


1. Transversal l cuts lines a , b , c , and d .

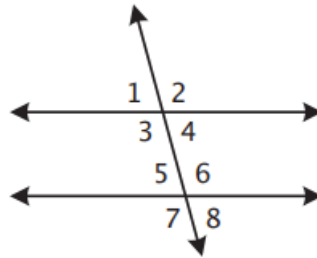
Which two lines are parallel?

- A a and c
- B a and d
- C b and c
- D b and d



2. In the figure above, $\angle 2$ and $\angle 6$ are a pair of -

- F consecutive interior angles
- G alternate interior angles
- H vertical angles
- J corresponding angles



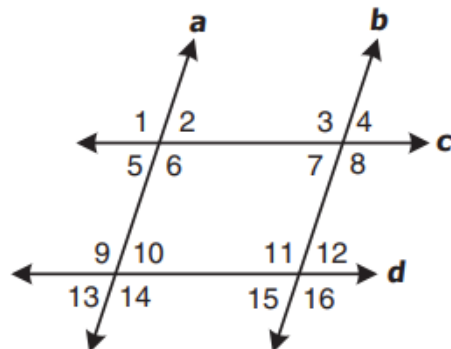
3. One exterior angle of a regular polygon measures 72° . What is the measure of one interior angle?

- A 18°
- B 108°
- C 360°
- D 540°

4. In this drawing, $a \parallel b$ and $c \parallel d$.

Which angle is *not* necessarily congruent to $\angle 1$?

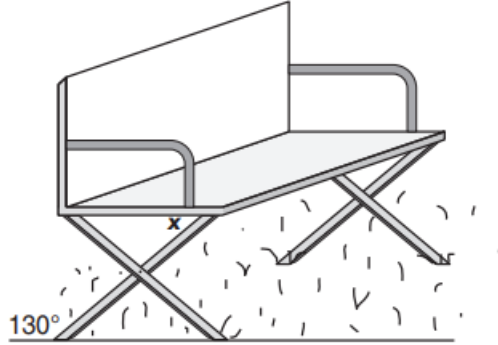
- F $\angle 3$
- G $\angle 9$
- H $\angle 12$
- J $\angle 16$



5. The support legs on a bench are attached in such a way that the angle made by one leg with the ground is 130° .

What must the measure of the angle marked x be in order for the seat of the bench to be parallel to the ground?

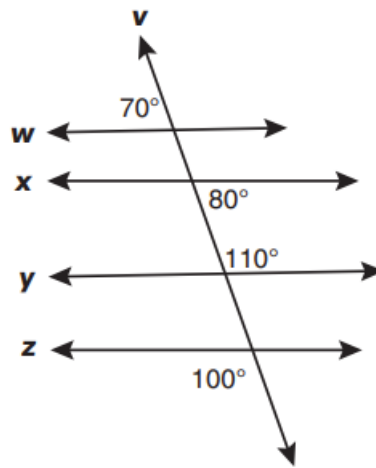
- A 50°
- B 65°
- C 90°
- D 130°



6. Line v is a transversal.

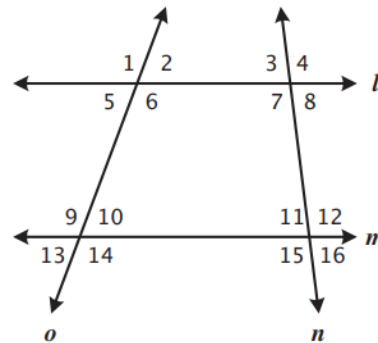
Which is a true statement?

- F $w \parallel y$ and $x \parallel z$
- G $w \parallel x$ and $y \parallel z$
- H $w \parallel z$ and $x \parallel y$
- J $w \parallel x$ and $x \parallel y$



7. In the drawing above, $\angle 4$ and $\angle 12$ are —

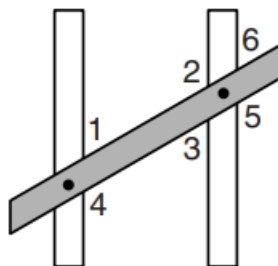
- A alternate interior angles
- B consecutive interior angles
- C corresponding angles
- D a linear pair



8. A carpenter nailed a board across two beams, forming the angles shown.

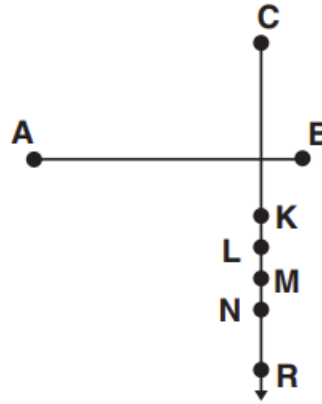
Which equal measures would ensure the beams are parallel?

- F $m\angle 1 = m\angle 2$
- G $m\angle 1 = m\angle 3$
- H $m\angle 2 = m\angle 5$
- J $m\angle 3 = m\angle 4$



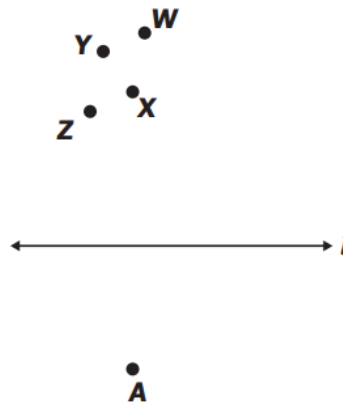
9. Which segment is congruent to \overline{AB} ?

- A \overline{CK}
- B \overline{CL}
- C \overline{CM}
- D \overline{CN}



10. Which point apparently lies on the perpendicular to l from A ?

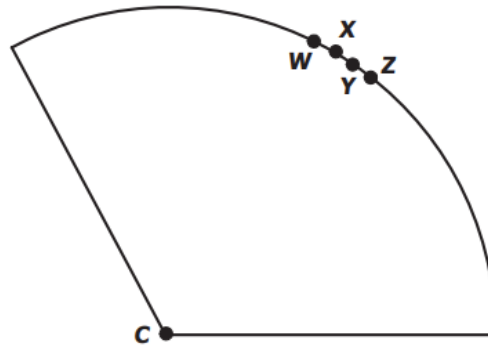
- F X
- G Y
- H Z
- J W



11. One piece of pie is left for two boys to share.

Where should the pie be cut to ensure each gets an equal piece?

- A \overline{CZ}
- B \overline{CY}
- C \overline{CX}
- D \overline{CW}



12. If $p \rightarrow q$, and $q \rightarrow r$, then —

- F $r \rightarrow p$
- G $p \rightarrow r$
- H $\sim r \rightarrow p$
- J $r \rightarrow \sim p$

13. If the conditional statement

"If you have a laptop, then you have a computer"

is represented by $p \rightarrow q$, what is the symbolic representation of

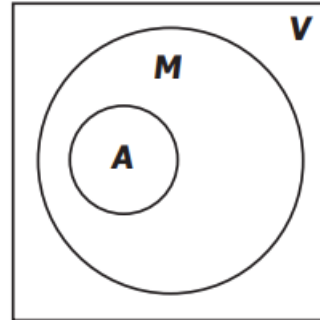
"If you have a computer, then you do not have a laptop"?

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

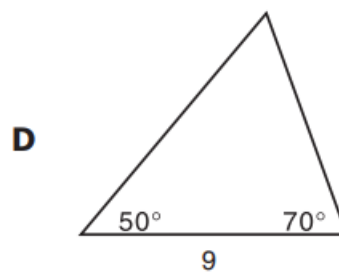
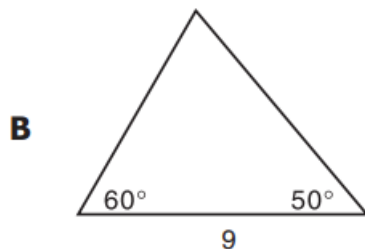
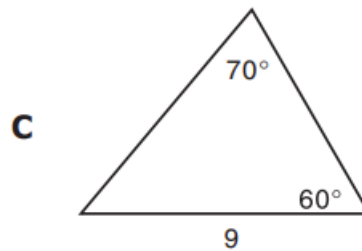
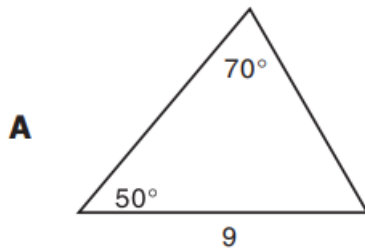
14. In the Venn diagram below, V represents the set of all vehicles, M represents the set of all motorized vehicles, and A represents the set of all automobiles.

Based on the diagram, which is a valid conclusion?

- F All automobiles are motorized vehicles.
- G All motorized vehicles are automobiles.
- H Some automobiles are not motorized vehicles.
- J No automobiles are motorized vehicles.

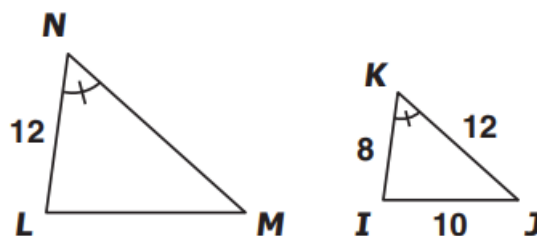


15. Which triangle below is *not* congruent to the other three triangles?



16. Which additional piece of information would prove that $\triangle IJK \sim \triangle LMN$?

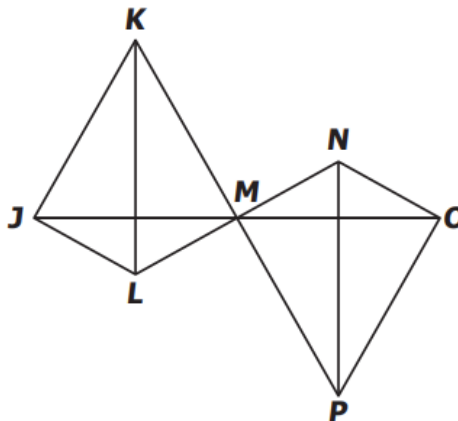
- F $NM = 18$
- G $LM = 18$
- H $NM = 15$
- J $LM = 10$



17. Given: M is the midpoint of \overline{LN} and \overline{KP} .

The given information is sufficient to prove $\triangle KML \cong \triangle PMN$ by which postulate/theorem?

- A Angle-Side-Angle
- B Side-Side-Side
- C Side-Angle-Side
- D Angle-Angle-Side



18. Which of the following could *not* be the lengths of the sides of a triangle?

- F 6 ft, 3 ft, 9 ft
- G 3 cm, 4 cm, 5 cm
- H 4 in., 6 in., 8 in.
- J 5 km, 2 km, 4 km

19. In $\triangle DEF$, $m\overline{DE} = 8$ inches, $m\overline{EF} = 6$ inches, and $m\overline{DF} = 10$ inches. Which lists the angles in order from *smallest to largest*?

- A $\angle D, \angle E, \angle F$
- B $\angle F, \angle D, \angle E$
- C $\angle E, \angle F, \angle D$
- D $\angle D, \angle F, \angle E$

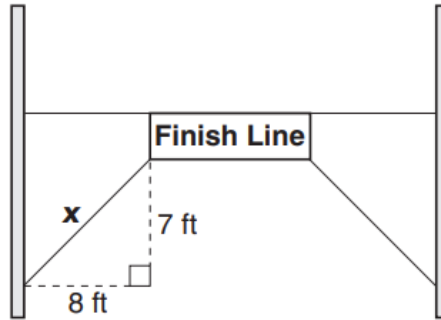
20. In $\triangle ABC$, if $m\angle C < m\angle B < m\angle A$, then —

- F $AB < AC < BC$
- G $AC < AB < BC$
- H $AB < BC < CA$
- J $BC < AB < CA$

21. To mark the end of a race, a finish-line banner is stretched across the road as shown in the drawing.

Which is closest to the length of the support rope designated by x in the drawing?

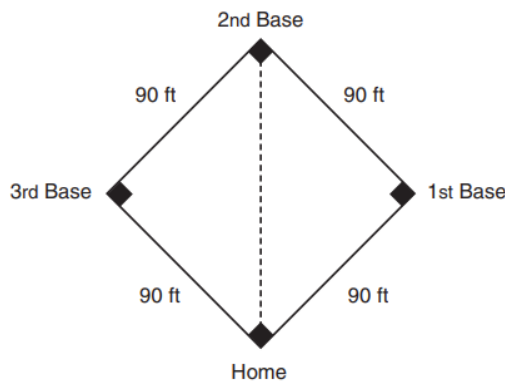
- A 9.5 ft
- B 10.6 ft
- C 12.0 ft
- D 15.0 ft



22. A baseball diamond is in the shape of a square, 90 feet on a side.

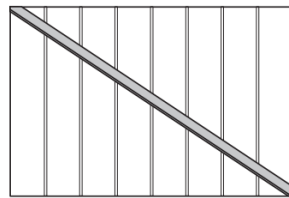
What is the direct distance from home plate to second base?

- F 90 ft
- G $90\sqrt{2}$ ft
- H $90\sqrt{3}$ ft
- J 180 ft



23. What is the length of a diagonal brace that could be used for a wall 9 feet high and 12 feet long?

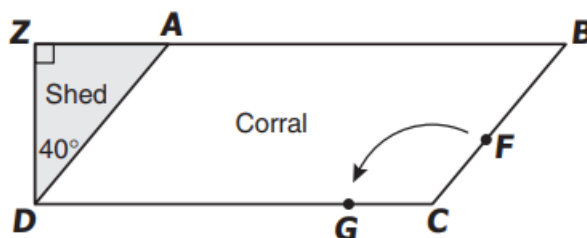
- A 12 ft
- B 13 ft
- C 14 ft
- D 15 ft



24. Gene's horse corral, labeled $ABCD$ in the drawing, is shaped as a parallelogram and is adjacent to the shed, labeled ZAD .

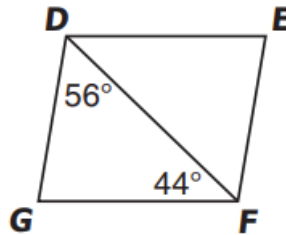
If a gate, labeled CF , opens all the way to the corral fence, position labeled CG , through how many degrees does the gate swing?

- F 40°
- G 50°
- H 130°
- J 140°



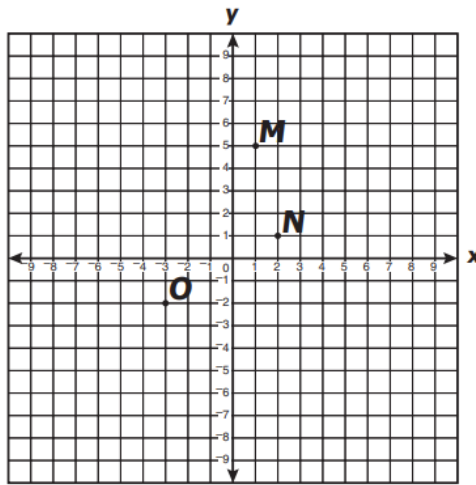
25. A diagonal of parallelogram $DEFG$ forms angles with measures as shown. What is the measure of $\angle DEF$?

- A 44°
- B 56°
- C 80°
- D 100°



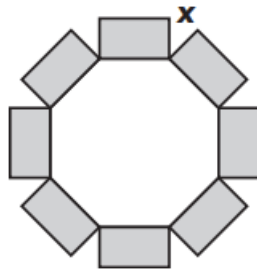
26. Quadrilateral $MNOP$ is a parallelogram. The coordinates of three of its vertices are $M(1,5)$, $N(2,1)$, and $O(-3,-2)$. If $(x,2)$ are the coordinates of P , what is the value of x ?

- F -5
- G -4
- H -3
- J 0



27. Rectangular flowerbeds are built on each side of a fishpond in the shape of a regular octagon. What is the measure of the angle, x , between two consecutive flowerbeds?

- A 30°
- B 45°
- C 60°
- D 90°



28. A portion of a regular polygon is shown. The polygon has —

- F 15 sides
- G 16 sides
- H 18 sides
- J 20 sides

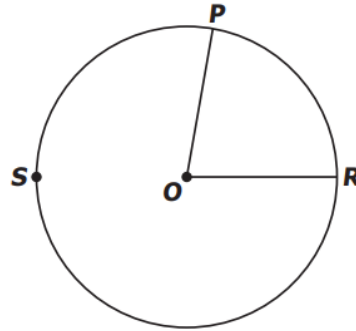


29. Each interior angle of a regular polygon has a measure of 162° . The polygon has a total of —

- A 17 sides
- B 18 sides
- C 19 sides
- D 20 sides

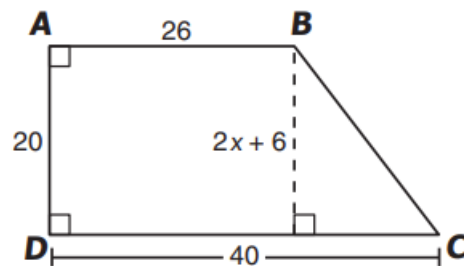
30. In circle O , the degree measure of \widehat{PSR} is 280° . What is the degree measure of $\angle POR$?

- F 160°
- G 85°
- H 80°
- J 40°



31. What is the value of x in trapezoid $ABCD$?

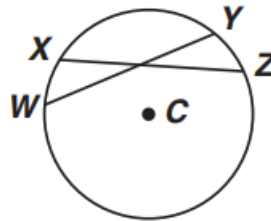
- A 17
- B 13
- C 10
- D 7



32. In circle C , $m\widehat{WX} = 25^\circ$, $m\widehat{XY} = 40^\circ$, $m\widehat{YZ} = 25^\circ$, and $WY = 24$ centimeters.

What is the length of \overline{XZ} ?

- F 12 cm
- G 24 cm
- H 25 cm
- J 65 cm



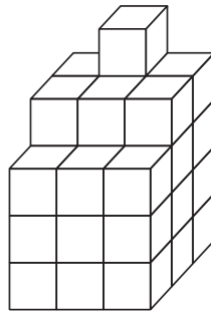
33. A pizza has a diameter of 16 inches. Which is closest to the area of one slice if the pizza is divided into 6 equal pieces?

- A 134.1 sq in.
- B 117.1 sq in.
- C 67.2 sq in.
- D 33.5 sq in.

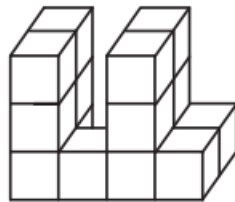
34. NOT ON THE SOL ANYMORE, BUT GOOD QUESTION FOR YOUR MIND.

Assuming the solid is constructed from cubes measuring 1 unit on each edge and that the figure is completely solid, what is the volume of the cubic solid shown above?

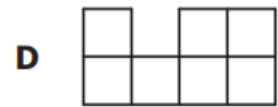
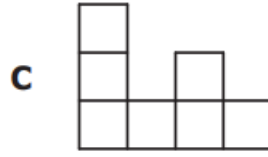
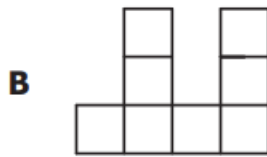
- F 12 cubic units
- G 34 cubic units
- H 59 cubic units
- J 68 cubic units



35. NOT ON THE SOL ANY MORE, BUT GOOD QUESTION FOR YOUR MIND.



Which could *not* be a two-dimensional view of the block of cubes shown above?



36. Which is closest to the volume of a sphere with a radius equal to 8 centimeters?

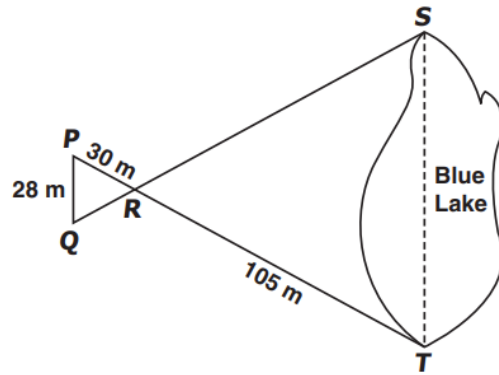
- F 267.9 cm³
- G 803.8 cm³
- H 1,607.7 cm³
- J 2,143.6 cm³

37. What is the total surface area of a rectangular prism box that measures 5 feet by 1 foot by 1 foot?

- A 5 sq ft
- B 20 sq ft
- C 22 sq ft
- D 30 sq ft

38. If \overleftrightarrow{PQ} is parallel to \overleftrightarrow{ST} , what is ST , the width of the lake?

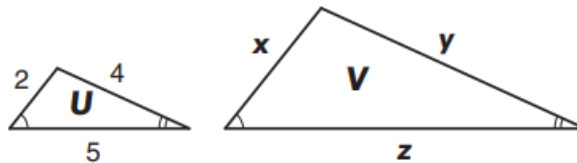
- F 62 meters
- G 70 meters
- H 84 meters
- J 98 meters



39. The ratio of the perimeter of $\triangle U$ to the perimeter of $\triangle V$ is 1:2.

If the triangles are similar, what is the value of $x + y$?

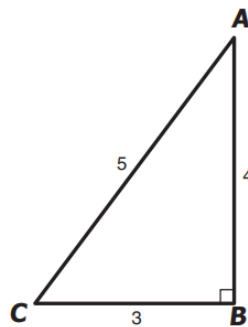
- A 3
- B 6
- C 12
- D 18



40. Right triangle ABC has the measures shown.

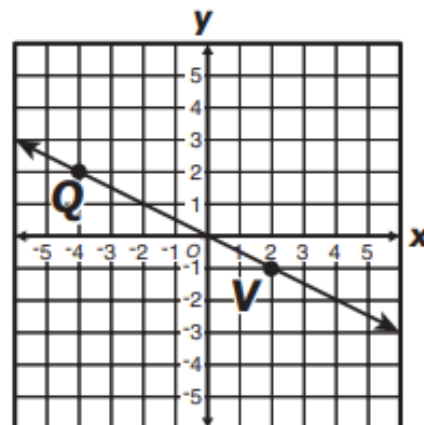
What is the *maximum* number of different lines of symmetry that can be drawn through $\triangle ABC$?

- F 0
- G 1
- H 2
- J 3



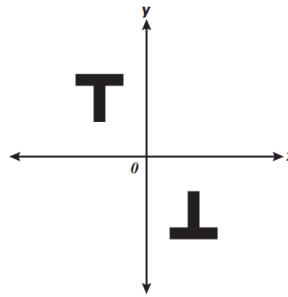
41. What is the apparent slope of \overleftrightarrow{QV} ?

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



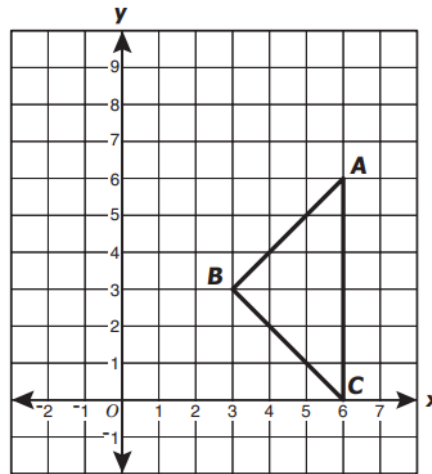
42. In relation to one figure, the other figure is apparently a —

- F reflection across the line $y = 1$
- G reflection across the line $y = x$
- H 90° rotation about the origin
- J 180° rotation about the origin



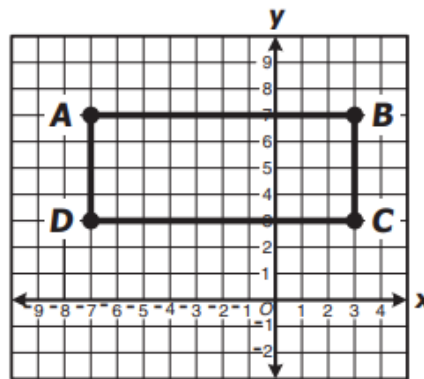
43. Triangle ABC is placed on a grid as shown. The apparent midpoint of \overline{AB} is —

- A $(1.5, 1.5)$
- B $(3, 3)$
- C $(4.5, 4.5)$
- D $(4.5, 1.5)$



44. Rectangle $ABCD$ is placed in a coordinate plane as shown. Which equation describes a line of symmetry for rectangle $ABCD$?

- F $x = 2$
- G $x = 5$
- H $y = 5$
- J $y = x$



45. $\triangle A'B'C'$ is apparently the result of —

- A reflecting $\triangle ABC$ across the y -axis
- B reflecting $\triangle ABC$ across the x -axis
- C rotating $\triangle ABC$ about the point $(1, 2)$
- D reflecting $\triangle ABC$ across the line $y = x$

