Pre-Algebra, Unit 11 Practice Test: Transformations & Congruence

Name:

Date:

1. Define the terms below. Sketch an example.

   a. translation

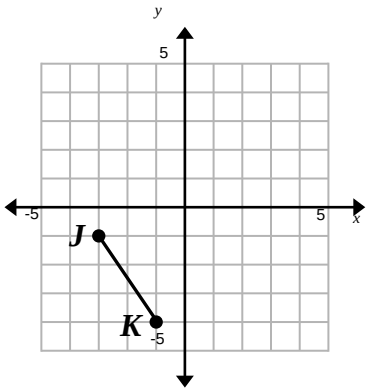
   b. reflection

   c. rotation

2. a) Two figures that have the exact same size and shape are _____.

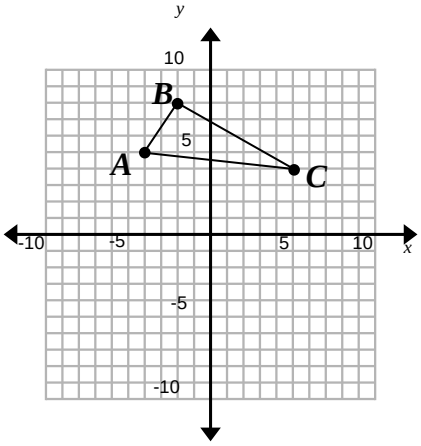
   b) Two figures are congruent if and only if they have all their corresponding _____congruent and all their corresponding _____congruent.

3. (SE) What are the coordinates of J' and K' after $\overline{JK}$ is reflected across the *y*-axis?



   A. $J'(-3,\ 1), K'(-1,\ 4)$
   B. $J'(-3,\ 4), K'(-1, -1)$
   C. $J'(3, -1),\ K'(1, -4)$
   D. $J'(3,\ 1), K'(-1,\ 4)$

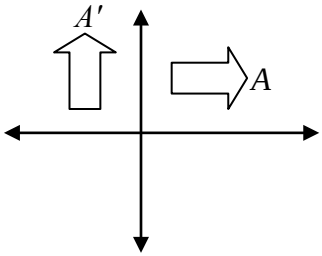
4. (SBAC) A student graphed triangle *ABC* on a coordinate plane, as shown to the right.



   After a translation, the location of vertex *A* is (−7, −1). What ordered pair describes the location of point *B* after the triangle is translated?

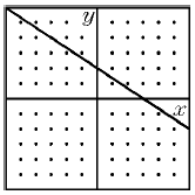
   A. $(-8, -5)$
   B. $(-8,\ 5)$
   C. $(-5, -2)$
   D. $(-5,\ 2)$

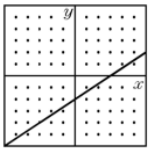
5. Determine the angle and direction of rotation about the origin for the transformation shown to the right.

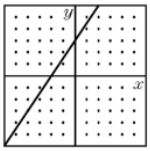


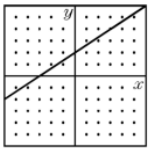
6. (SBAC) Let $\boldsymbol{R}(3, 1)$ be a point on a polygon, and $\boldsymbol{R'}$ be the corresponding point on a new image. The figure is translated by using $(x, y) \rightarrow (x-1, y+4)$ to arrive at $\boldsymbol{R'}$. What are the coordinates of $\boldsymbol{R'}$?

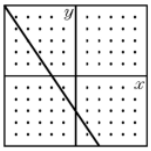
7. (SE) If the line (at the right) is reflected across the *x*-axis, which of the following is the graph of the new line?



A. 

B. 

C. 

D. 

8. (SE) If a figure is reflected over the *x*-axis and then reflected over the *y*-axis, what one transformation would accomplish the same end resulting figure?

   (A) Dilation

   (B) Reflection

   (C) Translation

   (D) Rotation

9. (SE) Which transformations will create CONGRUENT figures? Circle all that can apply.

   (A) Rotation and Translation

   (B) Reflection and Rotation

   (C) Reflection and Dilation

   (D) Reflection and Translation

10. (SE) Two lines intersect to form a $34°$ angle. The lines are rotated $90°$ about the origin. What is the measure of the angle after the transformation?

   (A) $56°$

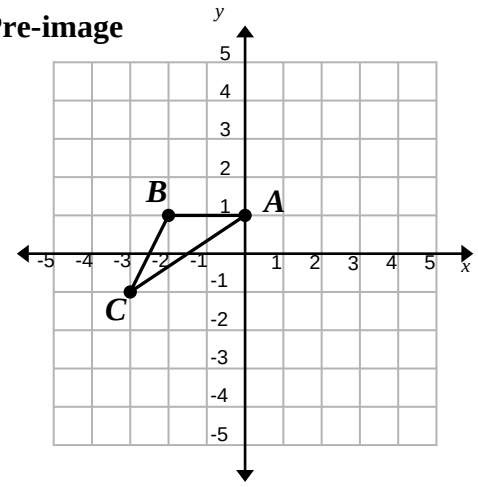
   (B) $146°$

   (C) $34°$

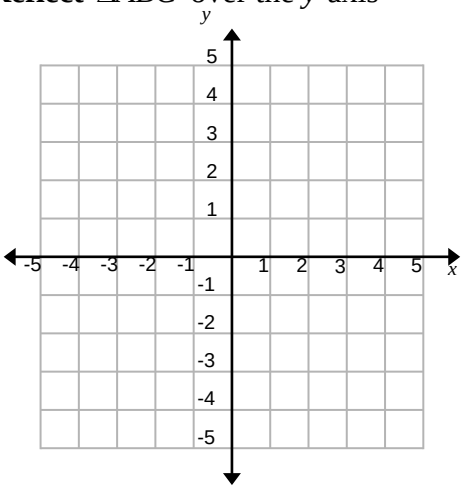
   (D) $68°$

(SE/SBAC)For problems 11-13, sketch the graph of $\Delta A'B'C'$ for each of the transformations listed, using ΔABC. **Draw** the original triangle *and* your new transformed triangle on each grid. **Write** the coordinates of the pre-image and image in the spaces below each grid.

Pre-image



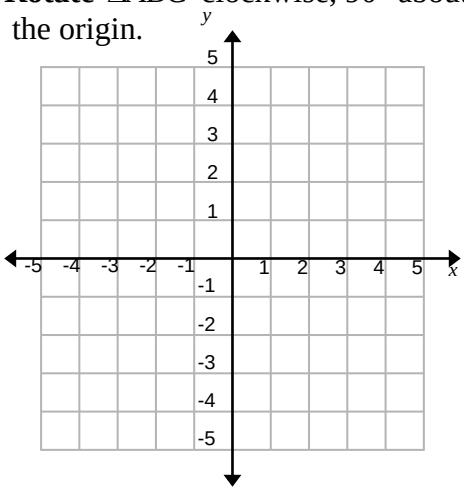
11. **Reflect** ΔABC over the *y*-axis



A _____ *B* _____ *C* _____

A´ _____ *B´* _____ *C´* _____

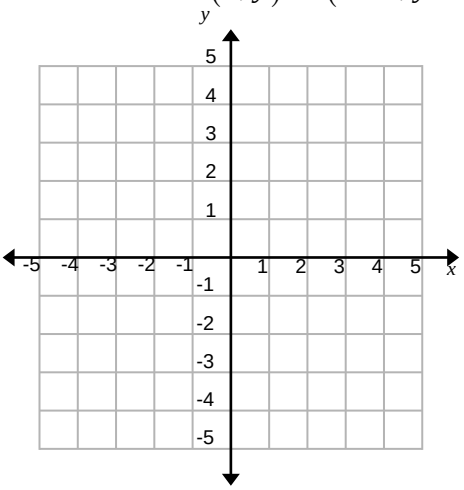
12. **Rotate** ΔABC clockwise, 90° about the origin.



A _____ *B* _____ *C* _____

A´ _____ *B´* _____ *C´* _____

13. **Translate** $\Delta ABC\ (x, y) \rightarrow (x+4, y-2)$



A _____ *B* _____ *C* _____

A´ _____ *B´* _____ *C´* _____

14. (SBAC) Segment *PQ* begins at point *P*(−1, 2) and ends at point *Q*(−1, −4). The segment is translated by $< x - 2,\ y + 1 >$ and then reflected across the *y*-axis to form segment *P′Q′*.

How many units long is segment *P′Q′*?

(A) 0

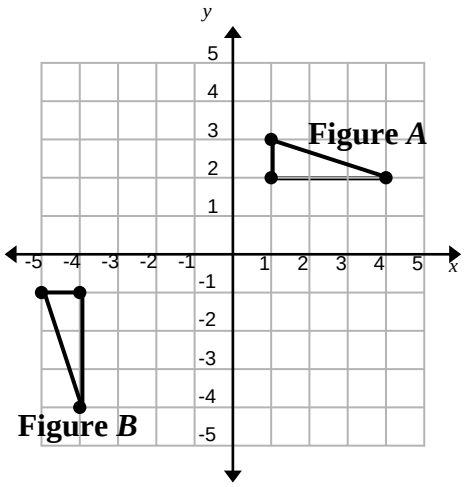
(B) 2

(C) 4

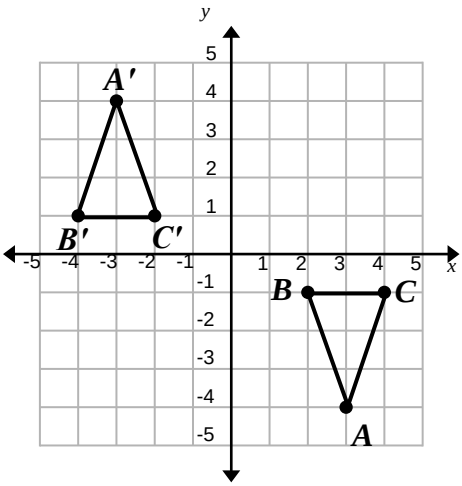
(D) 6

15. (SBAC) Two figures are shown on the coordinate grid.

Show that Figure *A* and Figure *B* are congruent by describing a sequence of basic transformations that maps Figure *A* onto Figure *B*. In your response, be sure to identify the transformations in the order they are performed.



16. (SBAC) ΔABC is reflected across the *x*-axis and then translated left 6 units to form $\Delta A'B'C'$.



Select True or False for each statement.

Statement	True	False
Side *BC* is the same length as side *B′C′*.		
Angle *B* has the same measure as angle *B′*.		
Side *AC* is longer than side *A′C′*.		

17. (SBAC) Draw the image of the figure after the following transformations:

- a reflection over the *x*-axis
- a horizontal translation 5 units to the left