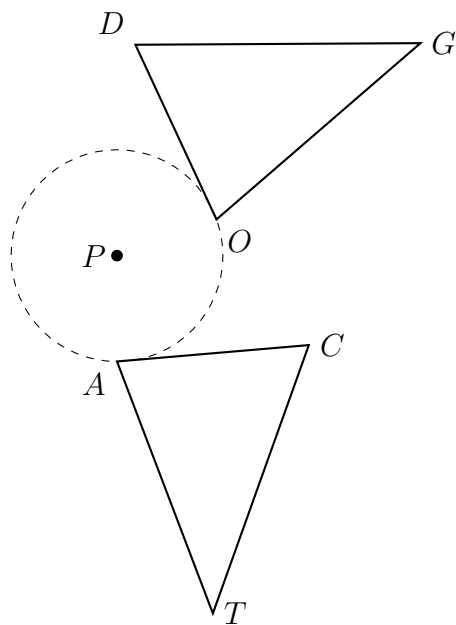


## 5.9 Prequiz: Transformations

1. A  $110^\circ$  counterclockwise rotation centered at  $P$  maps triangle  $CAT$  onto triangle  $DOG$ .

Write the letter or letters for each corresponding object.



(a)  $T \rightarrow$

(b)  $A \rightarrow$

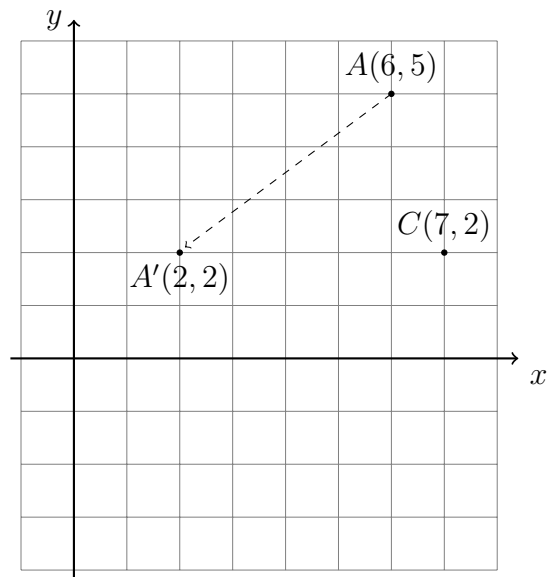
(c)  $AC \rightarrow$

2. A translation maps  $A$  to  $A'$ , as shown,  $A(6, 5) \rightarrow A'(2, 2)$ .

(a) Apply the same translation to  $C(7, 2) \rightarrow C'(x, y)$  on the grid. Mark and label point  $C'$  as an ordered pair.

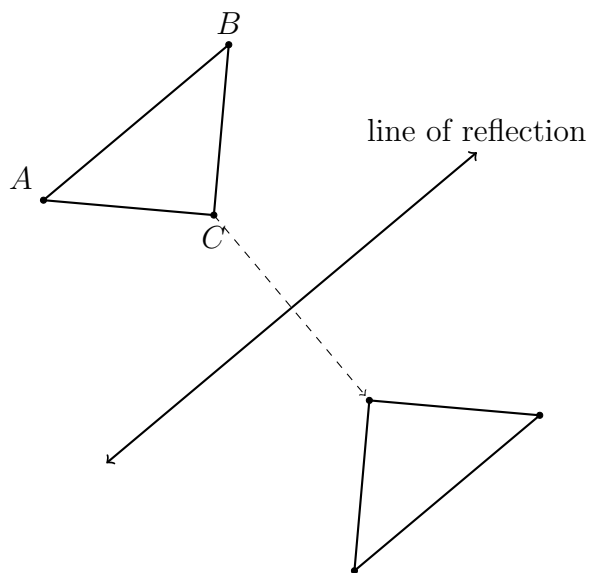
(b) Which direction is the slide?

- (A) Up, to the right
- (B) Up, to the left
- (C) Down, to the right
- (D) Down, to the left
- (E) None of the above



3. Complete the reflection diagram of  $\triangle ABC \rightarrow \triangle A'B'C'$ , below.

- (a) Label the triangle image.
- (b) True or false: reflection is a rigid motion.
- (c) Is the *orientation* maintained or reversed by the reflection?
- (d) What is the degree measure of the angle between the *line of reflection* and the dotted line segment from point  $C$  to its image?



4. A rotation centered at the origin maps  $A$  to  $A'$ , as shown,  $A(3, -1) \rightarrow A'(1, 3)$ .

(a) Apply the same rotation

$C(5, 1) \rightarrow C'(x, y)$ , plotting and labeling the point  $C'$  as an ordered pair.

(b) Which correctly identifies the rotation?

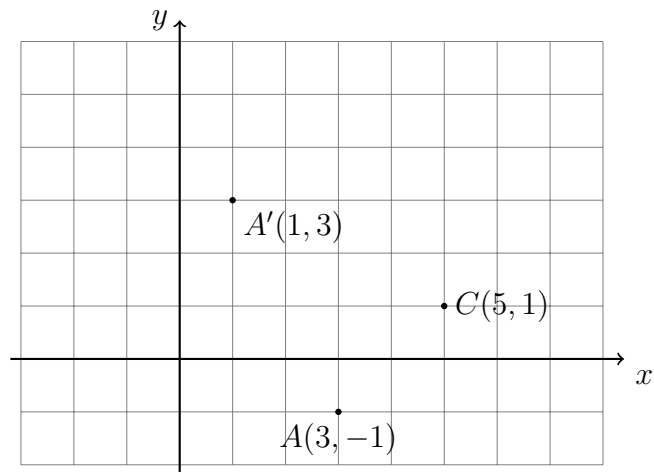
(A) Clockwise  $180^\circ$

(B) Counter clockwise  $180^\circ$

(C) Clockwise  $90^\circ$

(D) Counter clockwise  $90^\circ$

(E) None of the above

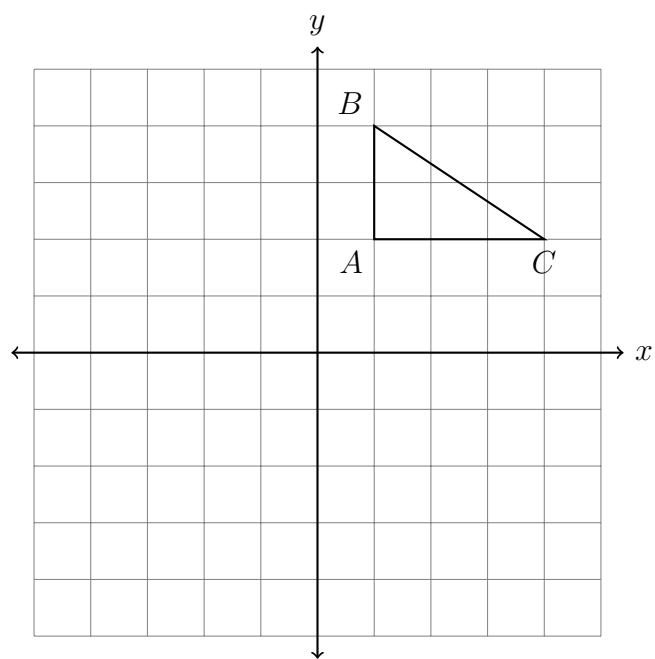


5. Reflect the triangle across the  $x$ -axis,  $\triangle ABC \rightarrow \triangle A'B'C'$ . Complete the table of the coordinates and plot and label the image on the grid.

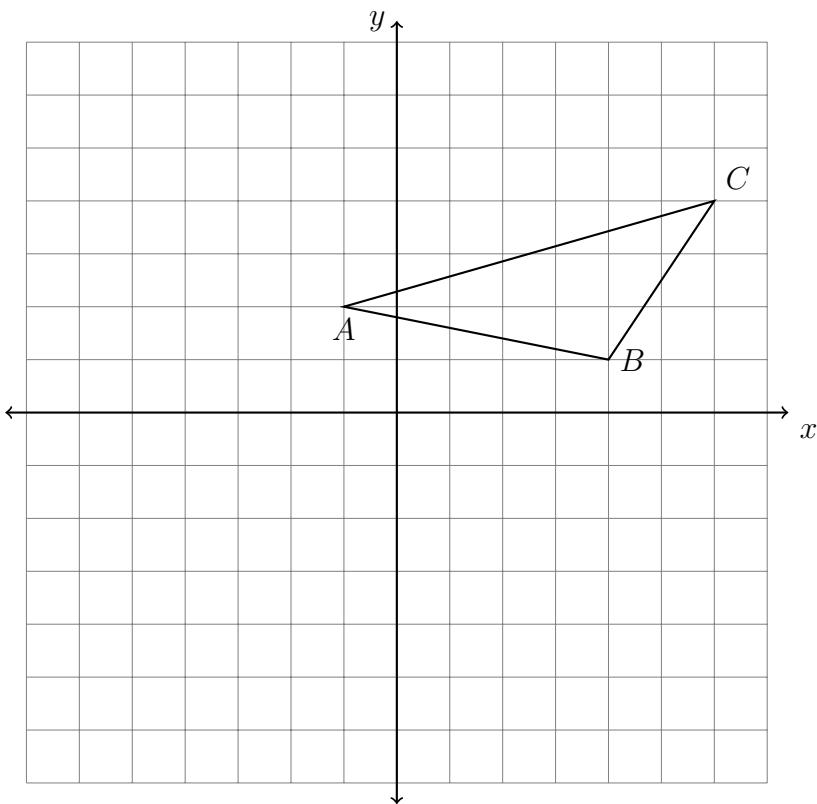
$A(1, 2) \rightarrow$

$B(1, 4) \rightarrow$

$C(4, 2) \rightarrow$



6.  $\triangle ABC$  is shown with vertices  $A(-1, 2)$ ,  $B(4, 1)$ , and  $C(6, 4)$ . Rotate the triangle  $90^\circ$  clockwise around the origin. Write down its coordinates in a table and plot and label it on the graph.

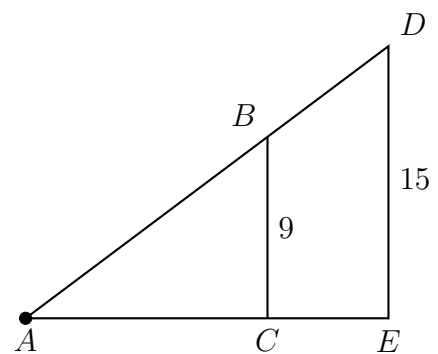


7. A dilation centered at  $A$  maps  $\triangle ABC \rightarrow \triangle ADE$ . Given that  $BC = 9$ ,  $DE = 15$ .

(a) Find the value of the scale factor  $k$ .

(b) Given  $AB = 12$ , find  $AD$

(c) Given  $AE = 12.5$ , find  $AC$



8. Each transformation we study—translation, dilation, rotation, and reflection—have specific details that must be stated to *fully characterize* the transformation. Match the required details with the transformation.

(a) The center, the degree measure and direction

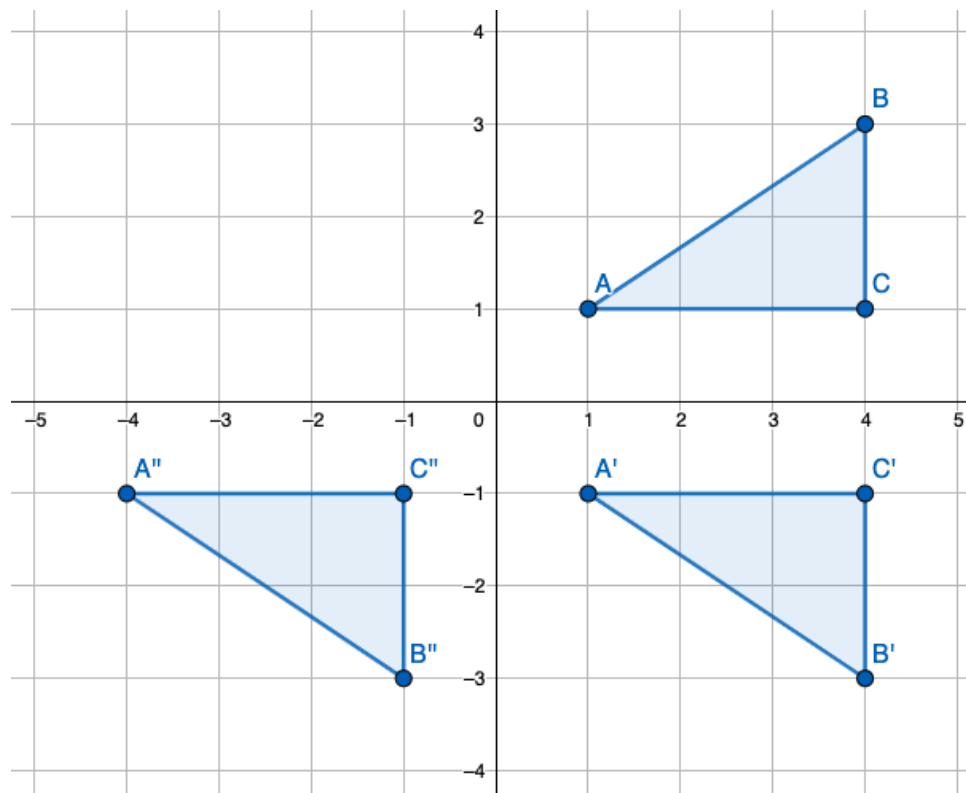
(b) The line over which it is performed

(c) The horizontal and vertical distances

(d) The center and the scale factor  $k$

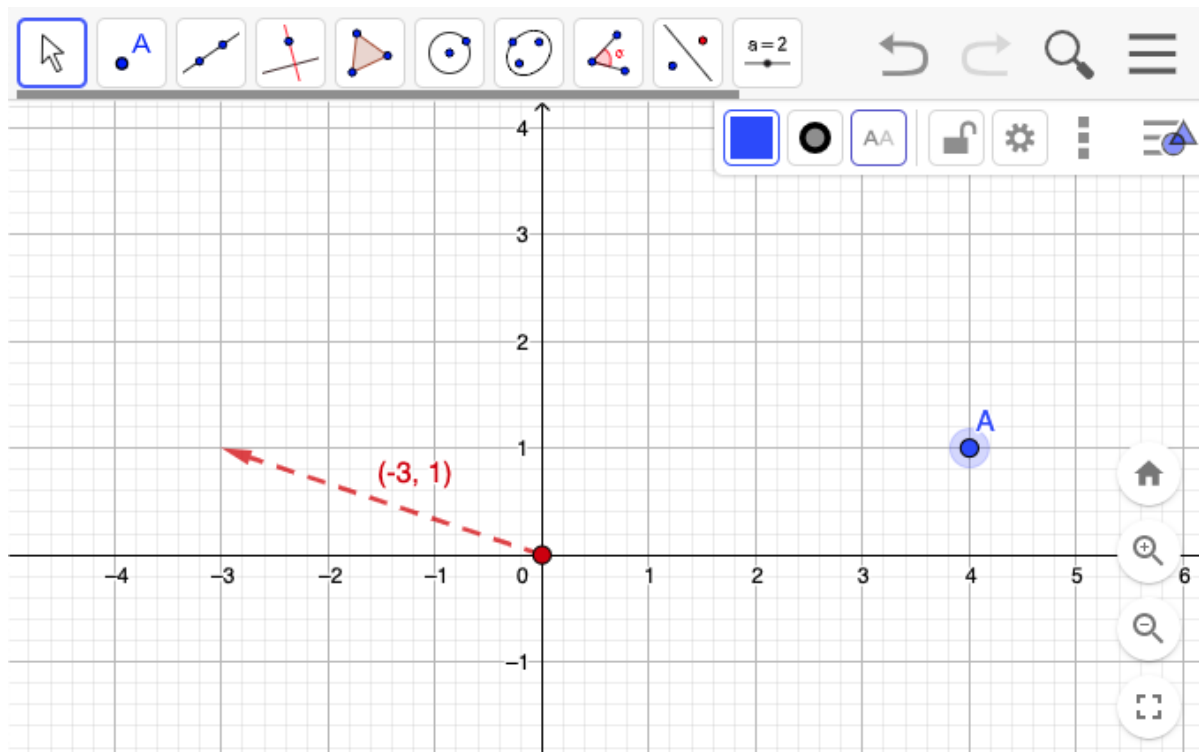


9. A composition of two transformations is applied to  $\triangle ABC$ , shown in the diagram. Fully characterize the two transformations, in order.



10. A point labeled  $A$  and vector  $(-3, 1)$  are shown Geogebra/classic. Identify the following objects and tools.

- (a) Circle the vector
- (b) Make an “X” where to click for the menu “Name & Value” that will label point  $A$  as an ordered pair.
- (c) Mark with an arrow the menu where the “Translate by vector” tool is found.



11. Perform a composition of two transformations using Geogebra/classic. Paste an image of your work in this Classkick slide using the “camera” tool.

- (a) Plot  $\triangle ABC$ ,  $A(1, 2)$ ,  $B(4, 3)$ ,  $C(5, 6)$
- (b) Mark a point at the origin.
- (c) Rotate the triangle  $90^\circ$  clockwise around the origin.
- (d) Reflect the image  $\triangle A'B'C'$  across the  $y$ -axis.