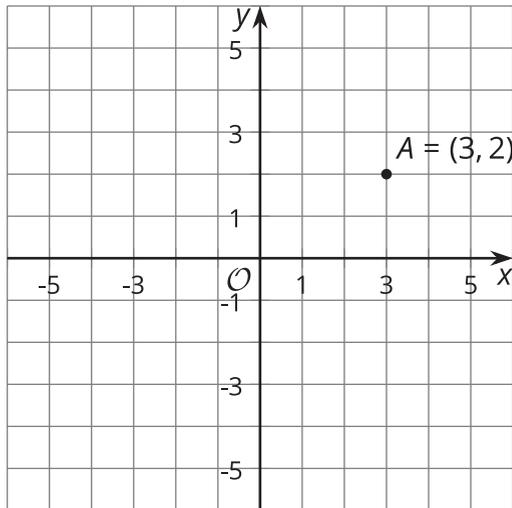


Unit 6 Lesson 2: Transformations as Functions

1 Math Talk: Transforming a Point (Warm up)

Student Task Statement

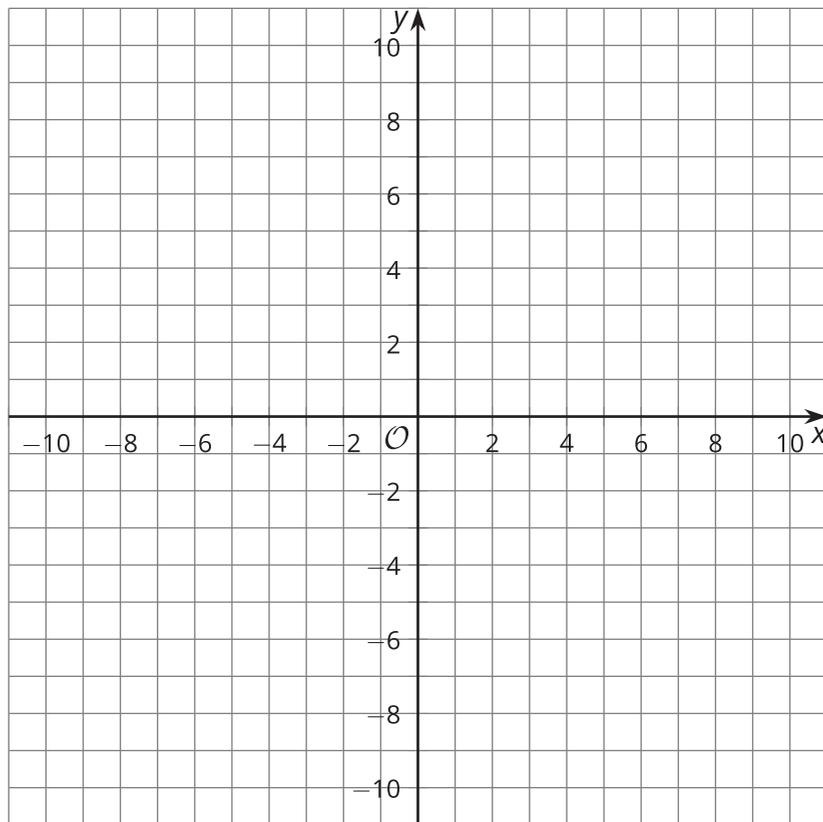
Mentally find the coordinates of the image of A under each transformation.



- Translate A by the directed line segment from $(0, 0)$ to $(0, 2)$.
- Translate A by the directed line segment from $(0, 0)$ to $(-4, 0)$.
- Reflect A across the x -axis.
- Rotate A 180 degrees clockwise using the origin as a center.

2 Inputs and Outputs

Student Task Statement



1. For each point (x, y) , find its image under the transformation $(x + 12, y - 2)$.
 - a. $A = (-10, 5)$
 - b. $B = (-4, 9)$
 - c. $C = (-2, 6)$
2. Next, sketch triangle ABC and its image on the grid. What transformation is $(x, y) \rightarrow (x + 12, y - 2)$?

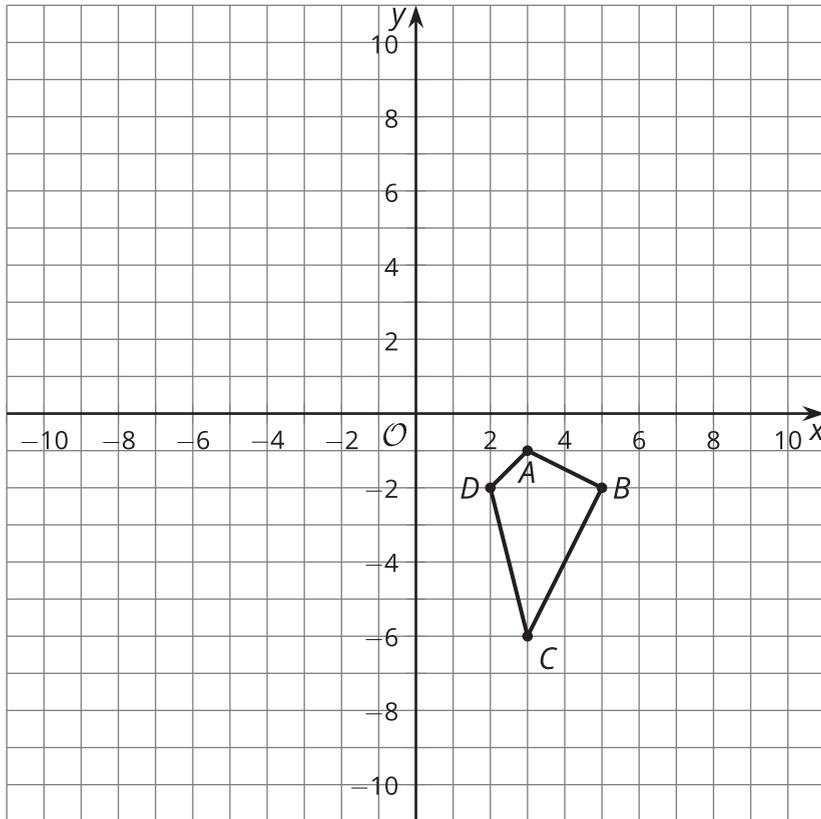
3. For each point (x, y) in the table, find $(2x, 2y)$.

(x, y)	$(2x, 2y)$
$(-1, -3)$	
$(-1, 1)$	
$(5, 1)$	
$(5, -3)$	

4. Next, sketch the original figure (the (x, y) column) and image (the $(2x, 2y)$ column). What transformation is $(x, y) \rightarrow (2x, 2y)$?

3 What Does it Do?

Student Task Statement



1. Here are some transformation rules. Apply each rule to quadrilateral $ABCD$ and graph the resulting image. Then describe the transformation.
 - a. Label this transformation $Q: (x, y) \rightarrow (2x, y)$
 - b. Label this transformation $R: (x, y) \rightarrow (x, -y)$
 - c. Label this transformation $S: (x, y) \rightarrow (y, -x)$