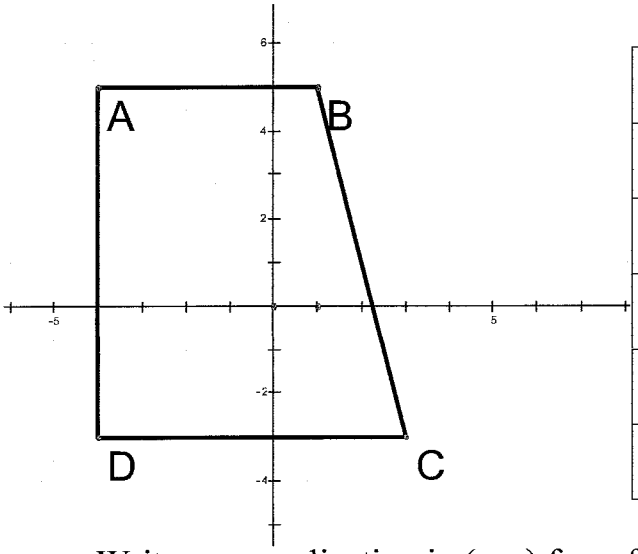
Student Activity: Translations

1. Translate the given figure 3 units to the right.

   a. Complete the table to compare the coordinates of the points in the new image to the corresponding points in the original image.



Original image	New image
A (-4, 5)	A' (____, ____)
B (1, 5)	B' (____, ____)
C (3, -3)	C' (____, ____)
D (-4, -3)	D' (____, ____)
(x, y)	(____, ____)

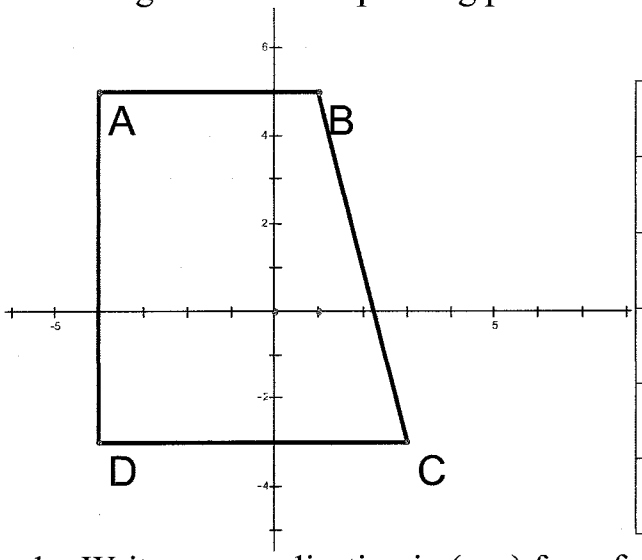
   a. Write a generalization in (x, y) form for points on the new image, compared to corresponding points on the original image.

   b. Explore the characteristics of the original image and new image. How do they compare?
      - Length corresponding of sides
      - Corresponding angle measurements
      - Perimeter
      - Area

   c. Write a generalization in (x, y) form if the transformation was a translation 4 units to the left.

2. Translate the given figure down 2 units.

   a. Complete the table to compare the coordinates of the points in the new image to the corresponding points in the original image.



Original image	New image
A (-4, 5)	A' (_____, _____)
B (1, 5)	B' (_____, _____)
C (3, -3)	C' (_____, _____)
D (-4, -3)	D' (_____, _____)
(x, y)	(_____, _____)

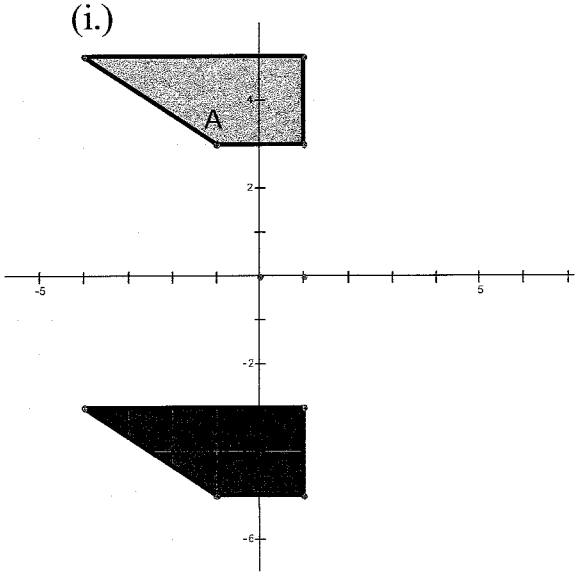
   b. Write a generalization in (x, y) form for points on the new image, compared to corresponding points on the original image.

   c. Explore the characteristics of the original image and new image. How do they compare?
   - Length of corresponding sides
   - Corresponding angle measurements
   - Perimeter
   - Area

   d. Write a generalization in (x, y) form if the transformation was a translation up 5 units.

3. For each set of figures:
   a. Describe the transformation from figure A to figure B,
   b. Record ordered pairs of corresponding points in the table, and
   c. Write a generalization in (x, y) form for points on figure B compared to figure A.

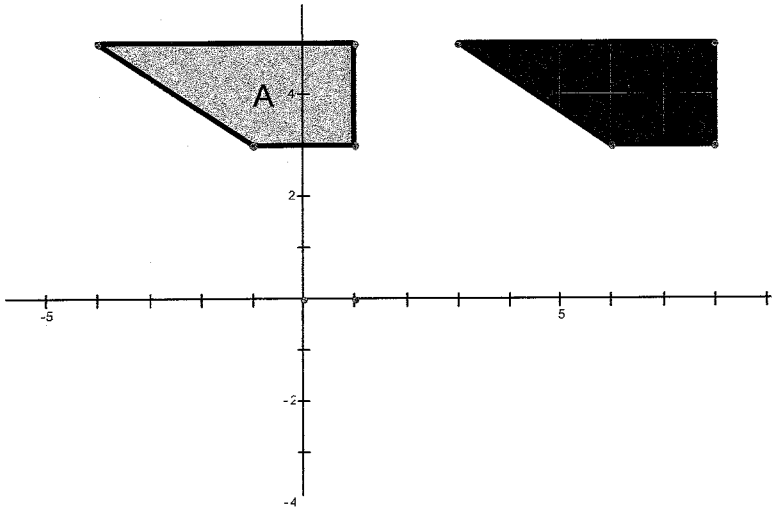
(i.)



Original image	New image
(____, ____)	(____, ____)
(____, ____)	(____, ____)
(____, ____)	(____, ____)
(____, ____)	(____, ____)
(x, y)	(____, ____)

Description of transformation: _____

(ii.)



Original image	New image
(____, ____)	(____, ____)
(____, ____)	(____, ____)
(____, ____)	(____, ____)
(____, ____)	(____, ____)
(x, y)	(____, ____)

Description of transformation: _____

b. Given the ordered pairs of points on the original image in lists 1 and 2, create the corresponding ordered pairs of the new image in lists 3 and 4 so that the new image will appear in Quadrant III.

List 1	List 2	List 3	List 4
3	5		
-1	7		
-4	-5		
0	-7		
2	-2		

- Create a scatter plot of the original image and new image.

c. Given the ordered pairs of points on the original image in lists 1 and 2, create the corresponding ordered pairs of the new image in lists 3 and 4 so that the new image will appear in Quadrant IV.

List 1	List 2	List 3	List 4
3	5		
-1	7		
-4	-5		
0	-7		
2	-2		

- Create a scatter plot of the original image and new image.

5. Describe the transformation from (x, y) given the following generalizations.

a. $(x+5, y)$

b. $(x, y + 5)$

c. $(x–3, y)$

d. $(x, y–3)$

e. $(x–3, y+5)$