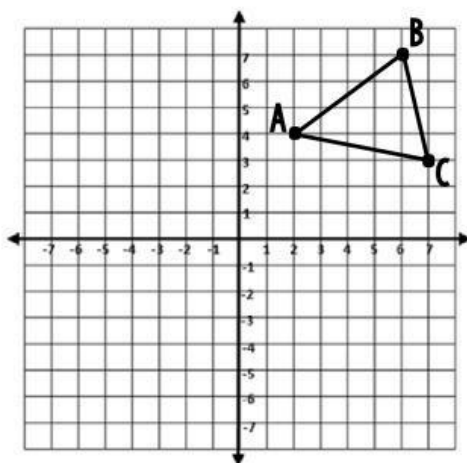


TRANSLATIONS ON THE COORDINATE PLANE

TRANSLATIONS

- A translation moves every point of a figure the same _____ and the same _____.
- A translation can move a figure _____ and/or _____.
- Translations are also thought of as _____.

1. Translate the figure 5 units left and 2 units down. Record the coordinates of the pre-image and image in the table.

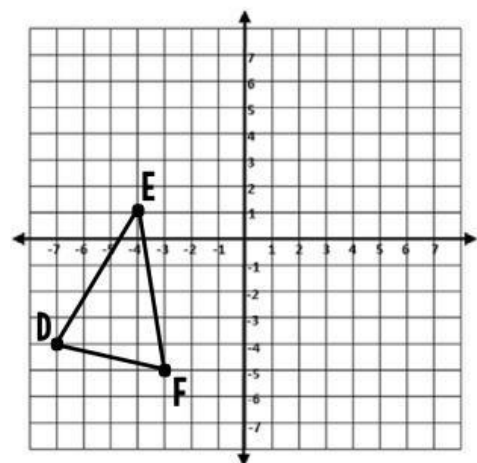


PRE-IMAGE	IMAGE

Look for any patterns and describe what happened to the x and y values in each ordered pair:

How can we represent this algebraically?

2. Translate the figure 4 units right and 3 units up. Record the coordinates of the pre-image and image in the table.

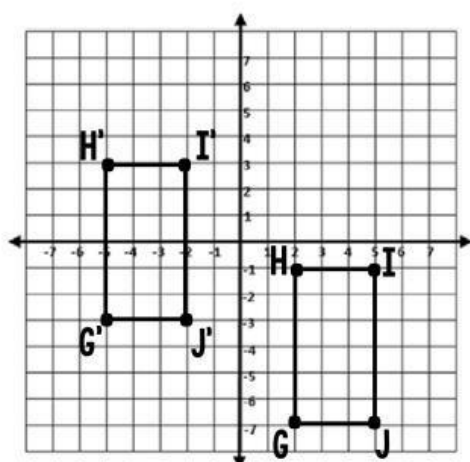


PRE-IMAGE	IMAGE

Look for any patterns and describe what happened to the x and y values in each ordered pair:

How can we represent this algebraically?

3. Record the coordinates of the pre-image and image in the table below.



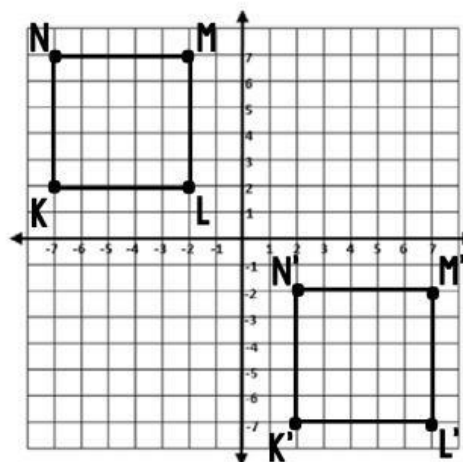
PRE-IMAGE	IMAGE

Verbal description of the translation:

Algebraic representation of the translation:

What do you notice about the line segments in the pre-image and image? Do they change size?

4. Record the coordinates of the pre-image and image in the table.



PRE-IMAGE	IMAGE

Verbal description of the translation:

Algebraic representation of the translation:

What do you notice about the angle measures in the pre-image and image? Do they change size?

5. Describe the translation:

$$M(12, 7) \rightarrow M'(-1, 14)$$

6. Describe the translation:

$$N(-6, -8) \rightarrow N'(-5, 2)$$

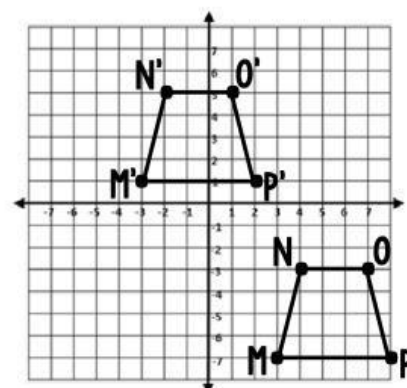
7. Describe the translation:

$$O(-3, 6) \rightarrow O'(-9, -1)$$

Summarize today's lesson:

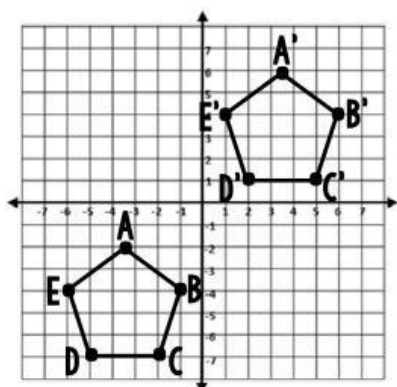
TRANSLATIONS ON THE COORDINATE PLANE

1. Describe, in words, how the figure at the right was translated.
(Include how many units and which direction.)



2. Represent the translation algebraically:

3. Use the translation below to label the following statements as true or false.



_____ a) The figure was translated from Quadrant I to III.

_____ b) The translation can be represented by $(x + 8, y + 7)$.

_____ c) The orientation of the figure did not change.

_____ d) The image and the pre-image are congruent.

_____ e) The figure was translated to the left and down.

4. Figure XYZ was translated as shown in the table of coordinates below.

PRE-IMAGE	IMAGE
X (-3, 9)	X' (6, 5)
Y (-6, 10)	Y' (3, 6)
Z (-1, 4)	Z' (8, 0)

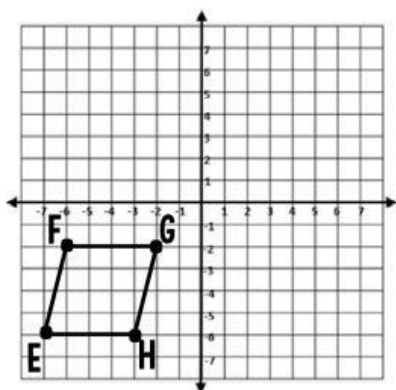
Give an algebraic representation for the translation.

5. The coordinates for triangle PQR are shown in the table below.

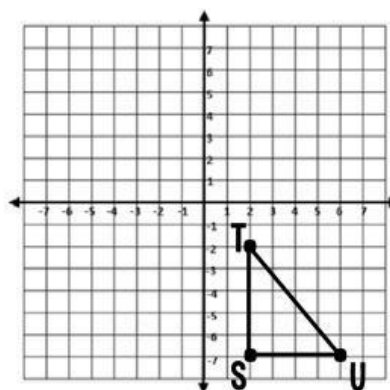
PRE-IMAGE	IMAGE
P (12, 3)	
Q (14, 6)	
R (8, 4)	

Find the coordinates of the image after a translation 7 units to the left and 6 units up. Record the coordinates in the table.

6. Translate the figure 4 units right and 5 units up. Be sure to label your vertices.



7. The figure below is going to be translated 7 units left and 9 units up. In which quadrant will the image lie?



The coordinates below represent points that were translated. Draw a line to connect the coordinates with the correct description and algebraic representation of the translation.

COORDINATES	DESCRIPTION	ALGEBRAIC REPRESENTATION
8. $T(-4, 7) \rightarrow T'(-11, 14)$	7 units right, 7 units up	$(x - 7, y + 7)$
9. $U(3, -9) \rightarrow U'(10, -16)$	7 units left, 7 units up	$(x + 7, y + 7)$
10. $V(-2, -10) \rightarrow V'(5, -3)$	7 units right, 7 units down	$(x + 7, y - 7)$