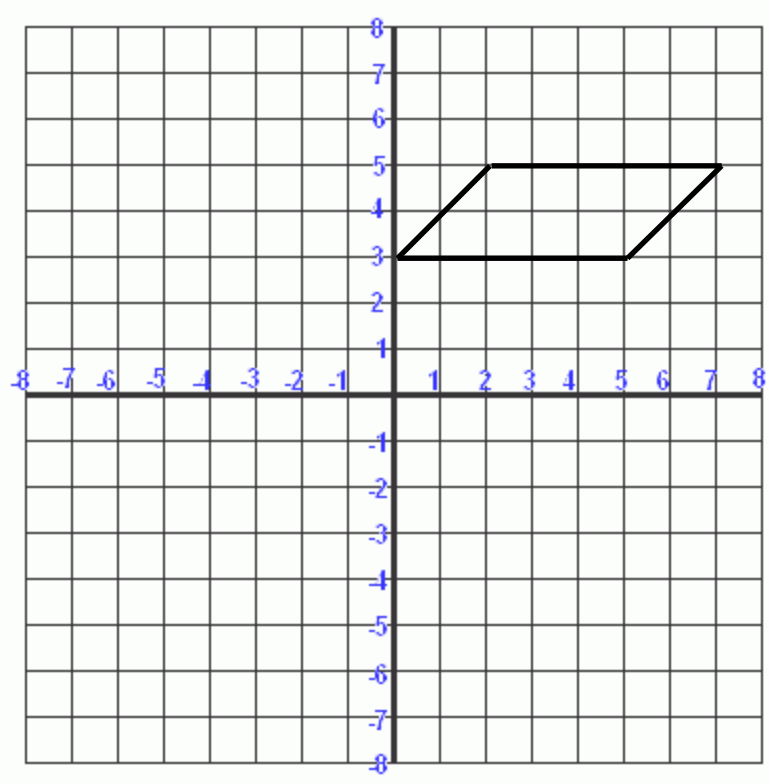
Transformations Task I – Translations

MGSE8.G.1-5

Name: _____

We will begin to explore different ways to move or transform figures across a coordinate plane. A ***transformation*** is a mapping or movement of all the points of a figure in a plane according to a common question.



1. What do you already know about the word ***translation***?

A. Slide the ***vertices*** of the parallelogram 6 units to the left. Draw your new parallelogram and label it Figure 1.

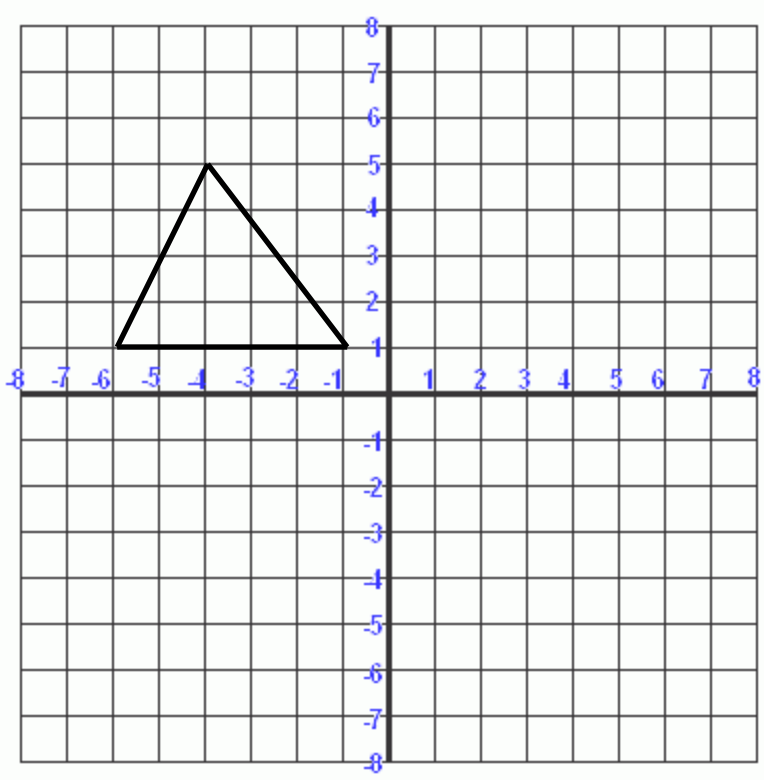
B. Use the original figure on the coordinate plane shown above, and slide the vertices of the parallelogram 5 units down. Draw the new parallelogram and label it Figure 2.

C. Use figure 1 on the coordinate plane shown above. Slide the vertices of the parallelogram 10 units down and 3 units right. Draw the new parallelogram and label it Figure 3.

2. Recall that geometric figures are considered ***congruent*** when they are the **same size** and the **same shape**.

A. When you translated the parallelogram in #1 each time did the size or the shape of the original parallelogram ever change? Explain your reasoning.

3. List the ordered pairs (x,y) for the vertices of ▲ABC.



A. ***Translate*** ▲ABC ***vertically*** -6 units. Draw the new triangle and label the vertices as A'B'C'. Be sure that the vertices correspond with the ***pre-image***. List (x,y) for the vertices of ▲A'B'C'.

B. Compare the ordered pairs between ▲ABC and ▲A'B'C'. Did the translation affect any or all of the ordered pairs? Explain.

C. ***Translate*** ▲ABC ***horizontally*** 6 units. Draw the new triangle and label the vertices as A''B''C''. Be sure that the vertices correspond with the ***pre-image***. List (x,y) for the vertices of A''B''C''.

D. Compare the ordered pairs between ▲ABC and ▲A''B''C''. Did the translation affect any or all of the ordered pairs? Explain.

E. ***Translate*** ▲ABC vertically -8 and horizontally -2 units. Draw the new triangle and label the vertices as A'''B'''C'''. Be sure that the vertices correspond with the ***pre-image***. List (x,y) for the vertices of A'''B'''C'''.

F. Compare the ordered pairs between ▲ABC and ▲A'''B'''C'''. Did the translation affect any or all of the ordered pairs? Explain.

G. Which values of the ordered pairs changed when the figure was shifted horizontally? Which values changed by a vertical shift?

H. If you translate ▲ABC 10 units vertically, what would be the new ordered pairs of the corresponding vertices? Explain or show how you found your new points.

I. If you translate ▲ABC 10 units horizontally, what would be the new ordered pairs of the corresponding vertices? Explain or show how you found your new points.

J. If you translate ▲ABC vertically 15 units and horizontally -8 units what would be the new ordered pairs of the corresponding vertices? Explain or show how you found your new points.

K. Even though the ordered pairs changed did the size or shape of the triangle change? Explain.

L. Write a translation for ▲ABC and ask your partner to find the new ordered pairs for each ***vertex***. Your translation may consist of more than one.