**ML #4 – Translations (Unit 8 – math 7 Plus)**

* **Transformations:**
* **Rigid transformations:**
* **Four types of Transformations:**

**TRANSLATIONS**

* When working with any **TRANSFORMATIONS** the original points create the **PRE-IMAGE**. You can name the points using letters.
* For example, A (4, 5) tells you that “point A is located at position 4, 5 on the graph.” Once the point is moved to its new position, it is called a “prime point” and named like this: A’ (read as “A prime.”)

The figure is now called the **“IMAGE.”**

* **TRANSLATIONS** involve moves that are either right-left, up-down, or a combination of these.

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**METHOD 1**

**Example 1:** Create a pre-image by graphing and labeling the following points:

 **A(-3, 2), B(-3, 6), C(-7, 2)**

Now take each point and move it 8 units

right and then label the new points as “primes”.

You have modeled a **TRANSLATION**.

Name the new prime coordinates below:

 A’(\_\_\_,\_\_\_), B’(\_\_\_,\_\_\_), C’(\_\_\_,\_\_\_)

Did the shape or size of the figure change? \_\_\_\_\_\_

Look at the new “x” numbers. What do you notice happened to the “x” part of each ordered pair? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Why do you think it was the x affected and not the y? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

What type of move do you think would affect the y? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Example 2:** Look at the graphed image below. Write in the coordinates for the pre-image and the image. Make sure that you label the coordinates that you list.

Pre-Image Coordinates Image Coordinates

**A**

**B**

**C**

**D**

**A’**

**B’**

**C’**

**D’**

a) How did you determine which was the

 pre-image and which was the image?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b) What happened to the “y” part of the coordinates?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

c) Why?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**If you are moving UP or DOWN, the \_\_\_\_\_ part of your ordered pair will change.**

**If you go up, you will \_\_\_\_\_\_\_\_\_\_\_ the number of units to the original “*y*.”**

**If you go down, you will \_\_\_\_\_\_\_\_\_\_\_\_ the number of units from the original “*y*.”**

**If you are moving RIGHT or LEFT, the \_\_\_\_\_ part of your ordered pair will change.**

**If you go right, you will \_\_\_\_\_\_\_\_\_\_\_\_\_ the number of units to the original “*x.”***

**If you go left, you will \_\_\_\_\_\_\_\_\_\_\_\_\_ the number of units to the original “*x.”***

**Example 3:** Graph and label the following points and then translate 3 units left and 2 units up. Label and list your new prime points.

 M(5, 8) M’(\_\_\_\_,\_\_\_\_)

 A(0, 6) A’(\_\_\_\_,\_\_\_\_)

 P(-3, -2) P’(\_\_\_\_,\_\_\_\_)

Now describe what happened to

each part of the ordered pairs:

(x \_\_\_\_\_\_\_, y\_\_\_\_\_\_\_\_)

**Example 4:** Describe the

translation that you see below.

2

1

**METHOD 2**

**Can you give the new prime points without creating the graphs for these two translations?**

 **Example 1:** Translate 2 units left and 4 units up. **Example 2:** Translate 5 units right and 3 units down.

A (5, -2) (5\_\_\_\_\_, -2\_\_\_\_\_\_) A’(\_\_\_\_,\_\_\_\_\_)

M(2, 6) (2\_\_\_\_\_, 6\_\_\_\_\_\_\_) M’(\_\_\_\_,\_\_\_\_)

B (0, -3) (0\_\_\_\_\_,-3\_\_\_\_\_\_\_) B’(\_\_\_\_,\_\_\_\_)

C (3, 5) (3\_\_\_\_\_, 5\_\_\_\_\_\_) C’(\_\_\_\_,\_\_\_\_\_)

W(-2, 5) (-2\_\_\_\_\_, 5\_\_\_\_\_\_\_) W’(\_\_\_\_,\_\_\_\_)

T (1, -7) (1\_\_\_\_\_,-7\_\_\_\_\_\_\_) T’(\_\_\_\_,\_\_\_\_)

* **Translations:**
* **Two Methods for Translations:**