**Geometry
Notes 12.2 Translations**

**Definitions:**

1.) **translation**-is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that maps all points of a figure the same distance in the same direction. It changes the position of the figure with no effect on shape or size.

2.) **vector**- an ordered pair that is in angle brackets. We use vectors to describe \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The first coordinate tells you how far \_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_ to move. The second coordinate tells how far \_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_ to move the figure.

 3.) **composition**- is a transformation that is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of two or more transformations.

**Examples of translations:
Example #1:**
If point Q has coordinates (-2,3), what is the image of Q under each translation?
A.) <-5,1> B.) <0, -2> C.) <3,-3>

**Example #2:**
Given the coordinates are P(3,1), Q(-1,0), W(-2,3) and U(-4,3) Find the vector that describes the translation:

A.) P$\rightarrow $Q B.) W$\rightarrow $U C.) P$\rightarrow $U

**![[image]]()Example #3:**

A(6,5), B(1,1), C(8,3)

We will translate ΔABC by the vector <-2, -3>. This means we will move each point left 2 and down 3. We will label the new triangle to be ΔA’B’C’. Where the image of <A is <A’, the image of <B is <B’ and the image of <C is <C’.
Fill in the coordinates of A’, B’ and C’ below:

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

**C**

**B**

**A**

|  |
| --- |
| Fill in the congruences below: |
| $$\overbar{AB} ≅\overbar{ }$$ |
| $$\overbar{AC} ≅\overbar{ }$$ |
| $$\overbar{BC} ≅\overbar{ }$$ |

**![[image]]()**

**Example #4:**

Write a rule to describe the translation.

**Z**

**Y’**

**Y**

**Z’**

**X’**

**X**

**Example #5:**
Find a single translation that has the same effect as each composition.
A.) <2,3> followed by <1.8,-3> B.) <1,2> followed by <-3,5>