Reflecting a Point Over a Function

1. On a piece of graph paper, plot the function $y = x$ using a pencil and a ruler. (If you don't recall how to do this, create a table of X and Y values for $-3 \leq x \leq 3$. Plot the points on a coordinate plane and draw the graph).
2. Plot the following points on your coordinate plane and connect them to form a triangle: A(7,3) B(11,4) C(9,6).
3. Now reflect ΔABC across the function $y = x$ applying the theorem you learned about the distance of a pre-image and image from the line of reflection (look at your notes). Label the new points A' B' C' and connect them to form a triangle.
4. Find the coordinates of A' B' C'.
5. Now plot the following points on your coordinate plane and connect them to form a triangle: D(3, -2) E(7, -1) F(5, -6).
6. Now reflect ΔDEF over the function y=x the same way you reflected ABC. Label the new points D' E' F' and connect them to form a triangle.
7. Find the coordinates of triangle D' E' F'.
8. In the case of both triangles, what did you notice about the coordinates of the original triangles (the pre-images) and the reflected images? What happened to the X and Y values? _____.
9. **Theorem: When reflecting a point over the function $y = x$, the X and Y values _____.** *(Put this down in your notes!)*

1. Turn your graph paper over and plot the function $y = -x$. (If you don't recall how to do this, create a table of X and Y values for $-3 \leq x \leq 3$. Plot the points on a coordinate plane and draw the graph).
2. Plot the same 3 points on your coordinate plane A(7,3) B(11,4) C(9,6) and connect the points to form a triangle. Label and state the coordinates on your graph paper.

3. Now reflect triangle ABC with its coordinates over the new function $y = -x$ being careful to label and state the coordinates of the new triangle A' B'C'.
4. What did you notice about the coordinates of the original triangle (the pre-image) and the reflected image? What happened to the X and Y values? _____.
5. **Theorem: When reflecting a point over the function $y = -x$,** **_____.** *(Put this down in your notes!)*