

Name: _____
Geometry

Date: _____ Period: _____

Reflections off the Coordinate Plane: Notes

Do Now:

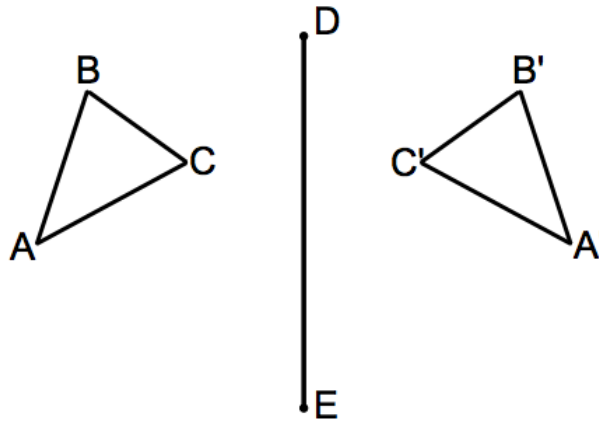
You will need a compass and straightedge.

1.) As shown in the diagram below, $\triangle ABC$, is reflected across DE and maps onto $\triangle A'B'C'$.

(a) Use your straightedge to draw in segments AA' , BB' , and CC' .

(b) Use your compass to measure the distances from the pre-image point to DE and from the image to point DE . What do you notice about these distances?

(c) What is the relationship between segment DE and each of the segments that were drawn in part (a)?

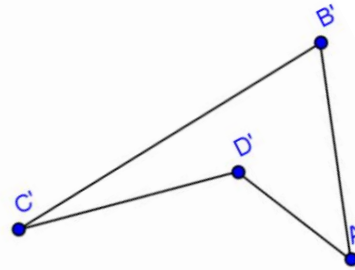
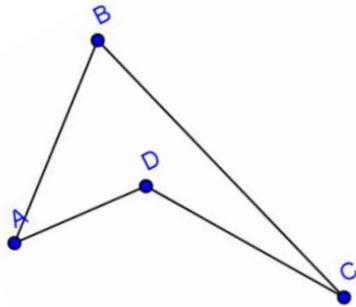


Line of Reflection:

Any line of reflection is the _____ of the segments connecting the pre-image to the image of the point. Therefore, we can use our knowledge of constructions to construct the line of reflection of any two figures.

Examples:

1.) Connect point C to point C'. Construct the perpendicular bisector of this segment. What is the name of this line?

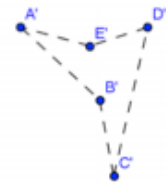
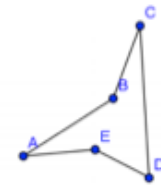


Construct the line of reflection for each image and its pre-image.

2.)

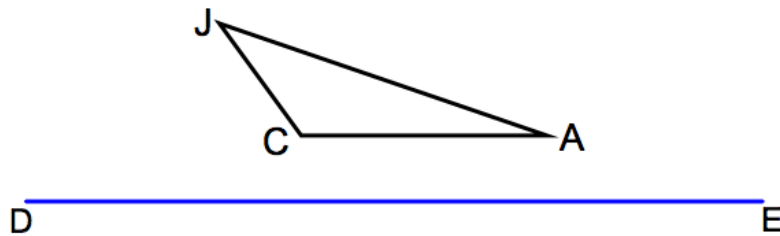


3.)

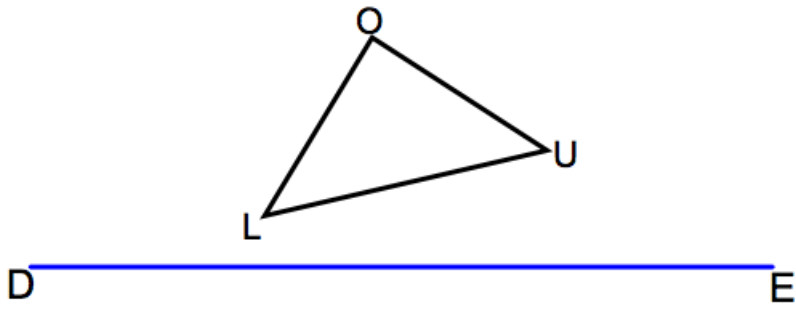


Using our knowledge of perpendicular bisectors, we are going to reflect an object over a given line. How can we do this?

4.) Reflect $\triangle JAC$ over DE .



5.) Reflect $\triangle LOU$ over DE .



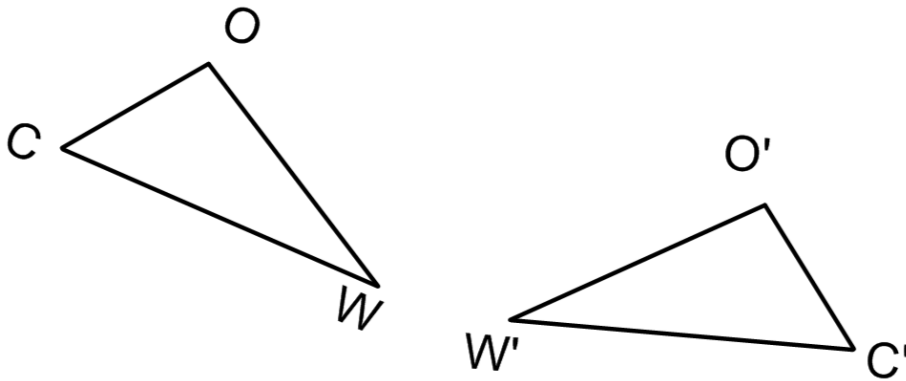
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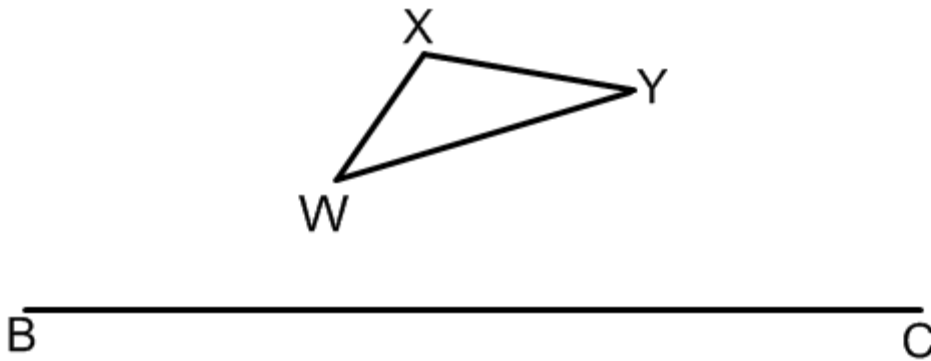
Reflections off the Coordinate Plane: Homework

Complete all of the questions below. Show all work, including construction marks. You will need to use your compass and straightedge.

1.) Construct the line of reflection for the image below. How did you arrive at your answer?



2.) Reflect $\triangle WXY$ over line segment \overline{BC} .



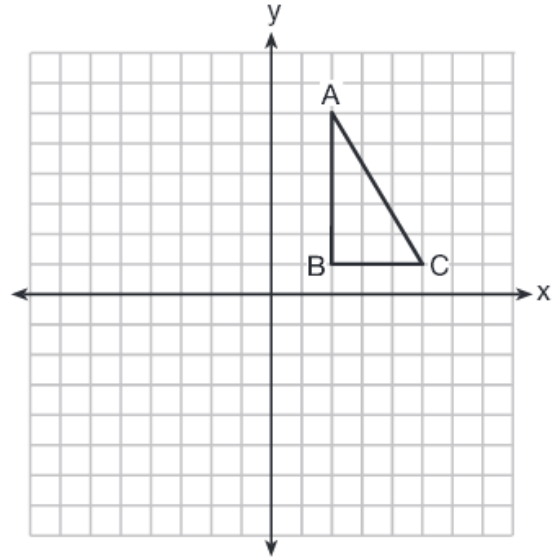
3.) Right triangle ABC is shown in the graph below. After a reflection over the y-axis, the image of $\triangle ABC$ is $\triangle A'B'C'$. Which statement is **not** true?

(1) $BC = B'C'$

(2) $AB = A'B'$

(3) $\overline{A'B'} \perp \overline{B'C'}$

(4) $\overline{AC} \parallel \overline{A'C'}$



Review Questions:

4.) What is the slope of a line perpendicular to the line whose equation is $3x - 7y + 14 = 0$?

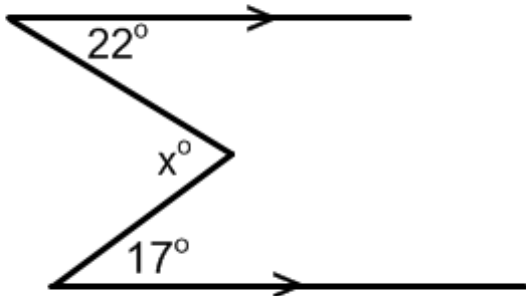
(1) $\frac{3}{7}$

(2) $-\frac{7}{3}$

(3) 3

(4) $-\frac{1}{3}$

5.) Using the diagram below, find the value of x . Explain how you arrived at your answer.



6.) In $\triangle FGH$, $m\angle F = m\angle H$, $GF = x + 40$, $HF = 3x - 20$, and $GH = 2x + 20$. The length of \overline{GH} is

(1) 20

(2) 40

(3) 60

(4) 80