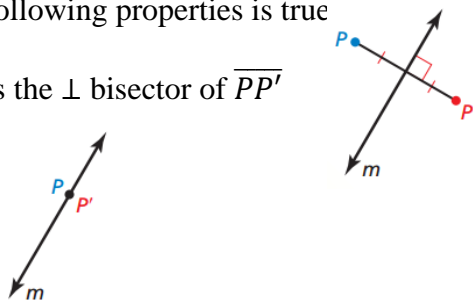


Reflecting in Horizontal and Vertical Lines

REMEMBER: A reflection in a line m maps every point P in the plane to a point P' , so that for each point one of the following properties is true

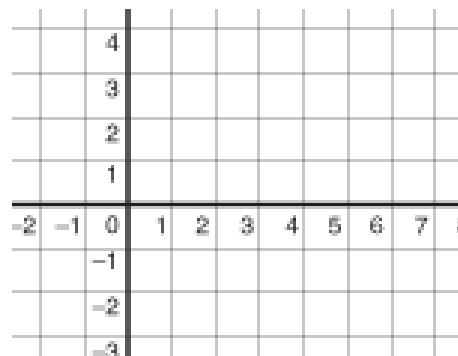
1. If P is NOT on line m , then m is the \perp bisector of $\overline{PP'}$
OR

2. If p is ON line m , then $P = P'$

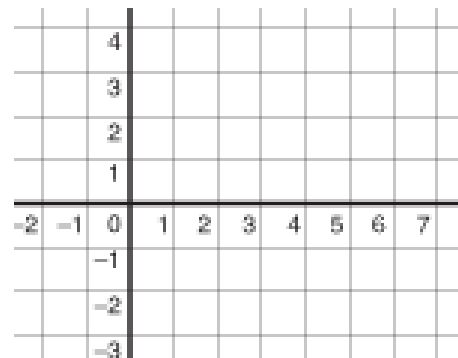


Examples:

1. Reflect $\triangle ABC$ in the line given below, using the properties of reflections in the box above.
 - a. Count how many units each point is away from the line of reflection.
 - b. Count that same amount of units on the *other side* of the line of reflection, then plot the image point



2. Reflect $\triangle ABC$ in the line given below, using the properties of reflections in the box above.
 - a. Count how many units each point is away from the line of reflection.
 - b. Count that same amount of units on the *other side* of the line of reflection, then plot the image point



3. Graph $\triangle ABC$ with vertices $A(1, 3)$, $B(5, 2)$, and $C(2, 1)$ and its image after the reflection in the line $x = -1$
 - a. Count how many units each point is away from the line of reflection.
 - b. Count that same amount of units on the *other side* of the line of reflection, then plot the image point



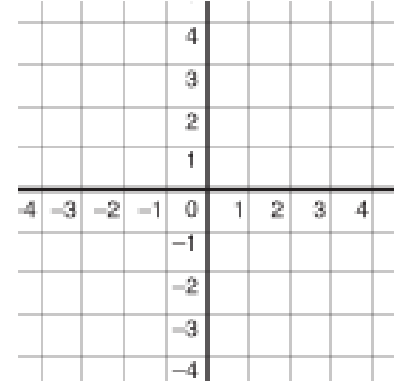
Reflecting Across the lines $y = x$ and $y = -x$

Example 1: Graph \overline{FG} with endpoints F(-1, 2) and G(1, 2) and its image after a reflection in the line $y = x$.

Where are F' and G' located? F' (_____ , _____) and G' (_____ , _____)

What similarities/differences do you see between the *x-coordinates* of F and G vs. F' and G'?

What similarities/differences do you see between the *y-coordinates* of F and G vs. F' and G'?

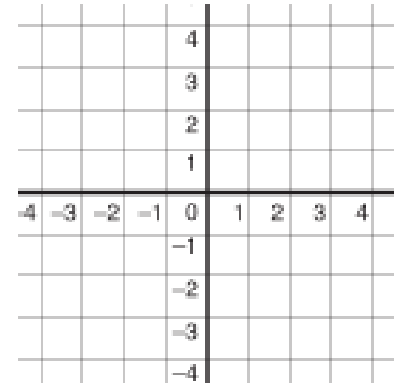


Example 2: Graph \overline{FG} with endpoints F(-1, 2) and G(1, 2) and its image after a reflection in the line ($y = -x$).

Where are F' and G' located? F' (_____ , _____) and G' (_____ , _____)

What similarities/differences do you see between the *x-coordinates* of F and G vs. F' and G'?

What similarities/differences do you see between the *y-coordinates* of F and G vs. F' and G'?



From these observations, we can make the following rules:

If (x, y) is reflected in the line $y = x$, then its image is the point (_____ , _____)

If (x, y) is reflected in the line $y = -x$, then its image is the point (_____ , _____)

Example 3: Graph ΔJKL with vertices at J(1, 3), K(4, 4) and L(3, 1) and its image after a reflection in the line $y = -x$

