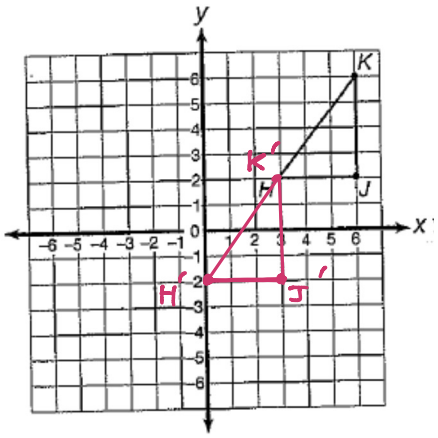
20) Write the coordinates for the vertices of $\Delta H'J'K'$ after ΔHJK has been **translated three units to the left and four units down**?



H'(0 , -2)

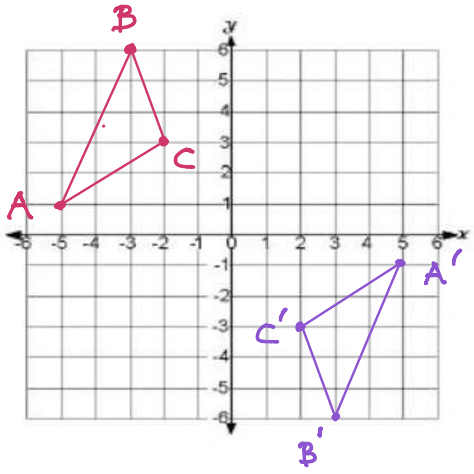
J'(3 , -2)

K'(3 , 2)

Rule: (x, y) → (x-3, y-4)

21) ΔABC is given with coordinates **A(-5, 1), B(-3, 6), and C(-2, 3).**

Draw an image **rotated 180° about the origin**. Label this image ΔA'B'C'. Write the coordinates of ΔA'B'C'.



A' (5 , -1)

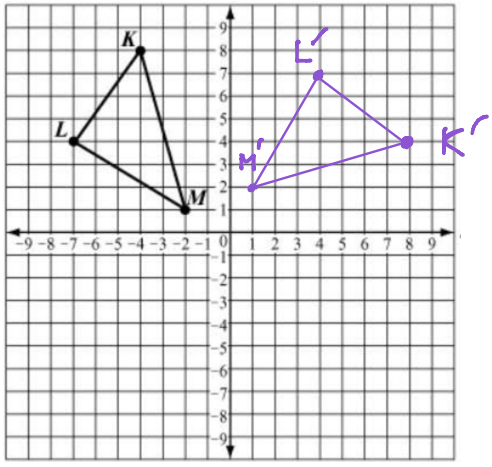
B' (3 , -6)

C' (2 , -3)

Rule: (x, y) → (-x, -y)

22) ΔKLM is given with coordinate **K(-4, 8), L(-7, 4), and M(-2, 1).**

Draw an image **rotated 90° clockwise about the origin**. Label this image ΔK'L'M'. Write the coordinates of ΔK'L'M'.



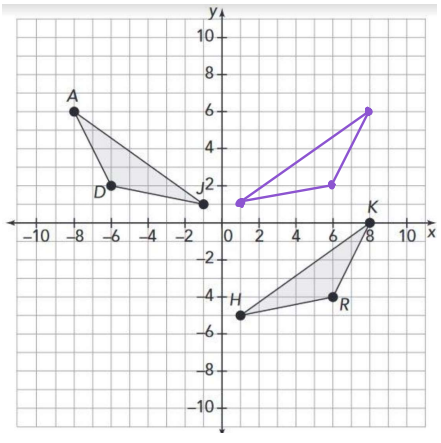
K' (8 , 4)

L' (4 , 7)

M' (1 , 2)

Rule: (x, y) → (y, -x)

23) Two congruent figures are shown in the coordinate plane below. What are the two transformations used to map ΔADJ to ΔKRH. **Please be specific and describe the rule.**



1 Reflect over y-axis

2 Translate down 6

24) What type of transformation was performed given the following coordinates: How do you know?

a.)

Triangle *HKL*		Triangle *H'K'L'*	
H	(5, -3)	***H'***	(5,3)
K	(2, 3)	***K'***	(2,-3)
L	(0, -4)	***L'***	(0,4)

Type of transformation:

Reflection over x-axis

I know this because

The x-coordinates stay the same. The y-coordinate become the opposite

Rule: $(x,y) \rightarrow (x,-y)$

b.)

Triangle *HKL*		Triangle *H'K'L'*	
H	(5, -3)	***H'***	(7,-4)
K	(2, 3)	***K'***	(4,2)
L	(0, -4)	***L'***	(2,-5)

Type of transformation:

Translate right 2, down 1

I know this because

The x-coordinates increase by 2. The y-coordinates decrease by 1

Rule: $(x,y) \rightarrow (x+2, y-1)$