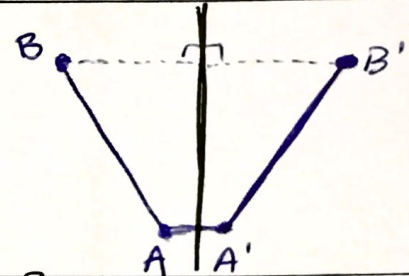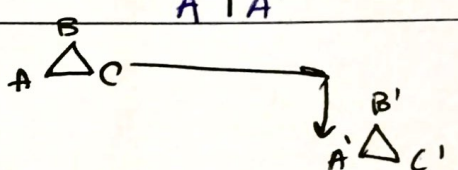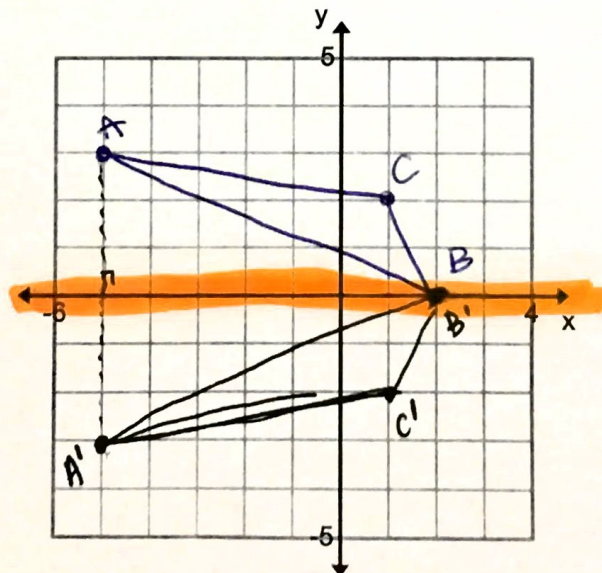| Vocabulary	Picture
Pre-Image: the figure you start with. A	
Image: the figure after a transformation. A' "A prime"	
Reflection: a <u>mirror</u> image. FLIP! B **Line of Reflection:** ↙ the line that the figure is reflected in, about across...	
Translation: shift, slide	

Ex. 1: Graph each figure and its image under the given reflection then state the new vertices.

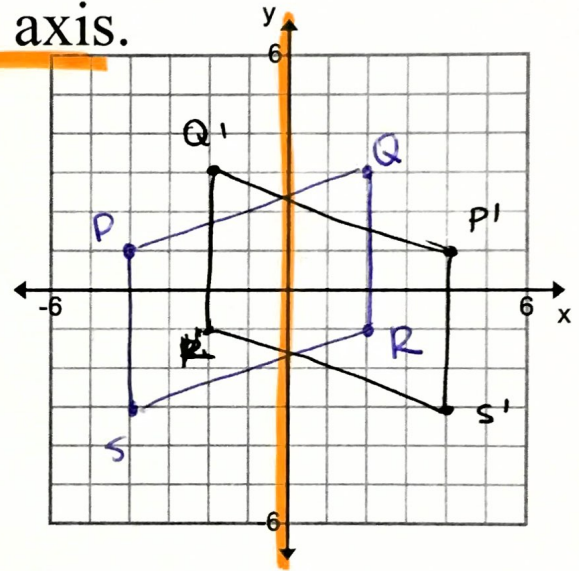$\triangle ABC$ with vertices $A(-5, 3)$, $B(2, 0)$, $C(1, 2)$ in the x-axis.

A'(-5, -3)

B'(2, 0)

C'(1, -2)

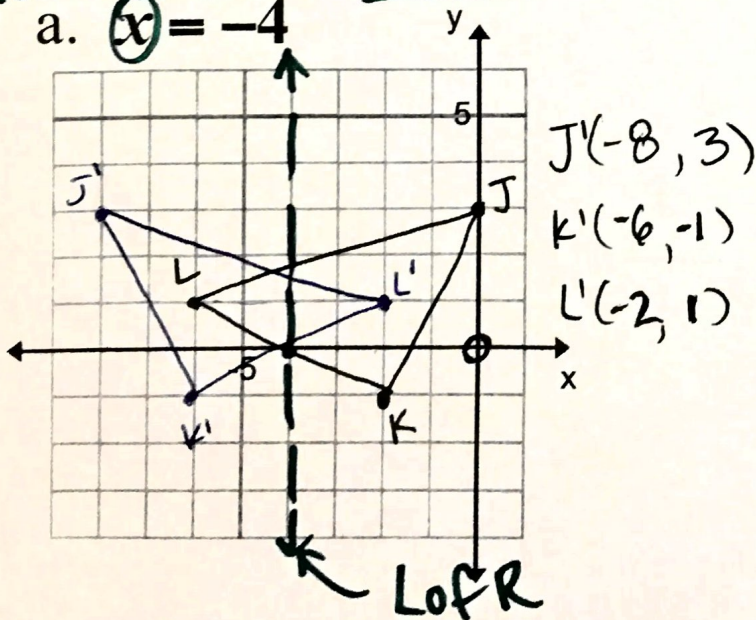Ex. 2: Graph each figure and its image under the given reflection then state the new vertices.

PQRS with vertices **P(–4,1)**, **Q(2,3)**, **R(2,–1)**, and **S(–4,–3)** across the y- axis.

P'(4, 1)

Q'(-2, 3)

R'(-2, -1)

S'(4, -3)

Ex. 3: △**JKL** has vertices **J(0, 3)**, **K(–2, –1)**, and **L(–6, 1)**. Graph △**JKL** and its image in the given line and state the new vertices.

crosses x axis   vertical
a. x = –4

crosses y axis   Horizontal
b. y = 2

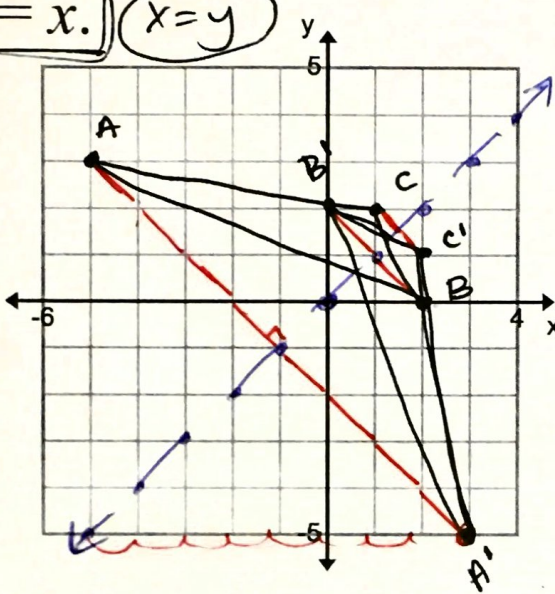J'(-8, 3)

k'(-6, -1)

L'(-2, 1)

L of R

Ex. 4: Graph each figure and its image under the given reflection then state the new vertices.

a. $\triangle ABC$ with vertices $A(-5, 3)$, $B(2, 0)$, $C(1, 2)$ about the line $y = x.$ $\boxed{x=y}$

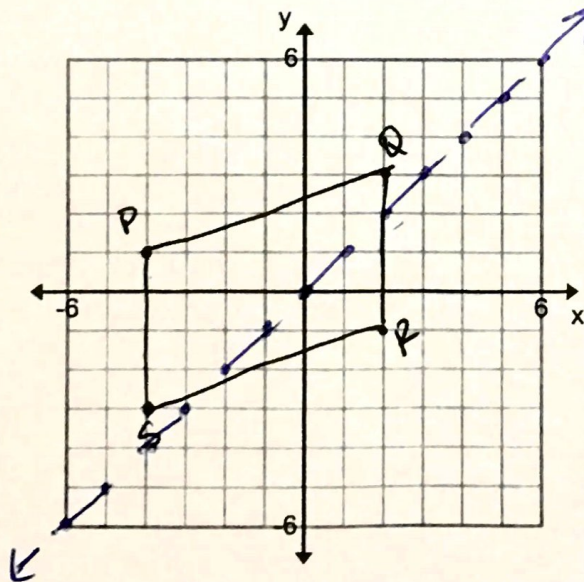$y = 1 \cdot x + 0$

$\dfrac{1}{1} \qquad -\dfrac{1}{1}$

$A'(3, -5)$

$B'(0, 2)$

$C'(2, 1)$

b. **PQRS** with vertices $P(-4,1)$, $Q(2,3)$, $R(2,-1)$, and $S(-4,-3)$ over the line $y = x$.

Ex. 5: Describe the translation using coordinate notation.
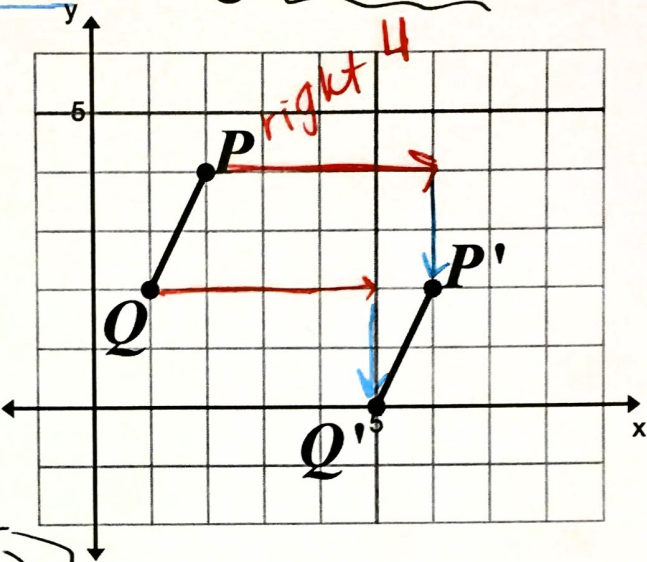
In words: right 4 & Down 2

$P(2,4)$ $P'(6,2)$
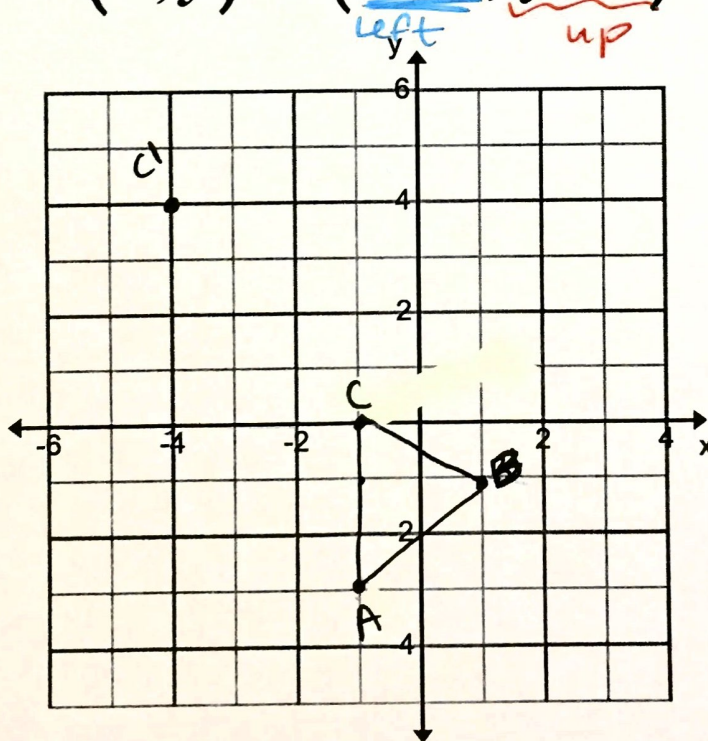
$Q(1,2)$ $Q'(5,0)$

Rules   Rules

$(x,y) \rightarrow (x+4, y-2)$

Ex. 6: A triangle with vertices $A(-1,-3)$, $B(1,-1)$, $C(-1,0)$. is shown. Sketch the image of the triangle after the translation $(x,y) \rightarrow (x-3, y+4)$.

left   up

$C'(-1-3, 0+4)$

$C'(-4, 4)$

Ex. 7: Consider the translation that is defined by the
coordinate notation $(x, y) \rightarrow (x - 5, y + 8)$

$$\boxed{\begin{array}{l} x' = x - 5 \\ y' = y + 8 \end{array}}$$

a. What is the image of $X(4, 2)$? $X'(-1, 10)$

b. What is the pre-image of $Y^0(-3, -4)$?

$$\begin{array}{cc} -3 = x - 5 \\ +5 \qquad +5 \\ \hline 2 = x \end{array}$$

$Y(2, -12)$

c. What is the image of $Z(0, 2)$?

$$\begin{array}{cc} -4 = y + 8 \\ -8 \qquad -8 \\ \hline -12 = y \end{array}$$

$Z'(\quad , \quad)$