8th Grade

Notes 8-1

Int 2 **Transformations & Reflections** **Unit 8**

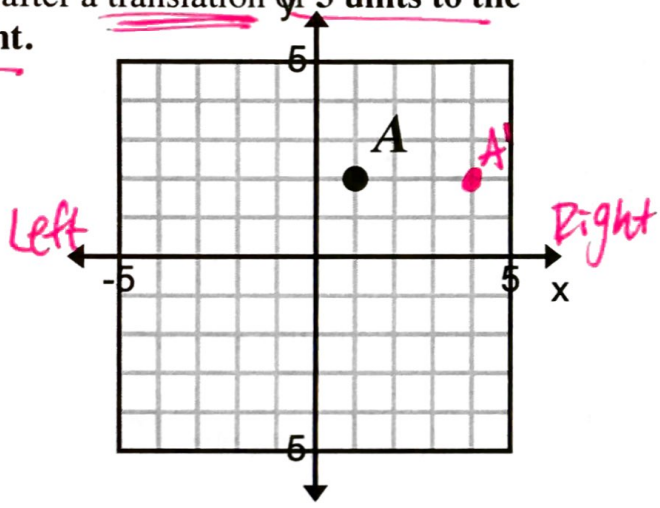
Vocabulary

Pre-Image: the starting point or shape. • A

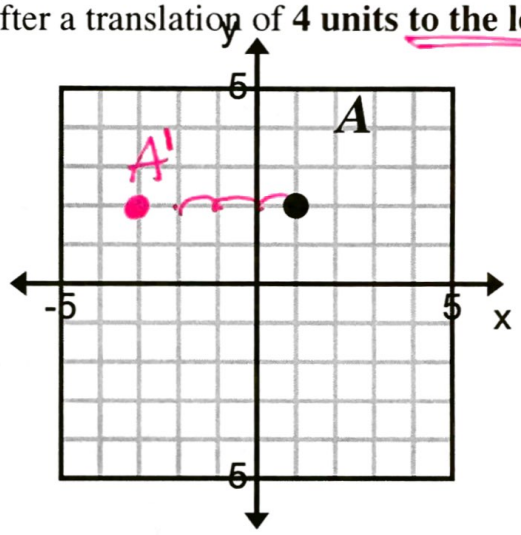
Image: the resulting point or shape. • A'

Translation: SLIDE a point or a shape

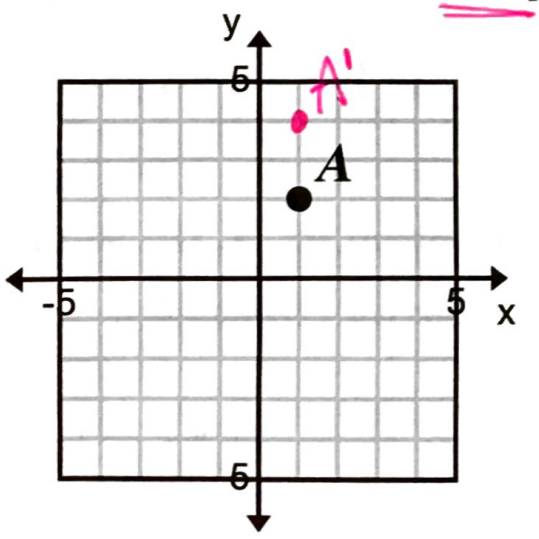
Ex. 1: Graph and label the image of point A after a translation of **3 units to the right.**



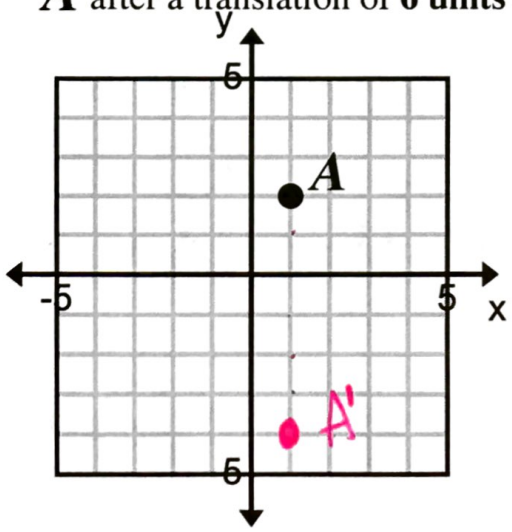
Ex. 2: Graph and label the image of point A after a translation of **4 units to the left.**



Ex. 3: Graph and label the image of point A after a translation of **2 units up.**



Ex. 4: Graph and label the image of point A after a translation of **6 units down.**



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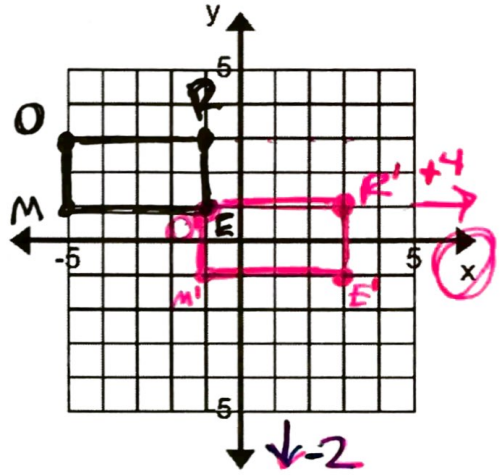
Ex. 5: Graph $OREM$ with vertices $O(-5,3)$, $R(-1,3)$, $E(-1,1)$, and $M(-5,1)$. Then graph and label the vertices of $O'R'E'M'$ after a translation of 4 units right and 2 units down.



$O(-5,3)$, $R(-1,3)$, $E(-1,1)$, and $M(-5,1)$

+4 -2 +4 -2 +4 -2 +4 -2

$O'(-1,1)$, $R'(3,1)$, $E'(3,-1)$, $M'(-1,-1)$

Translation Notation:

$$(x,y)\rightarrow(x+a,y+b)$$

$a =$ Right (+) or Left (-) $b =$ up (+) or Down (-)

Ex. 6: Translate the following ordered pairs 2 units left and 3 units down.

x-2 y-3

a. $(4,2)\rightarrow(2,-1)$ b. $(-6,5)\rightarrow(-8,2)$

c. Translation Notation: $(x,y)\rightarrow(x-2,y-3)$

Ex. 7: Translate the followign ordered pairs $(x-2,\ y+3)$

a. Will this translation move the pre-image left or right? Up or down?

b. $(2,-3)\rightarrow(0,0)$ (-2, +3) c. $(-1,-8)\rightarrow(-3,-5)$ (-2, +3)

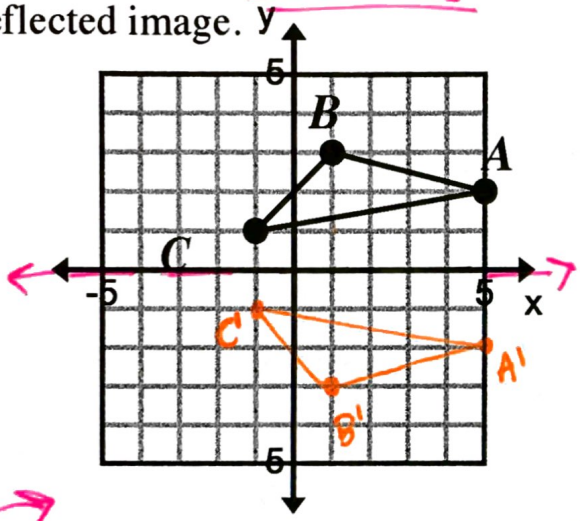
Ex. 8: ACE has vertices $A(0,3)$, $C(4,3)$, , and $E(-3,-1)$. Translate ACE $(x+4,\ y-3)$ and label the image's vertices.

a. Will this translation move the per-image left or right? Up or down?

b. $A'(4,0)$ $C'(8,0)$ $E'(1,-4)$

Vocabulary – Reflection: FLIPPING a figure across a given line

Ex. 9: ΔABC has vertices $A(5,2)$, $B(1,3)$, and $C(-1,1)$. Graph its reflected image over the x-axis. Then find the coordinates of the vertices of the reflected image.



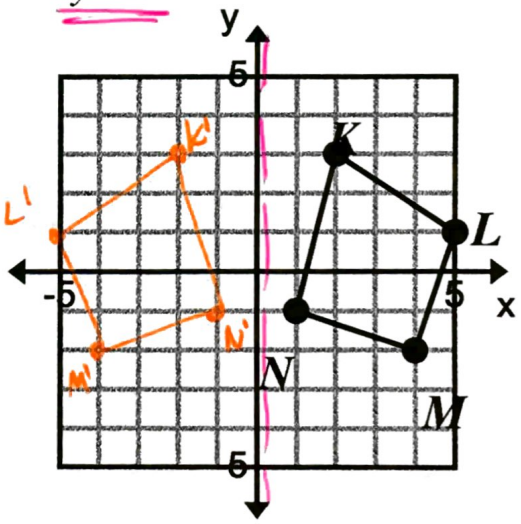
Pre-Image → Image

$A(5,2) \rightarrow A'(\ 5, -2\ )$

$B(1,3) \rightarrow B'(\ 1, -3\ )$

$C(-1,1) \rightarrow C'(\ -1, -1\ )$

Ex. 10: $KLMN$ has vertices $K(2,3)$, $L(5,1)$, $M(4,-2)$, and $N(1,-1)$. Graph the figure and its reflection over the y-axis. Then find the coordinates of the vertices of the reflected image.



$K(2,3)$ $K'(\ -2, 3\ )$

$L(5,1)$ $L'(\ -5, 1\ )$

$M(4,-2)$ $M'(\ -4, -2\ )$

$N(1,-1)$ $N'(\ -1, -1\ )$

Reflection Notation:

Reflect across the x-axis: $(x,y) \rightarrow (\ x, -y\ )$

x's stay, y's change

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Ex. 11: Reflect the following ordered pairs across the *y*-axis. y stays the same

a. $(2,5) \rightarrow (-2, 5)$

b. $(-3,7) \rightarrow (3, 7)$

c. $(6,-1) \rightarrow (-6, -1)$

d. $(-3,-9) \rightarrow (3, -9)$

Ex. 12: Reflect the following ordered paris across the *x*-axis. x stays same

a. $(3,4) \rightarrow (3, -4)$

b. $(-2,5) \rightarrow (-2, -5)$

c. $(-10,-14) \rightarrow (-10, 14)$

d. $(0,-7) \rightarrow (0, 7)$

Ex. 13: Which axis was each of the following points reflected across?

a. $A(4,-3) \rightarrow A'(4,3)$ x axis

b. $B(-2,1) \rightarrow B'(2,1)$ y axis

c. $C(0,3) \rightarrow C'(0,3)$ y-axis

d. $D(4,0) \rightarrow D'(-4,0)$ y-axis

Ex. 14: ΔBEC has vertices $B(5,1)$, $E(1,2)$, and $C(6,2)$. Graph and label the vertices of $\Delta B'E'C'$ and $\Delta B''E''C''$ after the pre-image is reflected over the *y*-axis and then over the *x*-axis.

	Over the y-axis	Over the x-axis
$B(5,1) \rightarrow$	$B'(-5, 1)$	$B''(-5, -1)$
$E(1,2) \rightarrow$	$E'(-1, 2)$	$E''(-1, -2)$
$C(6,2) \rightarrow$	$C'(-6, 2)$	$C''(-6, -2)$

Pre Image Image