Name _____ Date _____

Objective 6
TEKS 8.6.B Review

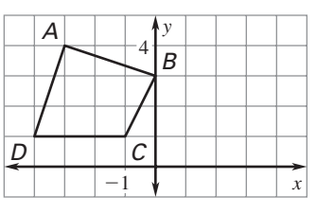
8.6.B Graph dilations, reflections, and translations on a coordinate plane.

You can use coordinate notation to describe the images of figures after dilations, reflections, and translations on a coordinate plane.

Transformation	Original → Image
Dilation	$(x, y) \rightarrow (kx, ky)$ k = scale factor
Reflection across the *x*-axis	$(x, y) \rightarrow (x, -y)$
Reflection across the *y*-axis	$(x, y) \rightarrow (-x, y)$
Translation	$(x, y) \rightarrow (x + a, y + b)$ a = number of units a point moves horizontally b = number of units a point moves vertically If a is positive, move right; if a is negative, move left. If b is positive, move up; if b is negative, move down.

EXAMPLE If quadrilateral $ABCD$ is translated 3 units right and 2 units down, what will be the coordinates of the vertices of the image $A'B'C'D'$?

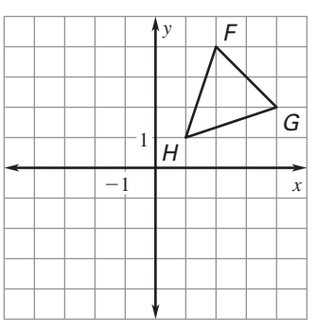
Original		Image
(x, y)	$\rightarrow$	$(x + 3, y - 2)$
$A(-3, 4)$	$\rightarrow$	$A'(0, 2)$
$B(0, 3)$	$\rightarrow$	$B'(3, 1)$
$C(-1, 1)$	$\rightarrow$	$C'(2, -1)$
$D(-4, 1)$	$\rightarrow$	$D'(-1, -1)$



The coordinates of the vertices of $A'B'C'D'$ are $A'(0, 2)$, $B'(3, 1)$, $C'(2, -1)$, and $D'(-1, -1)$.

YOU DO IT $\triangle FGH$ is shown on the coordinate plane below. If $\triangle FGH$ is reflected across the x-axis, what are the coordinates of the vertices for the image $F'G'H'$?

Original		Image
(x, y)	$\rightarrow$	**$(x, -y)$**
F **$(2, 4)$**	$\rightarrow$	F' **$(2, -4)$**
G **$(4, 2)$**	$\rightarrow$	G' **$(4, -2)$**
H **$(1, 1)$**	$\rightarrow$	H' **$(1, -1)$**



The coordinates of the vertices of $F'G'H'$ are F' **$(2, -4)$**, G' **$(4, -2)$**, and H' **$(1, -1)$**.