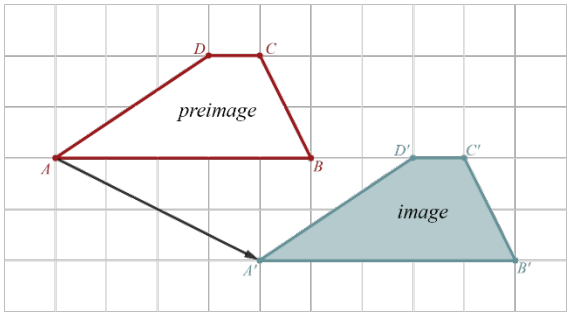
TRANSLATIONS: GUIDED NOTES

Vocabulary

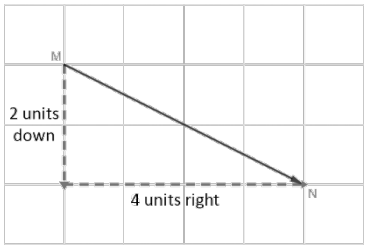
- _____: a function (rule) that changes the figure in some way.
- _____: a type of transformation where every point of a figure is moved the same distance in the same direction; the figure **slides** without rotating or flipping.
- _____: the original figure, before any transformation(s); the input.
- _____: the final figure; the result from applying the transformation(s); the output.
- _____: a transformation where the image is congruent to the preimage; a translation is an example of rigid motion.



Verbal Description
Translate the preimage 4 units right and 2 units down.
Algebraic Rule
$(x, y) \rightarrow (x+4, y-2)$

Mapping Notation	
$A \rightarrow A'$ ***Read:*** *Point A maps to point A prime.*	$Polygon\ ABCD \rightarrow Polygon\ A'B'C'D'$ ***Read:*** *Polygon A, B, C, D maps to polygon A prime, B prime, C prime, D prime.*

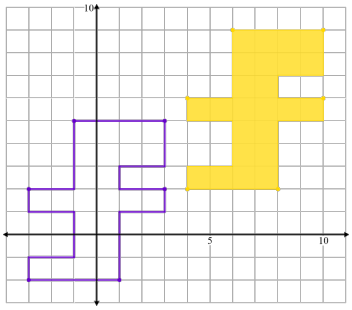
- _____: a path, with a starting and ending point that a figure follows; it has size (magnitude/distance) and direction.
    - **example:** $\overrightarrow{MN}$, read "vector MN," where M is the starting (initial) point and N is the ending (terminal) point.



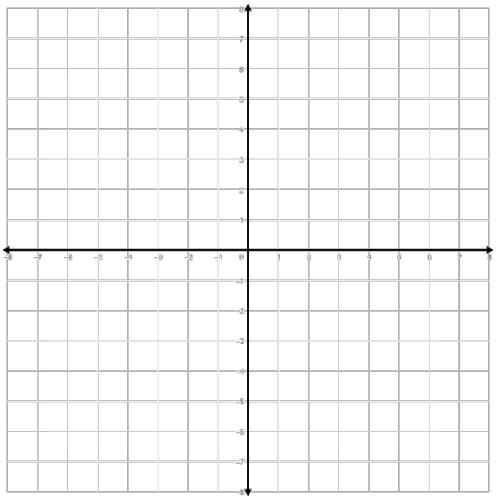
We can also represent $\overrightarrow{MN}$ in its component form: $\langle 4, -2 \rangle$, where 4 is the horizontal component, and -2 is the vertical component.

Example Problems

1) Complete the table below for the unshaded preimage and shaded image.

Graph	Verbal Description	Algebraic Rule	Vector Notation
			

2) *Polygon ABCDE* has the following vertices: $A(1,-4)$, $B(3,-5)$, $C(5,-3)$, $D(3,-3)$, and $E(1,1)$. Draw *Polygon ABCDE*; then translate *Polygon ABCDE* using the vector $\langle -5, 2 \rangle$. Label *Polygon ABCDE* and its image.



3) What if the preimage was not on the coordinate plane? How would we construct the image? Construct the image given the following preimage and vector.