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 |
|  |
| Mapping Notation |
| ***Read:*** *Point A maps to point A prime.* | ***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:** $\vec{MN}$, read “vector *MN*,” where *M* is the starting (initial) point and *N* is the ending (terminal) point.

|  |  |
| --- | --- |
|  | We can also represent $\vec{MN}$ in its component form: , 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)**  has the following vertices: , , , , and . Draw ; then translate  using the vector . Label  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.

