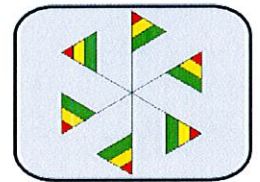
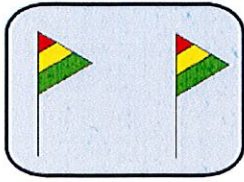


Geometry
Video Notes – Translations

Name: _____

Date: _____



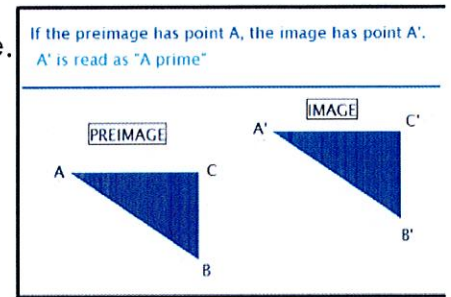
Transformation: The mapping, or movement, of all points of a figure in a plane according to a common operation, such as translation, reflection or rotation.

Pre-image: A figure before a transformation has taken place.

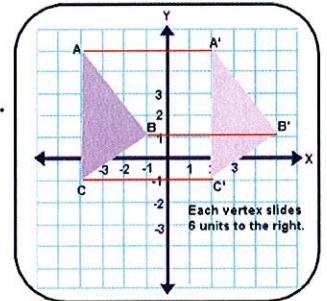
Image: The figure that results after a transformation.

Isometry: A transformation that preserves congruence.

↳ Same shape, same size



A translation is a transformation where all the points of a figure are moved the same distance in the same direction.

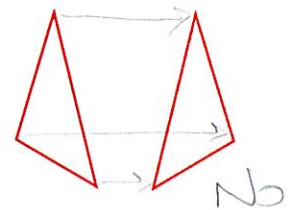
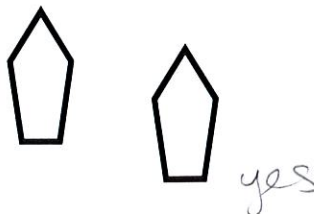
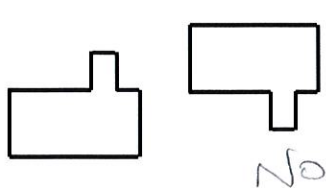


- The distance and direction are indicated by a ray called the translation vector.

- A vector is a quantity that has both length and direction, and can be thought of as a line with a starting point and an endpoint.

- A translation is an isometry so the image of a translated figure is congruent to the preimage.

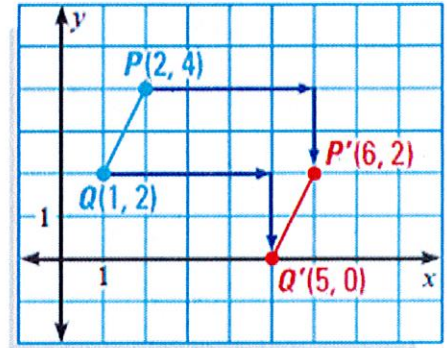
Tell whether each transformation appears to be a translation and explain.



Translations in the Coordinate Plane

Often the rule for the translation will be given as $(x, y) \rightarrow (x + a, y + b)$. This is a shift a units horizontally in the x -direction and b units vertically in the y -direction.

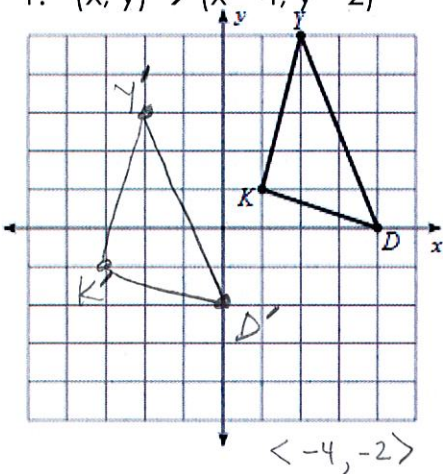
For example, in the coordinate plane to the right shows the translation $(x, y) \rightarrow (x + 4, y - 2)$ shifts each point 4 units to the right and 2 units down.



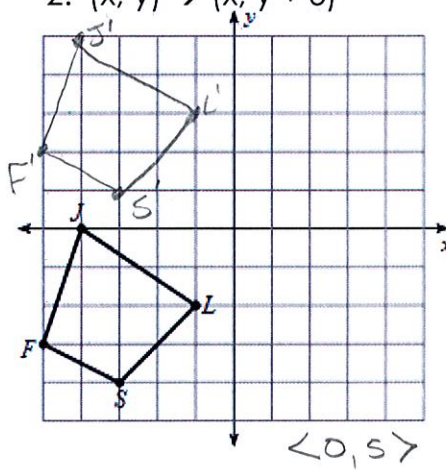
Drawing Translations in the Coordinate Plane

Translate the figure with the given vertices using the rule.

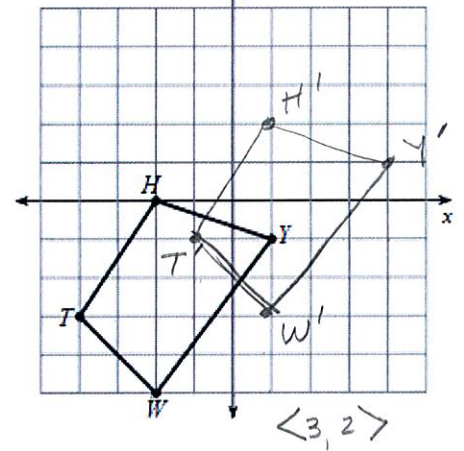
1. $(x, y) \rightarrow (x - 4, y - 2)$
 left 4 down 2



2. $(x, y) \rightarrow (x, y + 5)$
 up 5

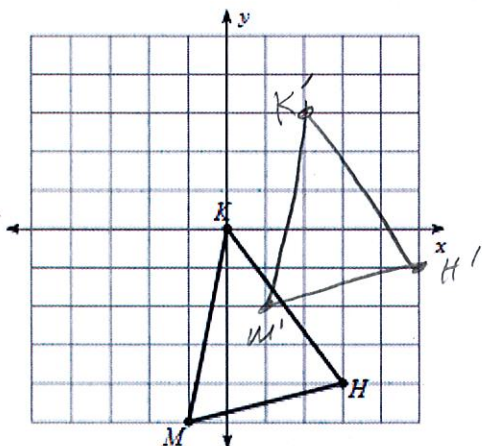


3. $(x, y) \rightarrow (x + 3, y + 2)$
 right up 2



What about this notation? These are called vectors!

8. $\langle 2, 3 \rangle$ $(x, y) \rightarrow (x + 2, y + 3)$



9. $\langle -4, 0 \rangle$ $(x, y) \rightarrow (x - 4, y)$

