

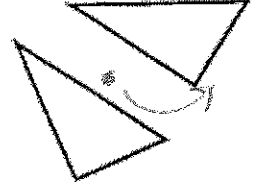
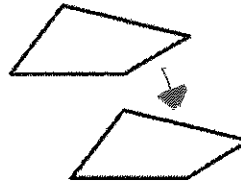
**Objectives:** Identify and draw translations.

**Translation:** a Shift/slide where all the points of a figure are moved the same distance in the same direction.

- Is a translation an Isometry? yes So, the preimage and the image are congruent.

**EX 1:** Identify each transformation below.

- a) translation      b) reflection      c) translation      d) rotation

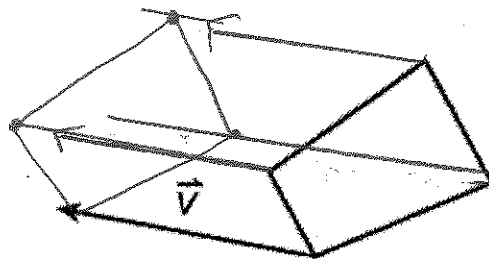


**Vector:** a quantity having magnitude and direction.  
symbol  $\vec{v}$  How do you know where to shift or slide picture?

- tells us which way to Shift/slide a figure
- written in the form  $\langle a, b \rangle$
- x is the horizontal change
- y is the vertical change
- is parallel to the translation

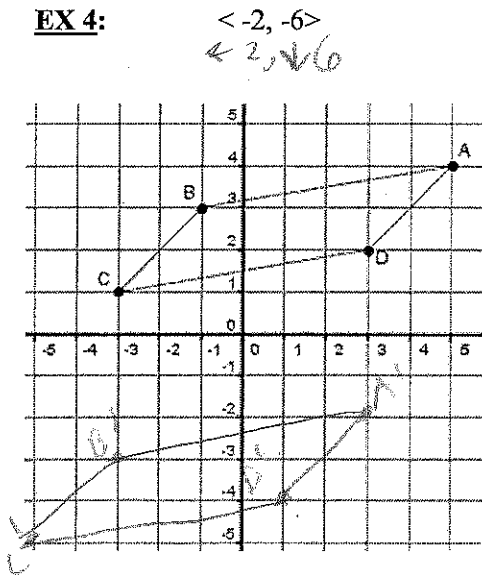
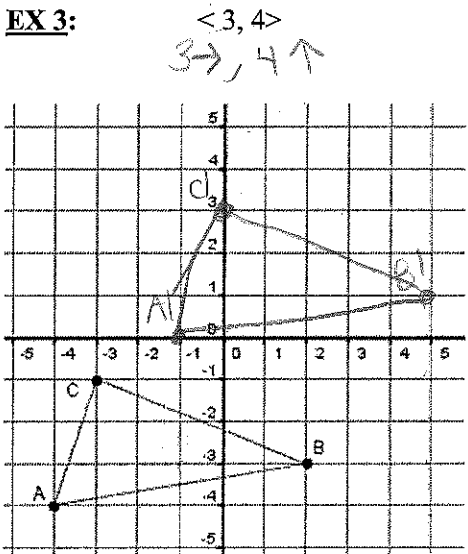
**Example:**  $\langle -4, 6 \rangle$   
 moves 4 spaces to the left  
 and 6 spaces up.

**EX 2:** Copy the quadrilateral by following the steps.



1. Draw a line parallel to the vector through each vertex.
2. Measure the vector, then mark the same distance on the parallel lines.
3. Connect the vertices to make the new image.

Translate the polygon according to the vector.



**EX 5:**  $\langle 3, 4 \rangle$   
 $+3 \rightarrow, +4 \uparrow$

$\Delta XYZ:$   
 $X(-3, 5)$   
 $Y(1, 7)$   
 $Z(3, -4)$

$\Delta X'Y'Z':$   
 $X'(0, 9)$   
 $Y'(4, 11)$   
 $Z'(6, 0)$