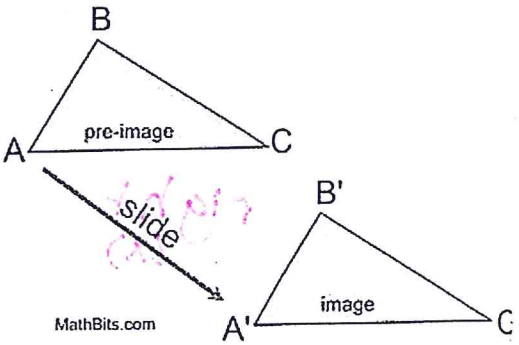
Translation Guided Notes

Definition: A translation moves or "slides" an object a fixed distance in a given direction without changing its shape or size, and without turning it or flipping it.

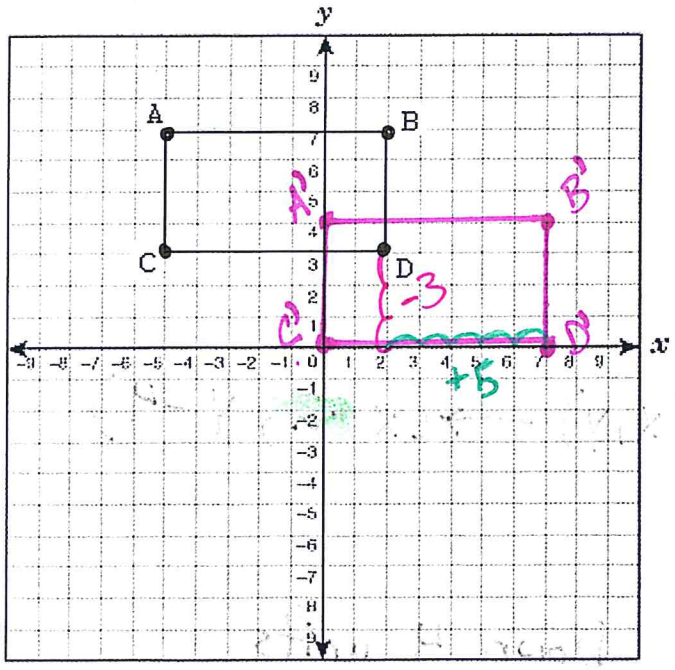
- In a Translation, the original object is called the pre-image, and the newly translated object is called the image.



- Translations may be described by their movements, such as 5 units to the right and 2 units down. "In words / English"

- An object and its translation have the same shape and size, and face in the same direction. Isometric

Example:



D: (2, 3)
x y

D': (2+5, 3-3) = (7, 0)

Translate this graph 3 units down and 5 units to the right.

Mathematical Rule?

$(x, y) \rightarrow (x+5, y-3)$

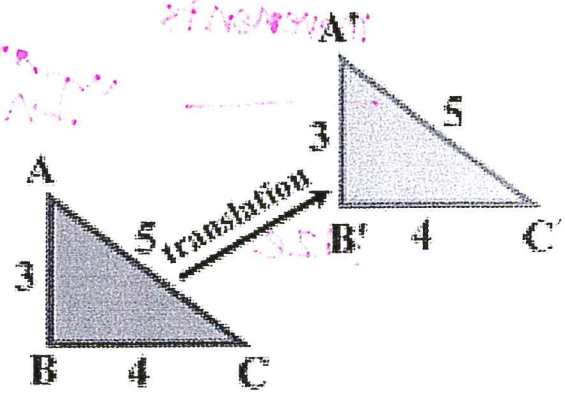
X	Y
Left: −	Up: +
Right: +	Down: −

Naming Corresponding Parts

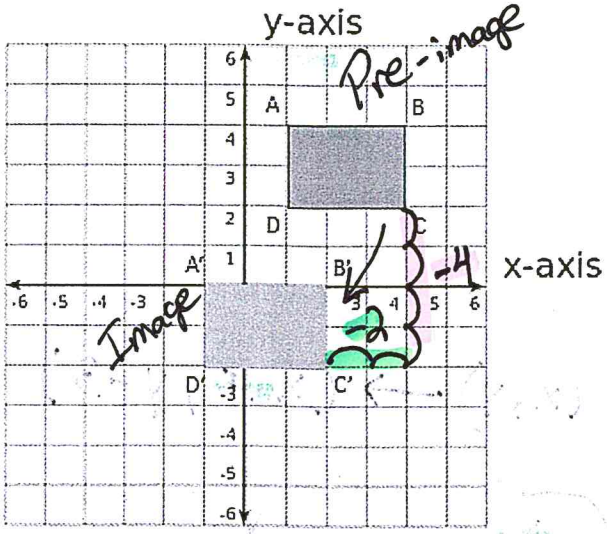
- The original figure is rectangle ABCD (the pre-image). The translated figure is rectangle A'B'C'D' (the image). We use the apostrophe to denote that those are the corresponding coordinates of the new figure. This is known as prime notation.

- Mapping translations are written as $(x, y) \rightarrow (x + 3, y - 8)$. This means that the x and y coordinates of the shape are moved 3 units right (x) and 8 units down (y).

- Translations are part of isometries because the two figures in translations are said to be geometrically congruent. Isometry means a linear transformation occurs in which length is preserved. Translations are known as direct isometry.



Direct Isometry



Write the rule both algebraically (mapping) and in English/words for the example to the left.

Mapping:

$(x, y) \rightarrow (x - 2, y - 4)$

English/Words:

Down 4 units

Left 2 units