

# \* Translations \*

★ Translations: a slide across the coordinate plan.

## 4 directions

Right:  $(x + \text{a number}, y)$   $\rangle$  change X

Left:  $(x - \text{a number}, y)$

Up:  $(x, y + \text{a number})$   $\rangle$  change Y

Down:  $(x, y - \text{a number})$

## Examples: Find the Image

① Translate the image by  $(x - 8, y + 2)$

Pre-Image	Image
C $(-2, 4)$	C' $(-10, 6)$
A $(0, -8)$	A' $(-8, -6)$
T $(-3, 5)$	T' $(-11, 7)$

★ Plug given X + Y values into the rule to find the ~~pre~~ image★

②  $(2x + 2, y - 3)$

Pre-Image	Image
H $(1, 2) \rightarrow (2(1) + 2, 2 - 3) \rightarrow$	H' $(4, -1)$
A $(-3, -5) \rightarrow (2(-3) + 2, -5 - 3) \rightarrow$	A' $(-4, -8)$
T $(4, -1) \rightarrow (2(4) + 2, -1 - 3) \rightarrow$	T' $(10, -4)$

# Examples: FIND the PRE-Image

①  $(x+12, y-17)$

Pre-Image

B  $(-7, -12) \leftarrow (5-12, -29+17) \leftarrow B' (5, -29)$

A  $(8, -2) \leftarrow (20-12, -19+17) \leftarrow A' (20, -19)$

T  $(9, 13) \leftarrow (21-12, 4+17) \leftarrow T' (21, 4)$

Image

★ When given the image do the opposite operation to find the pre-image ★