

**Reflection in the x-axis**

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

Reflection in the y-axis

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

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Reflection in Line $y = x$

$$(x, y) \rightarrow (y, x)$$

(x,y) To translate a point along vector $\langle a, b \rangle$,

$$(x, y) \rightarrow (x + a, y + b)$$

(x,y) To rotate a point 90° counterclockwise about the origin,

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

(x,y) To rotate a point 180° counterclockwise about the origin,

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

To rotate a point 270° counterclockwise about the origin,

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