

Transformations

Translations - slides a figure across a straight line

Properties: Preserves size, shape, and orientation (creates a congruent figure)

Algebraic Rules:

Right a units	$(x, y) \rightarrow (x + a, y)$
Left a units	$(x, y) \rightarrow (x - a, y)$
Up b units	$(x, y) \rightarrow (x, y + b)$
Down b units	$(x, y) \rightarrow (x, y - b)$

Reflections - flips a figure across a line of reflection (x or y axis)

Properties: Preserves size and shape, Changes orientation (creates a congruent figure)

Algebraic Rules:

Reflection across the x - axis	$(x, y) \rightarrow (x, -y)$
Reflection across the y - axis	$(x, y) \rightarrow (-x, y)$

Rotations - turns a figure around a center of rotation (origin)

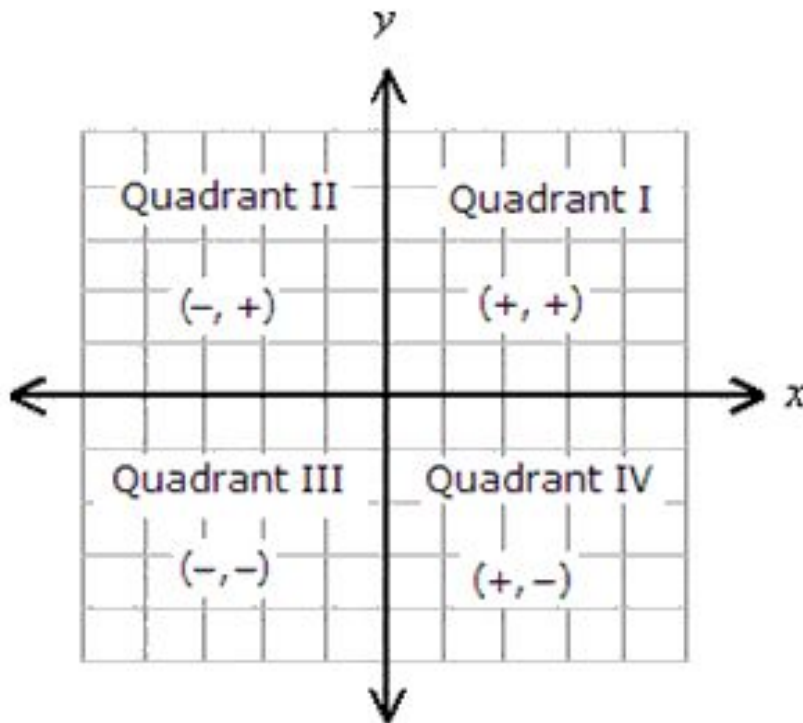
Properties: Preserves size and shape, Changes orientation (creates a congruent figure)

Algebraic Rules:

90° clockwise	$(x, y) \rightarrow (y, -x)$
90° counterclockwise	$(x, y) \rightarrow (-y, x)$
180°	$(x, y) \rightarrow (-x, -y)$

Know your quadrants and the signs in each!

If not sure of the rules for 90°, remember to flip x and y and look at the signs of the quadrant your point is rotating to.



***Dilations* - change the size (not the shape) of a figure by a scale factor**

Properties: Preserves shape and orientation, Changes size (creates a similar figure)

Algebraic Rules:

dilation	$(x, y) \rightarrow (kx, ky)$
enlargement	$k > 1$
reduction	$0 < k < 1$