Honors Geometry   Chapter 4 Memorization Sheet

*To reflect around the y-axis   Then $(x_1, y_1) \rightarrow (-x_1, y_1)'$ and $(x_2, y_2) \rightarrow (-x_2, y_2)'$
*Take the opposite of the x

*To reflect around the x-axis   Then $(x_1, y_1) \rightarrow (x_1, -y_1)'$ and $(x_2, y_2) \rightarrow (x_2, -y_2)'$
*Take the opposite of the y

*To reflect about the line y = x   Then $(x_1, y_1) \rightarrow (y_1, x_1)'$ *Just switch the (x, y) points

*To reflect about the line y = -x   Then $(x_1, y_1) \rightarrow (-y_1, -x_1)'$
*Just switch the (x, y) points & take opposite

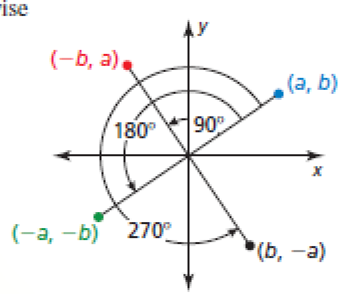
If you are reflecting about any other line or point, then graph it. Refer to in-class examples.

Core Concept

Coordinate Rules for Rotations about the Origin

When a point (a, b) is rotated counterclockwise about the origin, the following are true.

- For a rotation of 90°, $(a, b) \rightarrow (-b, a)$.
- For a rotation of 180°, $(a, b) \rightarrow (-a, -b)$.
- For a rotation of 270°, $(a, b) \rightarrow (b, -a)$.

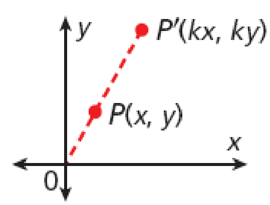


H is a letter we use for "half-turn"
So $H_O = \mathcal{R}_{O,180}$ Also $H_O: (x, y) \rightarrow (-x, -y)$

If you are rotating about any other point, then make this point your "hypothetical" origin and find the distances to that point to apply the above formulas. Refer to in-class examples.

Dilations in the Coordinate Plane

If $P(x, y)$ is the preimage of a point under a dilation centered at the origin with scale factor k, then the image of the point is $P'(kx, ky)$.



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

If you are dilating about any point other than the origin, then use the distances to that "point" with the scale factor. Refer to in-class examples.