

# Transformation Rules Sheet

## Line Reflections:

$$r_{x\text{-axis}}(x, y) = (x, -y)$$

$$r_{y\text{-axis}}(x, y) = (-x, y)$$

$$r_{y=x}(x, y) = (y, x)$$

$$r_{y=-x}(x, y) = (-y, -x)$$



## Point Reflection:

$$R_{180^\circ}(x, y) = (-x, -y)$$

## Rotations:

$$\rightarrow R_{90^\circ}(x, y) = (-y, x) \text{ counter clockwise}$$

$$R_{180^\circ}(x, y) = (-x, -y)$$

$$R_{270^\circ}(x, y) = (y, -x) \text{ counter clockwise}$$

$$R_{-90^\circ}(x, y) = (y, -x) \text{ clockwise}$$

## Translation:

$$T_{a,b}(x, y) = (x + a, y + b)$$

## Dilation:

$$D_k(x, y) = (kx, ky)$$