Dilations and Rotations

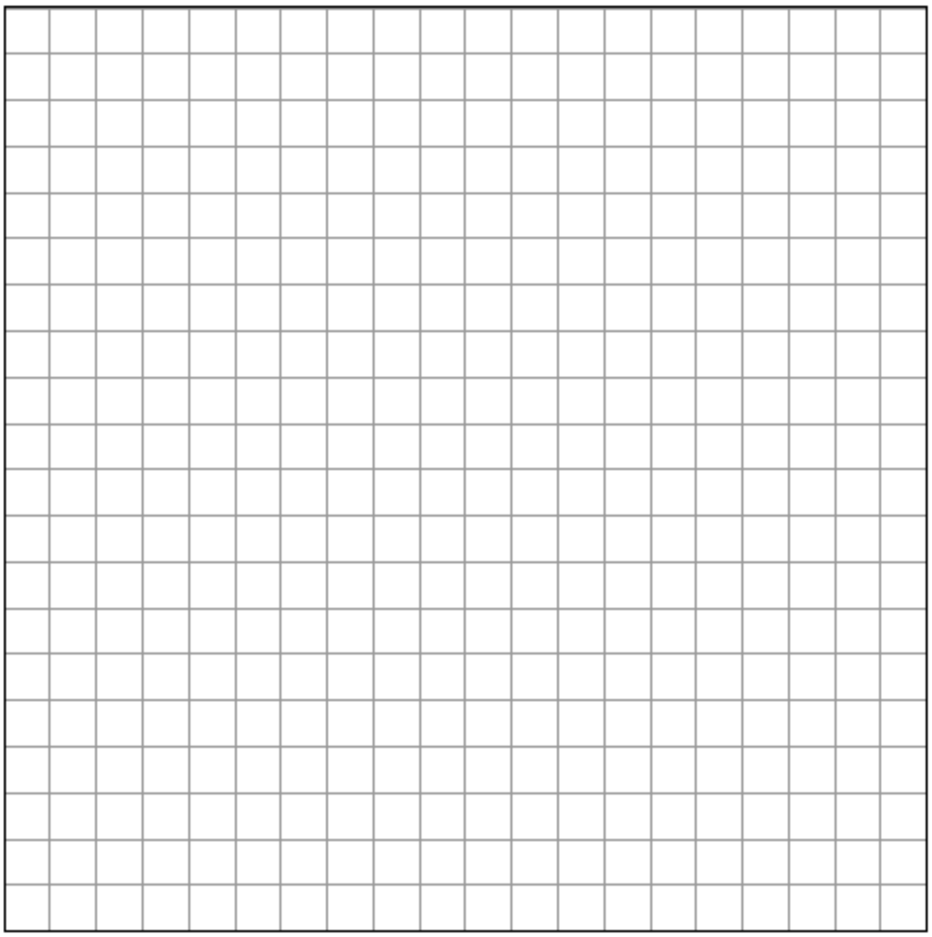
Do Now:

a. Graph ΔBIG, with coordinates B(2,2), I(6,4), G(4,-2).

b. Graph $\triangle B'I'G'$, the image of $\triangle BIG$ under the transformation $D_{-\frac{1}{2}}$.

c. Graph $\triangle B''I''G''$, the image of $\triangle B'I'G'$ under the transformation $R_{(0,0)}$

d. What single transformation is the composite of the transformations in parts b and c?



Developing the rules for rotations in the coordinate plane

On the coordinate plane, plot $P(2, 5)$.

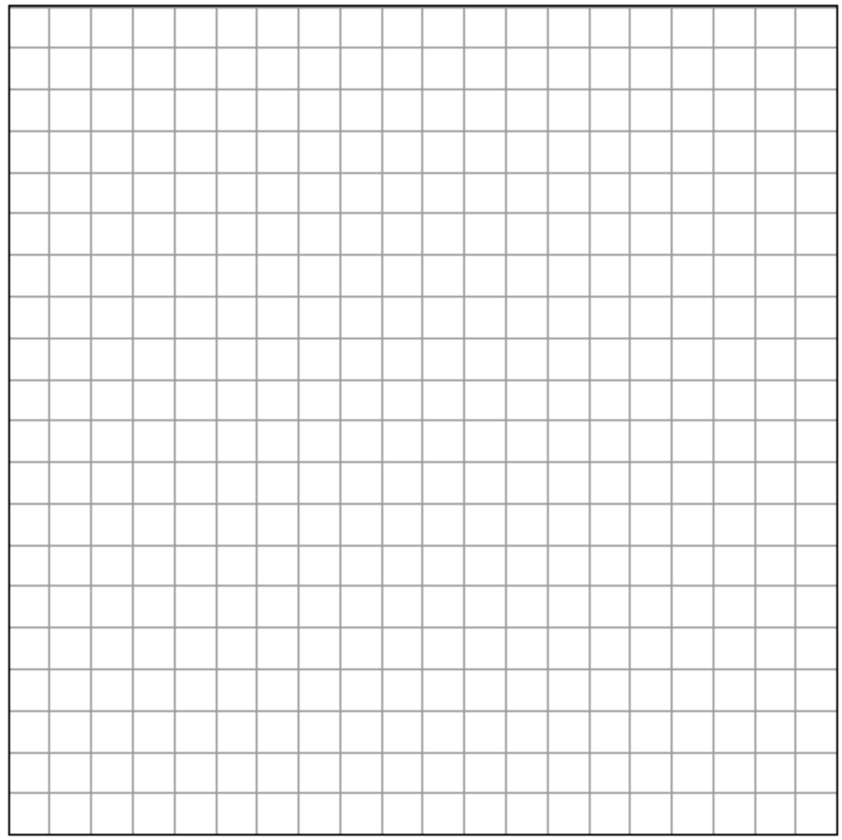
Then plot and state the coordinates of:

$A = R_{90^\circ}(P)$

$B = R_{-90^\circ}(P)$

$C = R_{180^\circ}(P)$

$D = R_{270^\circ}(P)$



Fill in the rules for rotations of 90º, 180º, and 270º.

Reflection in the *x*-axis	$r_{x-axis}(x,y) = (x,-y)$
Reflection in the *y*-axis	$r_{y-axis}(x,y) = (-x,y)$
Reflection in the line $y = x$	$r_{y=x}(x,y) = (y,x)$
Reflection in the line $y = -x$	$r_{y=-x}(x,y) = (-y,-x)$
Reflection in the origin	$R_{O}(x,y) = (-x,-y)$
Translation	$T_{a,b}(x,y) = (x+a, y+b)$
Dilation of factor *k* ($k \neq 0$)	$D_k(x,y) = (kx,ky)$
Rotation of 90º	$R_{90^\circ}(x,y) =$
Rotation of 180º	$R_{180^\circ}(x,y) =$
Rotation of 270º (or –90º)	$R_{270^\circ}(x,y) =$