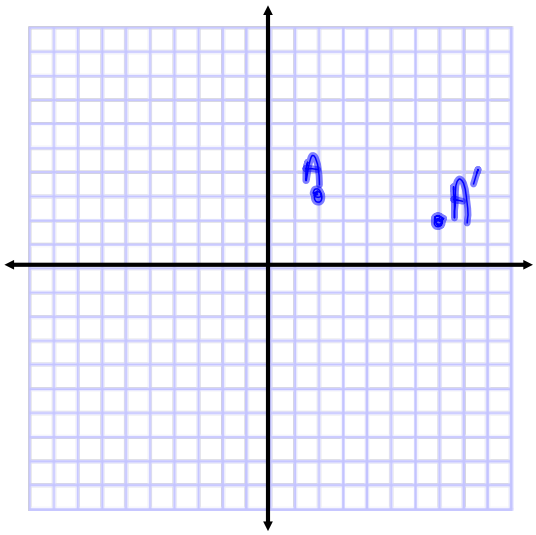
How do we apply transformations on coordinate planes?

Do Now Given: A(2,3).



Find A'

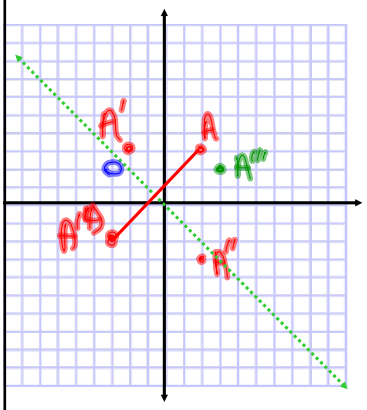
$A(2,3) \xrightarrow{T_{5,-1}} A'(7,2)$

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

Reflection

Given A(2,3)

Find



$A(2,3) \xrightarrow{r_{y\text{-axis}}} A'(-2,3)$

$A(2,3) \xrightarrow{r_{x\text{-axis}}} A''(2,-3)$

$A(2,3) \xrightarrow{r_{y=x}} A'''(3,2)$

$A(2,3) \xrightarrow{r_{y=x}} A^{(4)}(-3,-2)$

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

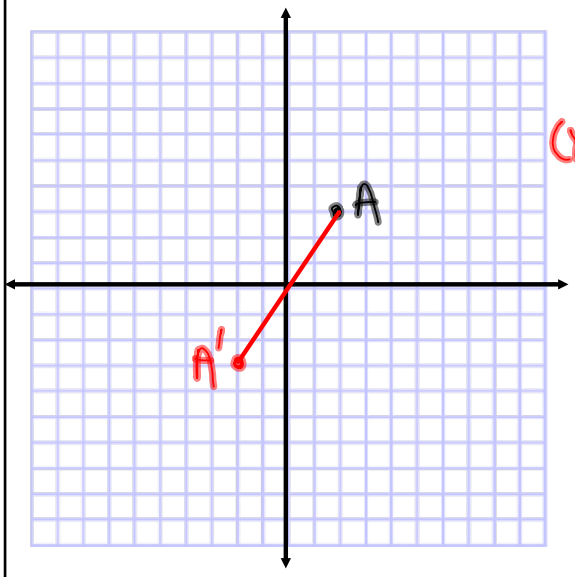
$(x,y) \xrightarrow{r_{y\text{-axis}}} (-x,y)$

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

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

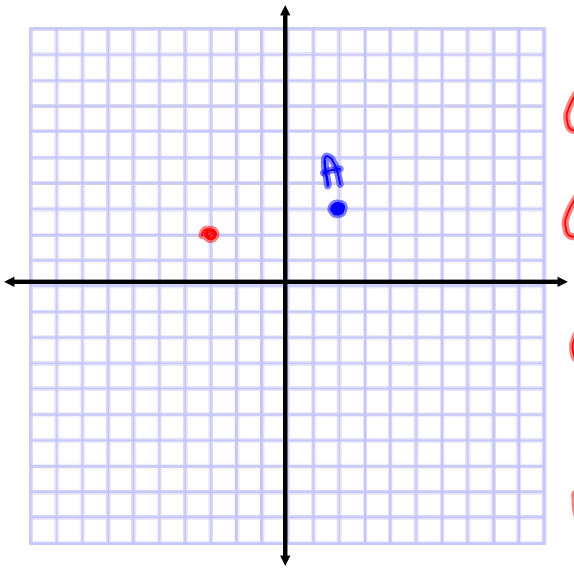
Point reflection

$A(2,3) \xrightarrow{r_{(0,0)}} A'(-2,-3)$



$(x,y) \xrightarrow{r_{(0,0)}} (-x,-y)$

Rotation. $A(2,3) \xrightarrow{R_{90,O}} A'(-3,2)$

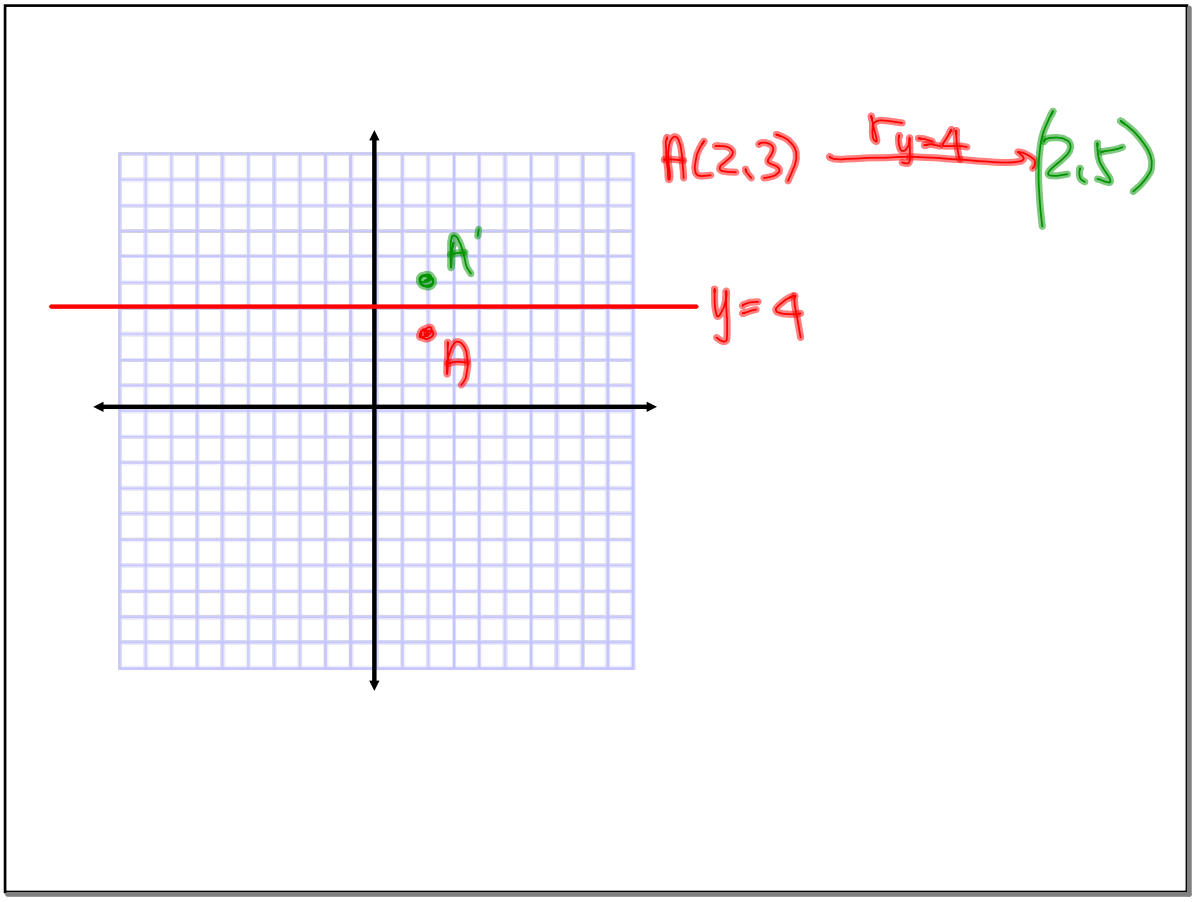


$(x,y) \xrightarrow{R_{90^\circ}} (-y,x)$

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

$(x,y) \xrightarrow{R_{270^\circ}} (y,-x)$

$(x,y) \xrightarrow{R_{360^\circ}} (x,y)$


A(2,3)
$r_{y=4}$
(2,5)
A'
y = 4
A