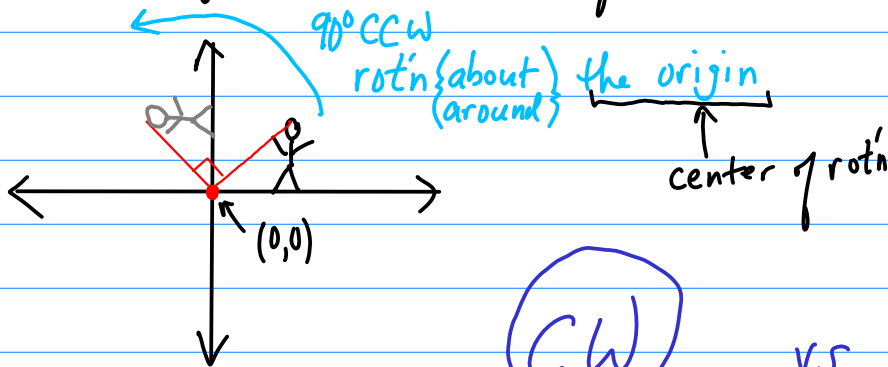
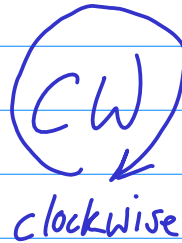


Rotation

* rotation: turn pts./figure around a center of rotation by a certain # of degrees CW/CCW



"pivot pt"



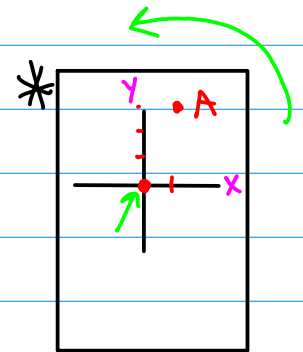
vs



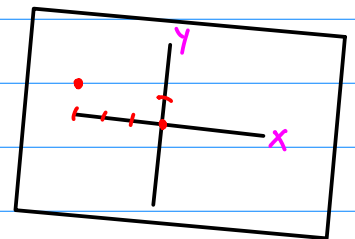
Rules for Rotation

# degrees/direction	rule
90° CCW	$(x, y) \rightarrow (-y, x)$
90° CW	$(x, y) \rightarrow (y, -x)$
180° CCW	$(x, y) \rightarrow (-x, -y)$
180° CW	$(x, y) \rightarrow (-x, -y)$
270° CCW	$(x, y) \rightarrow (y, -x)$
270° CW	$(x, y) \rightarrow (-y, x)$

same



$A(1, 3)$
3, 1



$A'(-3, 1)$

$A(1, 3) \rightarrow A'(-3, 1)$
 $A(1, 3) \rightarrow A'(3, -1)$

$A(1, 3) \rightarrow A'(3, -1)$
 3, 1