Geometry September 23, 2013
Reflections and Rotations
with Change of Coordinates

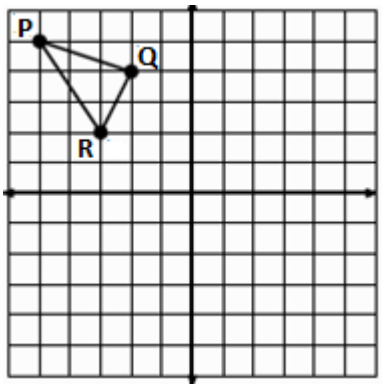
Name_____
period 1 2 3 5 6

1. Complete the table: Record the coordinates of the images resulting from a reflection of the pre-image points in the line $y=0$ which is the equation of the ___-axis.
(Can you do this without graphing?)

Pre-image	Image
a. $(4,7)$	
b. $(-2,-9)$	
c. $(3,-8)$	
d. $(-6,1)$	
e. (x,y)	

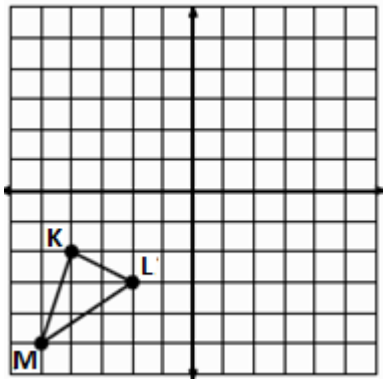
2. Complete the table: Record the coordinates of the images resulting from a reflection of the pre-image points in the line $x=0$ which is the equations of the ___-axis.
(Can you do this without graphing?)

Pre-image	Image
a. $(-3,9)$	
b. $(5,-2)$	
c. $(7,8)$	
d. $(-6,-1)$	
e. (x,y)	



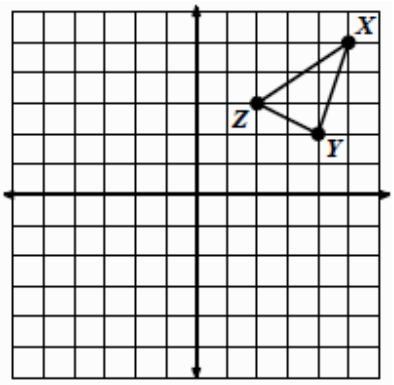
3.
Reflect ΔPQR in the line $y=x$.
Label $\Delta P'Q'R'$ and record the image coordinates in the table below. Generalize for any (x,y).

Pre-image	Image
$P(-5,5)$	
$Q(-2,4)$	
$R(-3,2)$	
(x,y)	



4.
Reflect ΔKLM in the line $y=-x$.
Label $\Delta K'L'M'$ and record the image coordinates in the table below. Generalize for any (x,y).

Pre-image	Image
$K(-4,-2)$	
$L(-2,-3)$	
$M(-5,-5)$	
(x,y)	

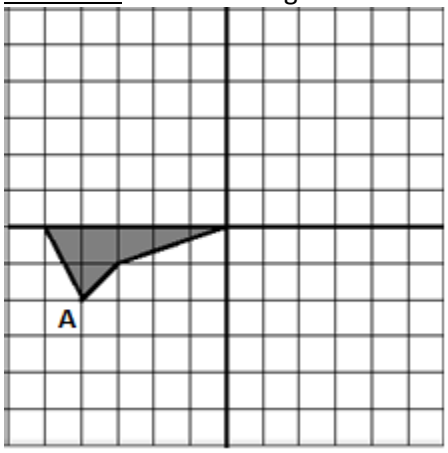


5.
Reflect ΔXYZ in the line $y=\frac{-1}{2}(x+5)+4$. Graph the line.
Label $\Delta X'Y'Z'$ and record the image coordinates in the table below.

Pre-image	Image
$X(5,5)$	
$Y(4,2)$	
$Z(2,3)$	

Currently, we do not know how to generalize this reflection.

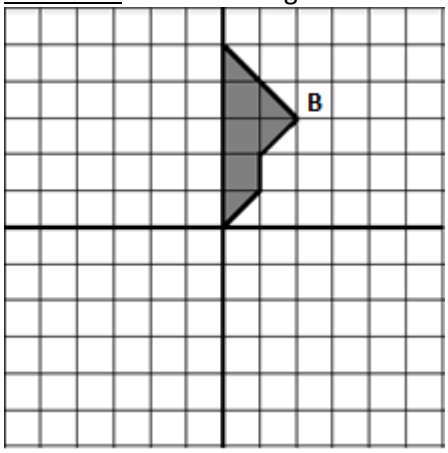
6. Rotate the shape lying on the x-axis 90°, 180° & 270° **clockwise** about the origin.



Record the coordinates of the images of point A rotated 90°, 180° & 270° **clockwise** about the origin.

Pre-image	$A(-4,-2)$
Rotation	**clockwise**
$90^\circ CW$	
180° CW	
$270^\circ CW$	

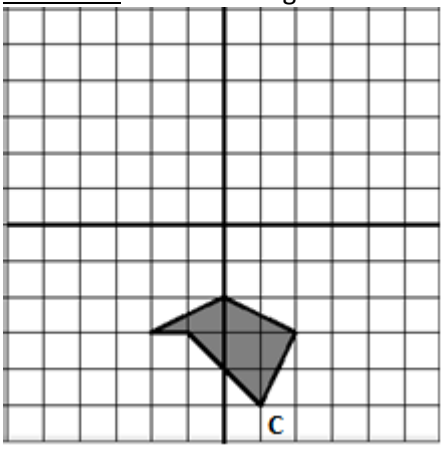
7. Rotate the shape lying on the x-axis 90°, 180° & 270° **clockwise** about the origin.



Record the coordinates of the images of point B rotated 90°, 180° & 270° **clockwise** about the origin.

Pre-image	$B(2,3)$
Rotation	**clockwise**
$90^\circ CW$	
180° CW	
$270^\circ CW$	

8. Rotate the shape lying on the x-axis 90°, 180° & 270° **clockwise** about the origin.



Record the coordinates of the images of point C rotated 90°, 180° & 270° **clockwise** about the origin.

Pre-image	$C(1,-5)$
Rotation	**clockwise**
$90^\circ CW$	
180° CW	
$270^\circ CW$	

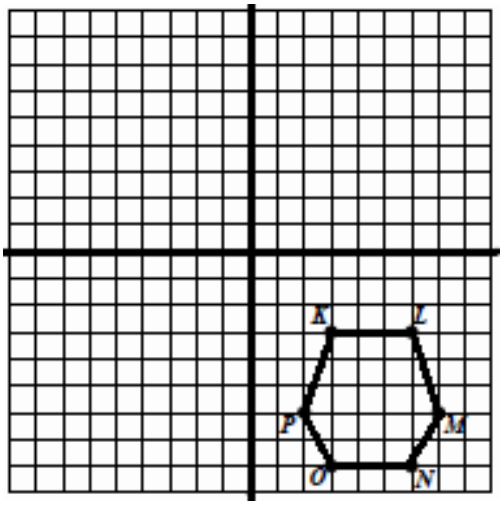
9. Examine the relationship between the pre-image and image points in # 6-7-8 above to find the general pattern.

When any (x,y) point is rotated about the origin $90^\circ CW$ the resulting image has coordinates _____.

When any (x,y) point is rotated about the origin $180^\circ CW$ the resulting image has coordinates _____.

When any (x,y) point is rotated about the origin $270^\circ CW$ the resulting image has coordinates _____.

10. Reflect hexagon KLMNOP in the line $y = x$.



11. Rotate hexagon KLMNOP 90°, 180° & 270° **clockwise** about the origin.