$\qquad$ Period $\qquad$ Seat $\qquad$

## Answer each question completely, showing your work.

1. The vertices of a triangle are $P(-3,8), Q(-9,-5)$, and $R(-3,3)$. Name the vertices of the image reflected over the $x$-axis. $\qquad$
Over the y - axis: $\qquad$
2. Which of the following transformations is illustrated by the graph below?

3. The image of $(-2,6)$ after a dilation with respect to the origin is $(-8,24)$. What is the scale factor of the dilation?
4. Given the point $(-8,-4)$, where will its image be after the translation $(x, y)->(x-2, y+4)$ ?
5. Describe the following transformation from ABCD to $A^{\prime} B^{\prime} C^{\prime} D^{\prime}$ if $D^{\prime}(2,-2) A^{\prime}(-2,-2), B^{\prime}(-3,2)$ and $C^{\prime}(3,2)$

6. If the following transformations takes place on a polygon,
describe the results:
A. $(\mathrm{x}, \mathrm{y})->(1 / 4 \mathrm{x}, \mathrm{y})$
B. $(x, y)->(x, 3 y)$
7. If the center of a circle is at $(-2,3)$. After the transformation $(2 x+5,2 y-7)$, where will the center be? $\qquad$
8. What is the center of the above dilation?

9. Suppose ABCD is transformed so that image of A is $(2,-1)$. Write a general rule that describes the transformation.

10. Given the points
$K(0,-4) \quad P(-6,-3) \quad R(1,2)$
Reflect: over the x-axis
Rotate: 270 CCW
$\mathrm{K}^{\prime} \rightarrow$
$\mathrm{P}^{\prime} \rightarrow$
$\mathrm{R}^{\prime} \rightarrow$
$K^{\prime \prime} \rightarrow$
$\mathrm{P}^{\prime \prime} \rightarrow$
$R^{\prime \prime} \rightarrow$
