$\qquad$ Date $\qquad$
For 1 \& 2, find the coordinates of the image after the given reflection.

1. $M(3,4)$ reflected over the line $y=1$

2. $P(-2,3)$ reflected over the line $x=-3$


The vertices of $\triangle A B C$ are $A(-4,4), B(0,7)$, and $C(-1,3)$. Reflect $\triangle A B C$ about the first line. Then reflect $\Delta A^{\prime} B^{\prime} C^{\prime}$ about the second line. Graph $\Delta A^{\prime} B^{\prime} C^{\prime}$ and $\Delta A^{\prime \prime} B^{\prime \prime} C^{\prime \prime}$.
3. About $y=4$, and then about $y=1$


Use triangle JGF to do the following transformations:
4. Reflect over the line $x=6$, then translate up 5 units.

5. Regular pentagon PENTA is given with center $X$
a) name the image $E$ under a $72^{\circ}$ rotation about $X$.
b) name the image of $P$ under a $216^{\circ}$ rotation about $X$.

6. Rotate the point whose coordinates are $D(-2,1) 270^{\circ}$ about the origin

D'( , )

7. Rotate $\triangle A B C$ whose coordinates are $A(3,2), B(3,6), C(6,1) 90^{\circ}$ about the origin.
$A^{\prime}(, \quad)$
$B^{\prime}(\quad, \quad)$
$C^{\prime}(, \quad)$

8. a) Deterimine if the figure has rotational symmetry.
b) Determine if the figure has reflectional symmetry, and if so, how many lines?
A.

B.

C.

D.


