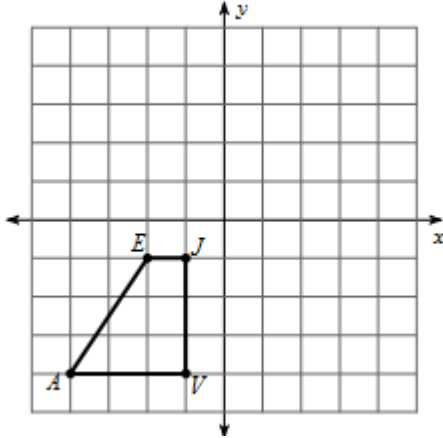


Name: \_\_\_\_\_ Date: \_\_\_\_\_

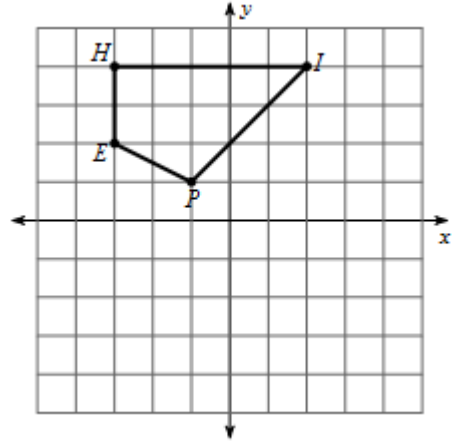
### Composition of Transformations

Draw each of the figures after each of the composition is performed.

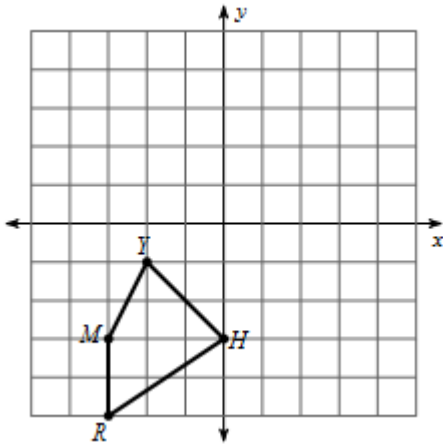
1) Translate by the rule  $(x, y) \rightarrow (x+4, y+4)$ , then rotate  $90^\circ$  clockwise about the origin



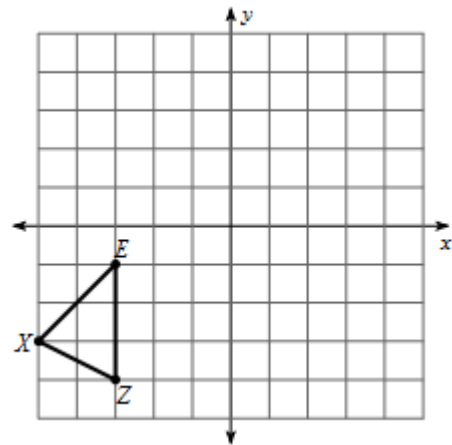
2) Rotate  $180^\circ$  about the origin, then reflect across  $y = x$



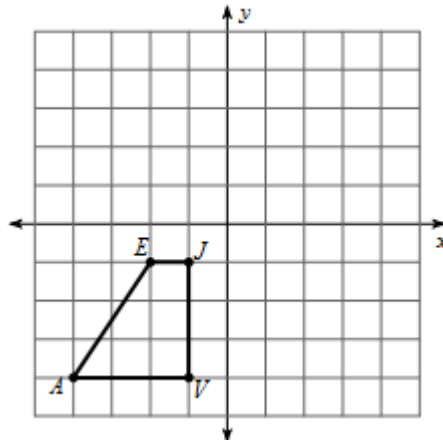
3) Reflect across the x-axis, then translate by the rule  $(x, y) \rightarrow (x-1, y-3)$



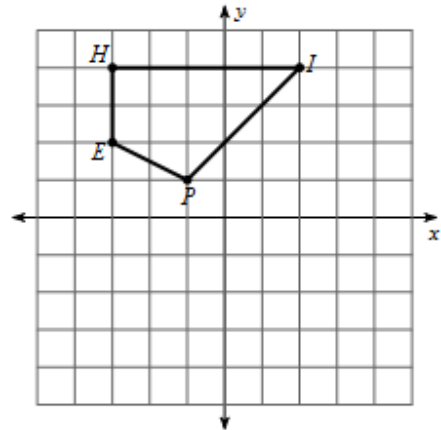
4) Translate by the rule  $(x, y) \rightarrow (x+6, y+3)$ , then by the rule  $(x, y) \rightarrow (x-2, y-4)$



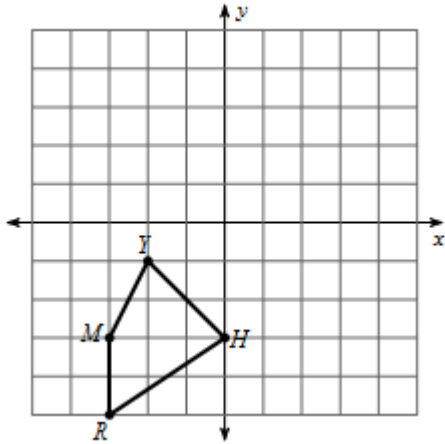
5) Reflect over  $x = -2$ , then reflect over the y-axis



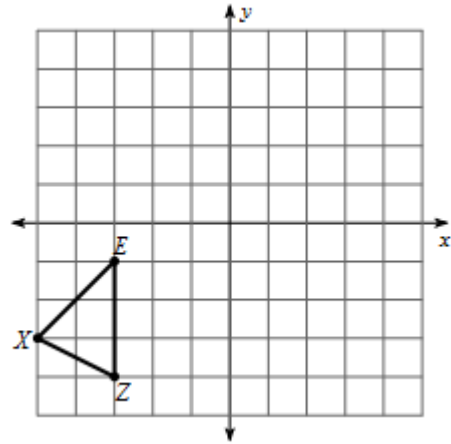
6) Translate by the rule  $(x, y) \rightarrow (x-2, y-5)$ , then rotate  $90^\circ$  clockwise about the origin



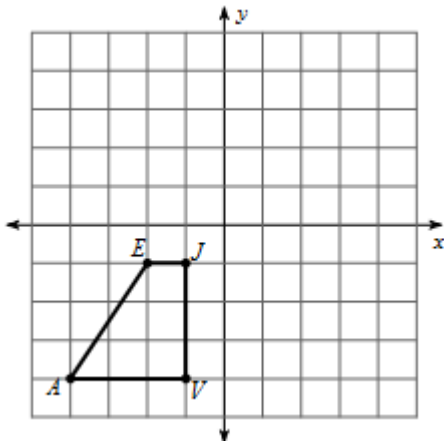
7) Translate by the rule  $(x, y) \rightarrow (x+1, y+5)$ , then reflect over the line  $y = x$



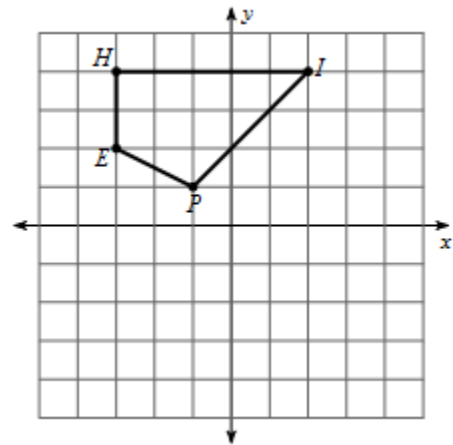
8)  $r_{x\text{-axis}} \circ R_{90}$



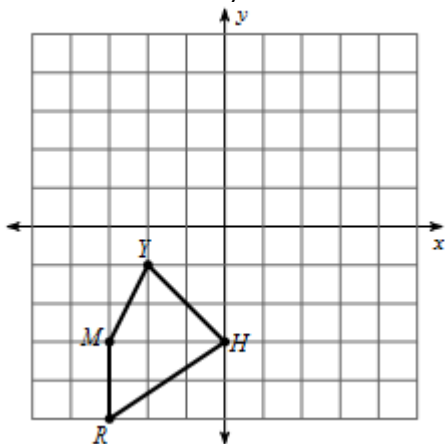
9) Rotate  $90^\circ$  clockwise about the origin, then translate by the rule  $(x, y) \rightarrow (x+5, y)$



10)  $R_{180} \circ r_{y=-x}$



11) Translate by the rule  $(x, y) \rightarrow (x+4, y+1)$ , then reflect over the  $y$ -axis



12) Reflect over the  $x$ -axis, then reflect over the line  $x = -2$

