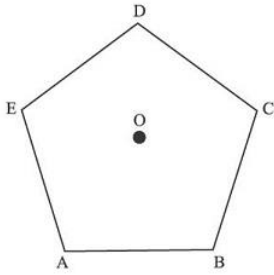1. What is the minimum number of degrees of counterclockwise rotation about point O required to carry point E onto point C on the regular pentagon below?

2. Mark all lines of reflection which would carry the figure onto itself.

3. Draw a quadrilateral below with exactly 2 lines of reflectional symmetry.

CO-A4

4. (Always/Sometimes/Never) A translation along a vector will carry a figure onto itself.

5. (Always/Sometimes/Never) After a reflection, the points of a figure all move by the same amount.

6. $\triangle ABC$ [not shown] is rotated 30° clockwise about point B. Which points of the figure will be moved?
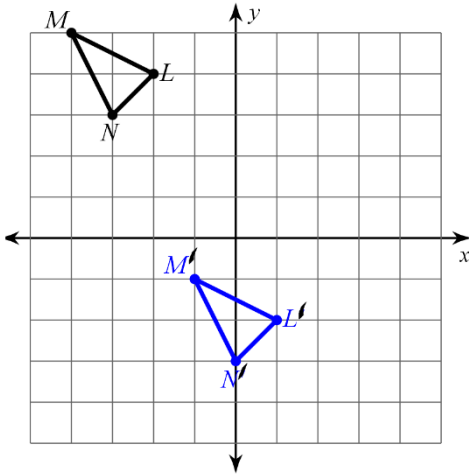
CO-B6a

7. Describe in detail a sequence of rigid motions that would carry $\triangle ABC$ onto $\triangle PWS$.
   [*Hint that won't be on the real test*: be sure to give what line you reflect over, what vector you translate along, and what point you rotate around]
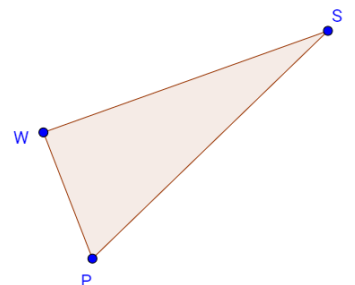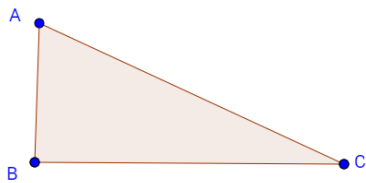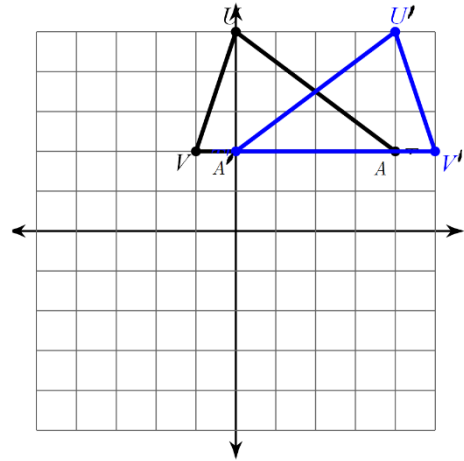
CO-A2a

8. Give the vector, in vector notation, that describes the translation shown here.
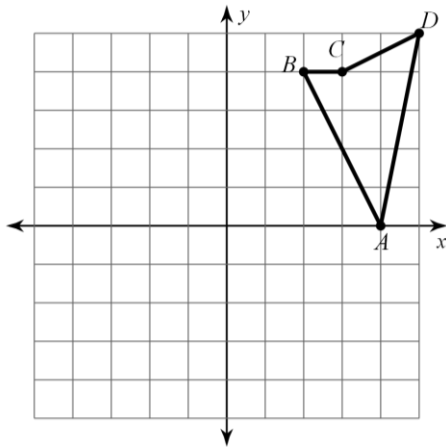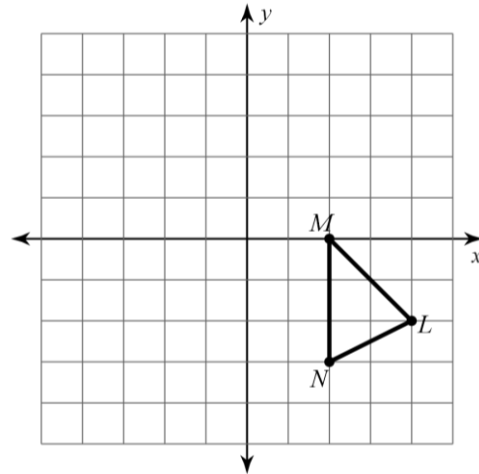
9. Write the equation of the line of reflection.

CO-A5a

Perform each transformation indicated. Label the points of the image using prime notation.

10. Reflect across x=1

11. $(x,y) \rightarrow (x-5,\ y)$

GPE-B7a

12. Are the lines of these equations, when graphed, parallel, perpendicular, or neither? Explain your answer in words and use numbers to justify your reasoning.

$$\begin{cases} 2x - y = 3 \\ 4x - 2y = 2 \end{cases}$$

GPE-B5a

13. Find the perimeter, to the nearest hundredth, of $\triangle ABC$ where $A(-3,1)$ $B(1,2)$ $C(2,-1)$