Accl Precalculus

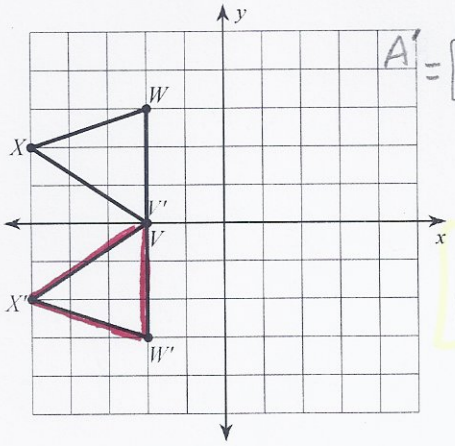
Name Key

WS 1.9

Graph the image of the figure using the transformation given and determine the matrix that can perform the transformation.

1) reflection across the x-axis

$A = \begin{bmatrix} -2 & -2 & 5 \\ 3 & 0 & 2 \end{bmatrix}$



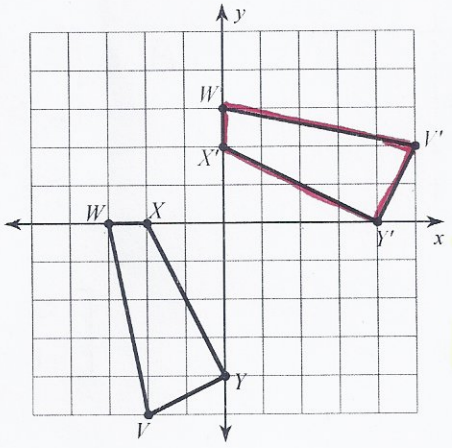
$A' = \begin{bmatrix} -2 & -2 & -5 \\ -3 & 0 & -2 \end{bmatrix}$

$?\ A = A'$

$\begin{bmatrix} 1 & 0 \\ 0 & -1 \end{bmatrix}$

2) reflection across $y = -x$

$A = \begin{bmatrix} -3 & -2 & 0 & -2 \\ 0 & 0 & -4 & -5 \end{bmatrix}$

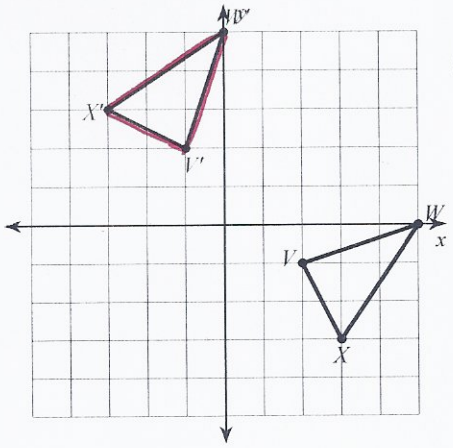


$A' = \begin{bmatrix} 0 & 0 & 4 & 5 \\ 3 & 2 & 0 & 2 \end{bmatrix}$

$?\ A = A'$

$\begin{bmatrix} 0 & -1 \\ -1 & 0 \end{bmatrix}$

3) reflection across $y = x$



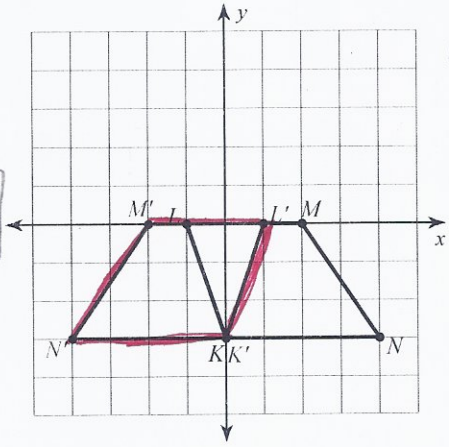
$A = \begin{bmatrix} 0 & 2 & 3 \\ 5 & 1 & -3 \end{bmatrix}$

$A' = \begin{bmatrix} 5 & -1 & -3 \\ 0 & 2 & 3 \end{bmatrix}$

$?\ A = A'$

$\begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$

4) reflection across the y-axis



$A = \begin{bmatrix} -1 & 2 & 4 & 0 \\ 0 & 0 & -3 & -3 \end{bmatrix}$

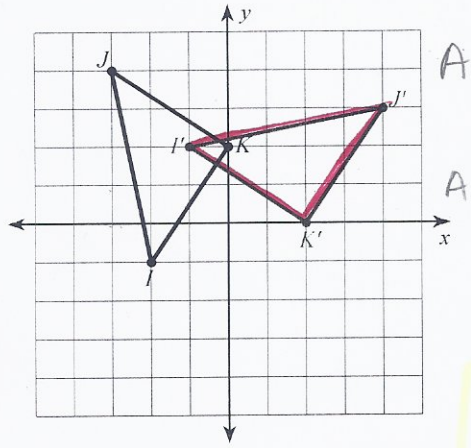
$A' = \begin{bmatrix} 1 & -2 & -4 & 0 \\ 0 & 0 & -3 & -3 \end{bmatrix}$

$?\ A = A'$

$\begin{bmatrix} -1 & 0 \\ 0 & 1 \end{bmatrix}$

Graph the image of the figure using the transformation given.

5) rotation 90° clockwise about the origin



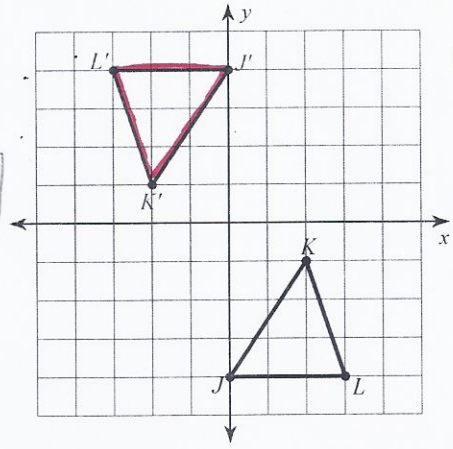
$A = \begin{bmatrix} -3 & 0 & -2 \\ 4 & 2 & -1 \end{bmatrix}$

$A' = \begin{bmatrix} 4 & 2 & -1 \\ 3 & 0 & 2 \end{bmatrix}$

$?\ A = A'$

$\begin{bmatrix} 0 & 1 \\ -1 & 0 \end{bmatrix}$

6) rotation 180° about the origin



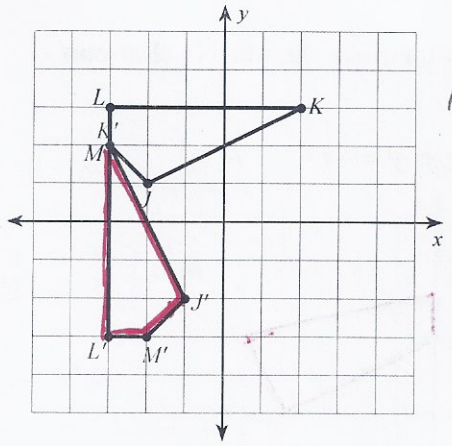
$A = \begin{bmatrix} 0 & 2 & 3 \\ -4 & -1 & -4 \end{bmatrix}$

$A' = \begin{bmatrix} 0 & -2 & -3 \\ 4 & 1 & 4 \end{bmatrix}$

$?\ A = A'$

$\begin{bmatrix} -1 & 0 \\ 0 & -1 \end{bmatrix}$

7) rotation 90° counterclockwise about the origin



$$A = \begin{bmatrix} -2 & 2 & -3 & 3 \\ 1 & 3 & 3 & 2 \end{bmatrix}$$

$$A' = \begin{bmatrix} -1 & -3 & -3 & -2 \\ -2 & 2 & -3 & -3 \end{bmatrix}$$

$$? \; A = A'$$

$$\begin{bmatrix} 0 & -1 \\ 1 & 0 \end{bmatrix}$$