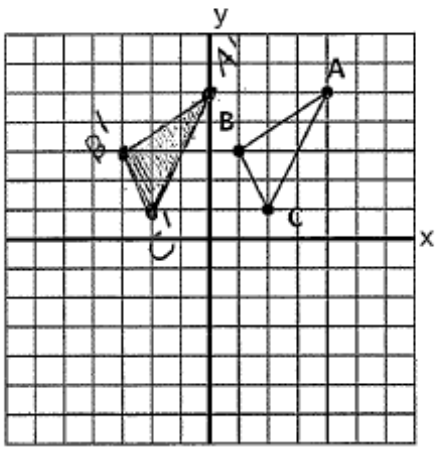
Test Review: Translations, Reflections, and Rotations

The table below summarizes the coordinate rules for rotations, reflections, translations and dilations on a coordinate graph.

Rotate (Turn) 90° Counterclockwise about the Origin	Rotate (Turn) 180° Counterclockwise about the Origin	
$x, y \rightarrow -y, x$	$x, y \rightarrow -x, -y$	
Reflect (Flip) Vertically across the Y-Axis	**Reflect (Flip) Horizontally across the X-Axis**	**Reflect (Flip) Diagonally across Y = X**
$x, y \rightarrow -x, y$	$x, y \rightarrow x, -y$	$x, y \rightarrow y, x$
Translate (Slide) Horizontally	**Translate (Slide) Vertically**	**Translate (Slide) Diagonally**
$x, y \rightarrow x + a, y$	$x, y \rightarrow x, y + b$	$x, y \rightarrow x + a, y + b$

Transform each figure as described. Write the ordered-pair rule for the transformation. Use the ordered-pair rule to find the coordinates of the vertices of the image.

1. **Translate** ΔABC horizontally 4 units to the left.



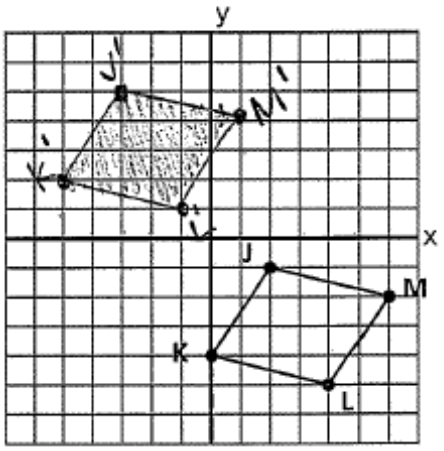
$x, y \rightarrow (x-4, y)$

A $(4,5) \rightarrow$ A' $(0,5)$

B $(1,3) \rightarrow$ B' $(-3,3)$

C $(2,1) \rightarrow$ C' $(-2,1)$

2. **Translate** ▱JKLM diagonally 5 units to the left and 6 units up.



$x, y \rightarrow (x-5, y+6)$

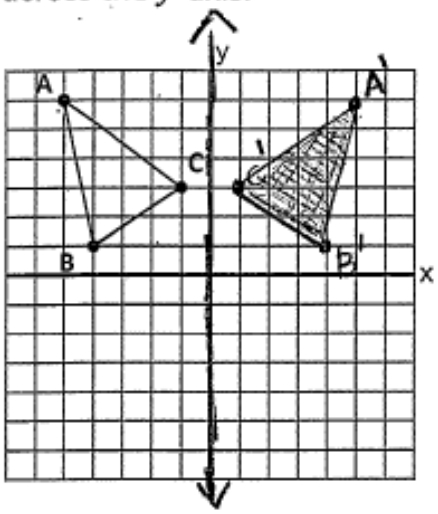
J $(2,-1) \rightarrow$ J' $(-3,5)$

K $(0,-4) \rightarrow$ K' $(-5,2)$

L $(4,-5) \rightarrow$ L' $(-1,1)$

M $(6,-2) \rightarrow$ M' $(1,4)$

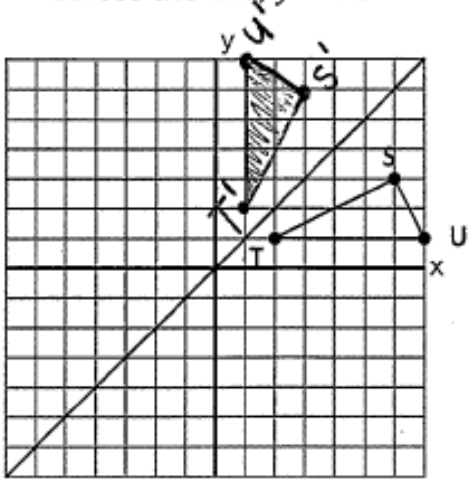
3. **Reflect** ΔABC vertically across the y-axis.



$(x,y) \rightarrow (-x, y)$

A $(-5,6) \rightarrow$ A' $(5,6)$
B $(-4,1) \rightarrow$ B' $(4,1)$
C $(-1,3) \rightarrow$ C' $(1,3)$

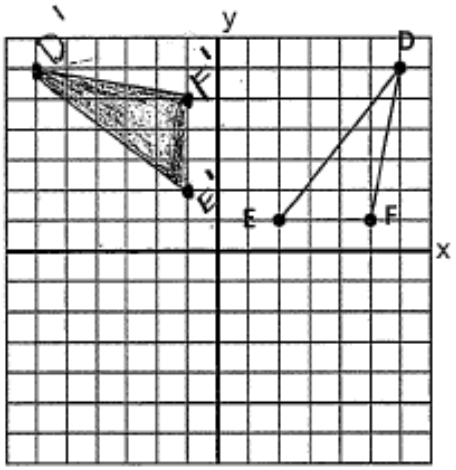
4. **Reflect** ΔSTU diagonally across the line, $y = x$.



$(x.y) \rightarrow (y, x)$

S $(6,3) \rightarrow$ S' $(3,6)$
T $(2,1) \rightarrow$ T' $(1,2)$
U $(7,1) \rightarrow$ U' $(1,7)$

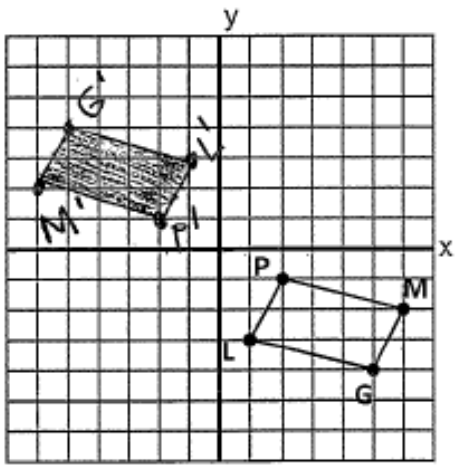
5. **Rotate** ΔDEF 90° counter-clockwise about the origin.



$(x,y) \rightarrow (-y, x)$

D $(6,6) \rightarrow$ D' $(-6,6)$
E $(2,1) \rightarrow$ E' $(-1,2)$
F $(5,1) \rightarrow$ F' $(-1,5)$

6. **Rotate** ▱PLGM 180° counter-clockwise about the origin.



$x,y \rightarrow (-x, -y)$

P $(2,-1) \rightarrow$ P' $(-2,1)$
L $(1,-3) \rightarrow$ L' $(-1,3)$
G $(5,-4) \rightarrow$ G' $(-5,4)$
M $(6,-2) \rightarrow$ M' $(-6,2)$