# TRANSFORMATIONS

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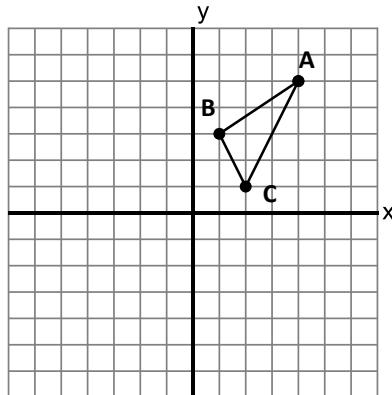
2. **Translate** ☐JKLM diagonally 5 units to the left and 6 units up.

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

A(   ) → A'(   )

B(   ) → B'(   )

C(   ) → C'(   )
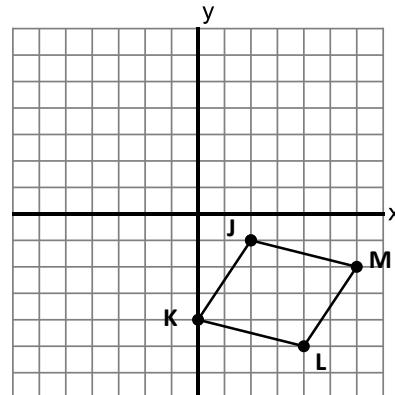
$(x, y) \rightarrow ($ $)$

J(   ) → J'(   )

K(   ) → K'(   )

L(   ) → L' (   )

M(   ) → M'(   )

3. **Reflect** ΔABC vertically across the y-axis.
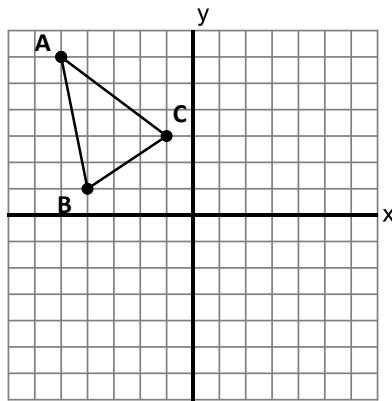
$(x,y) \rightarrow ($ $)$

A($) \rightarrow$ A'($)$

B($) \rightarrow$ B'($)$

C($) \rightarrow$ C'($)$

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

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

S($) \rightarrow$ S'($)$

T($) \rightarrow$ T'($)$

U($) \rightarrow$ U'($)$
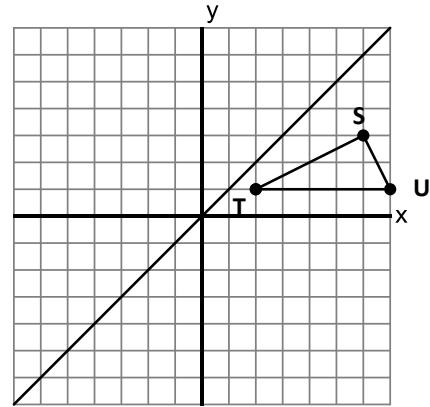
5. **Rotate** ΔDEF 90° counter-clockwise about the origin.
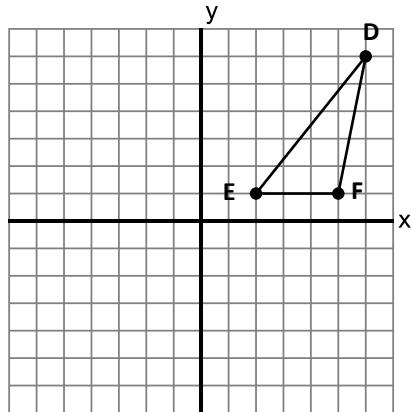
$(x,y) \rightarrow ($ $)$

D($) \rightarrow$ D'($)$

E($) \rightarrow$ E'($)$

F($) \rightarrow$ F'($)$

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

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

P($) \rightarrow$ P'($)$

L($) \rightarrow$ L'($)$

G($) \rightarrow$ G'($)$

M($) \rightarrow$ M'($)$