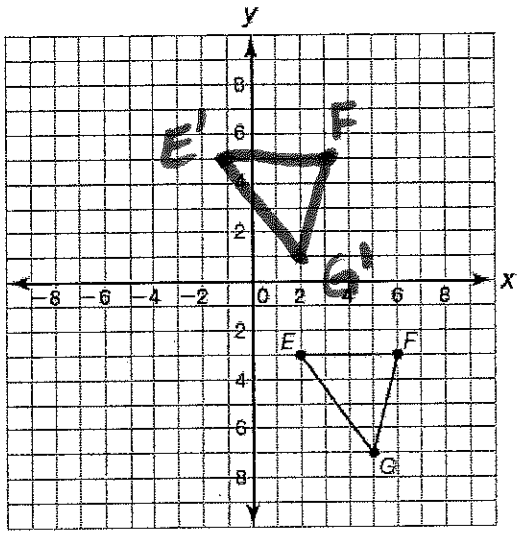
Transformations - Translations

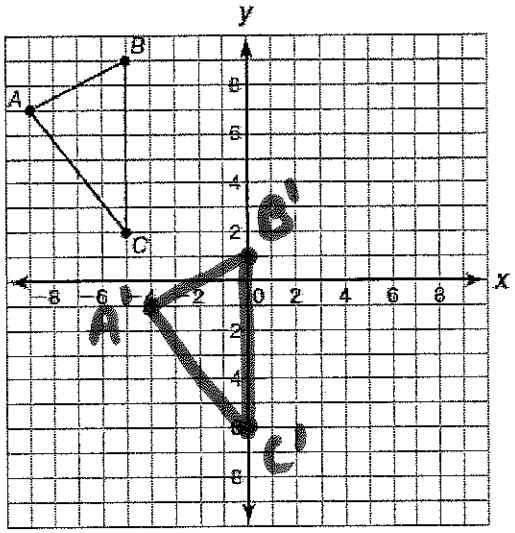
Name: Key 1st

Translations Movement of a geometric figure without changing the orientation or size of the shape.
Ex. Move something up, down, left, or right without rotation, reflection, or dilation.

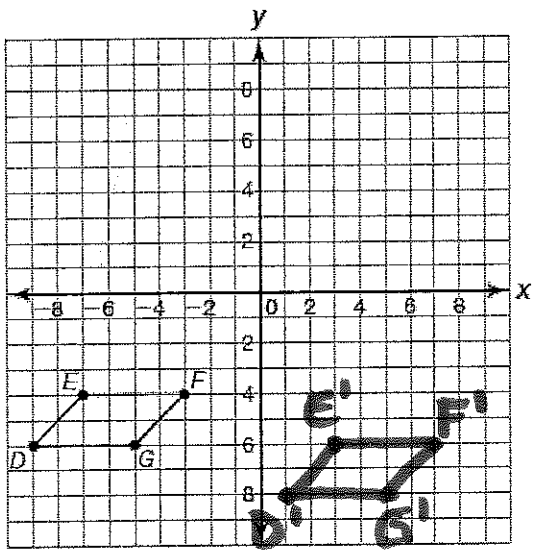
1. Translate triangle EFG 8 units up and 3 to the left.



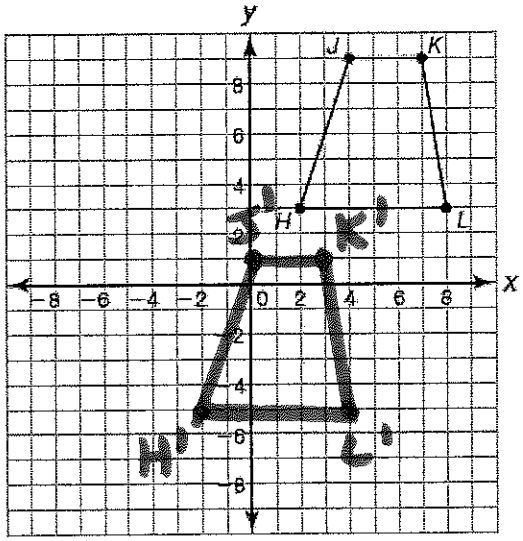
2. Translate Triangle ABC 8 units down and 5 units to the right.



3. Translate figure DEFG 2 units down and 10 units to the right.

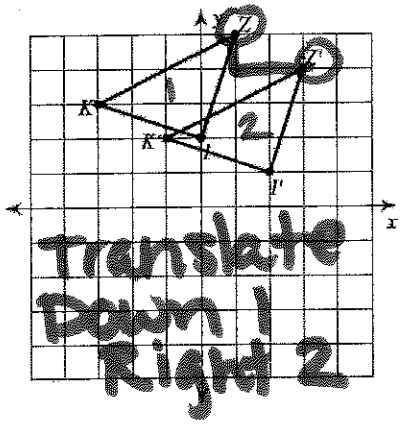


4. Translate figure HJKL 8 units down and 4 units to the left.

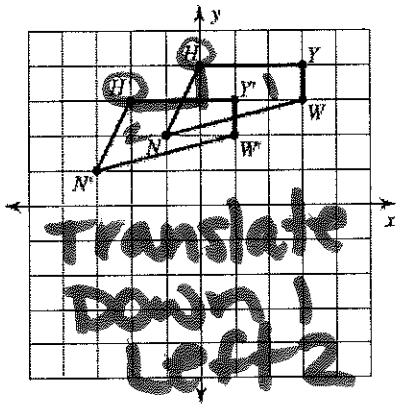


Identify the transformation.

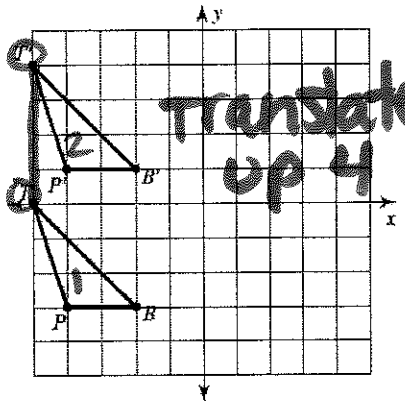
5.



6.



7.

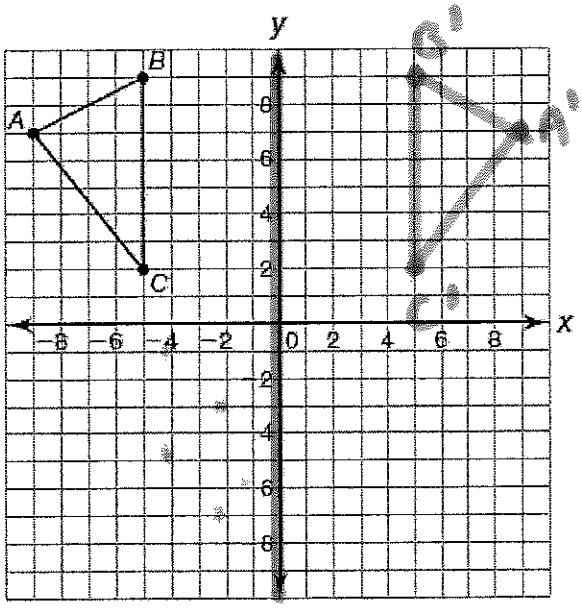


Transformations – Reflections **Name:** Key 2nd

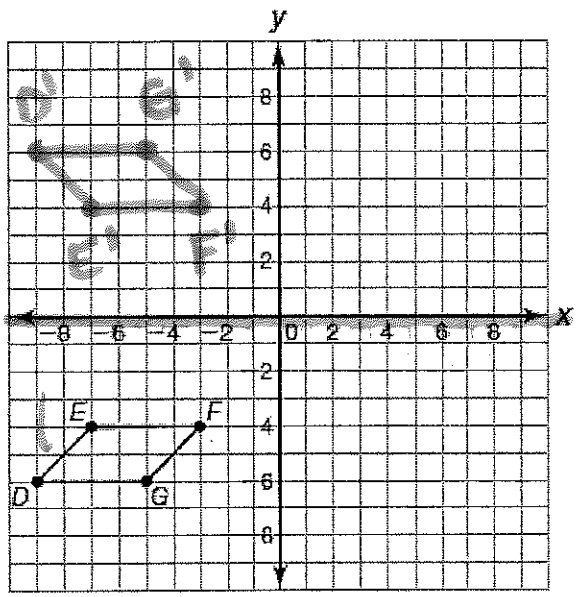
Reflections Transformation where an image is reflected over a line of symmetry, like a mirror image.

- Reflection over the x-axis (x, y) → (x, -y)
- Reflection over the y-axis (x, y) → (-x, y)
- Reflection over y = x (x, y) → (y, x)
- Reflection over y = -x (x, y) → ~~(-x, -y)~~ (-y, -x)

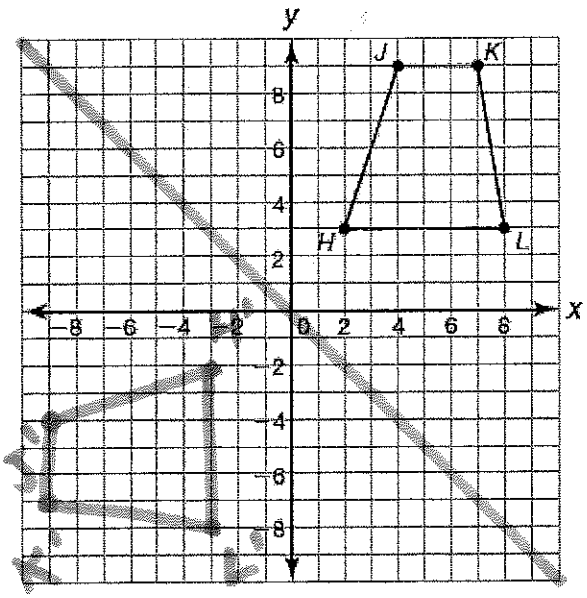
1. Reflect triangle ABC over the y-axis.



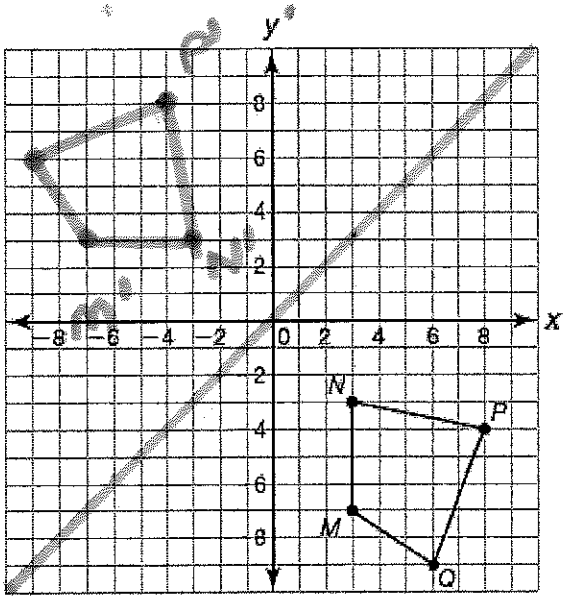
2. Reflect parallelogram DEFG over the x-axis.



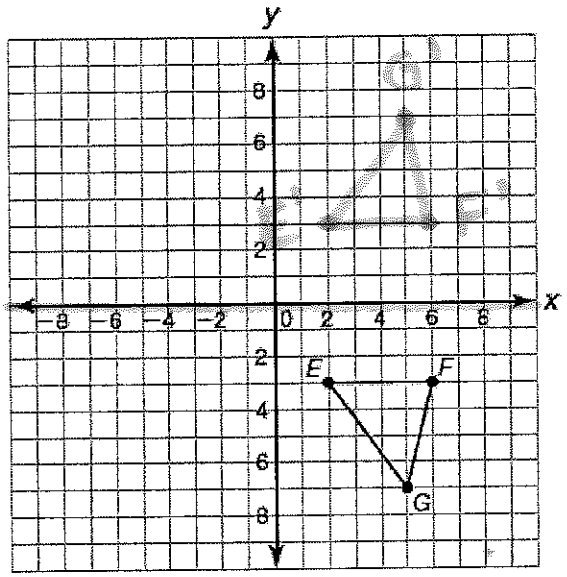
3. Reflect trapezoid HJKL over y = -x.



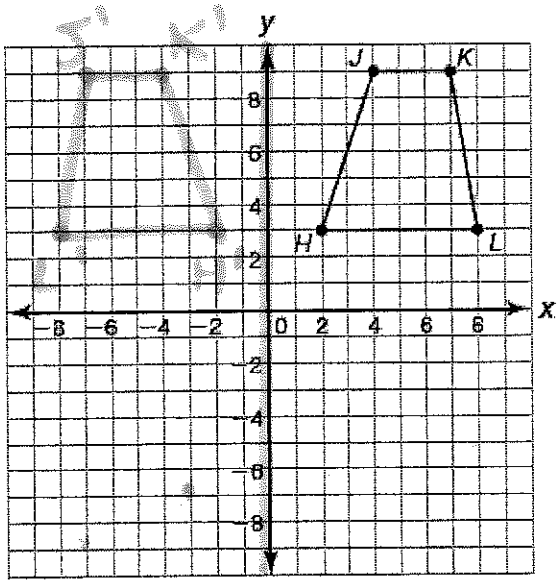
4. Reflect quadrilateral MNPQ over y = x.



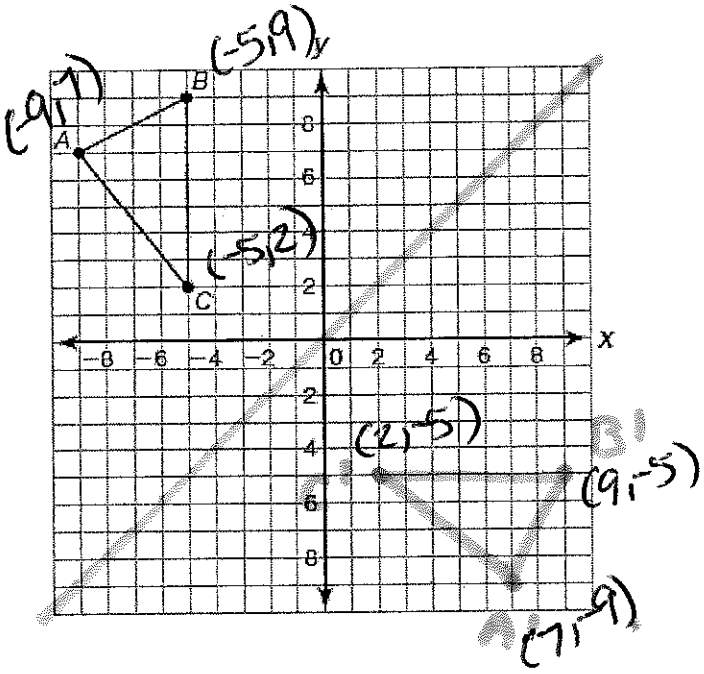
5. Reflect triangle EFG over the x-axis.



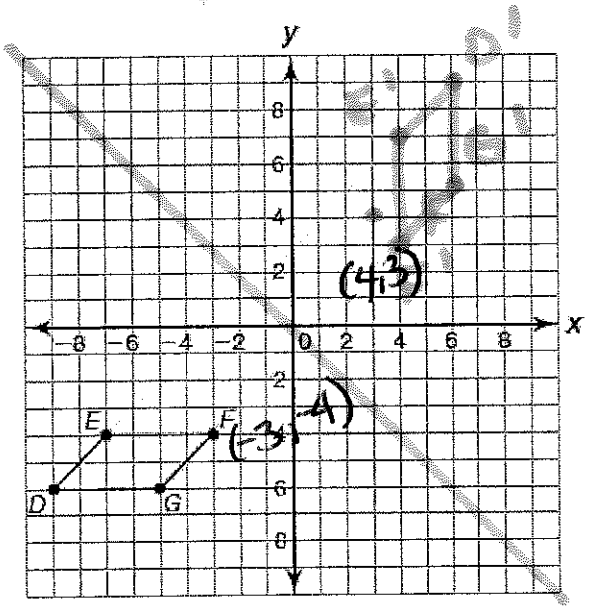
6. Reflect trapezoid HJKL over the y-axis.



7. Reflect triangle ABC over y = x.

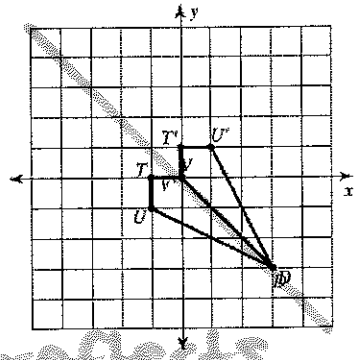


8. Reflect parallelogram DEFG over y = -x.



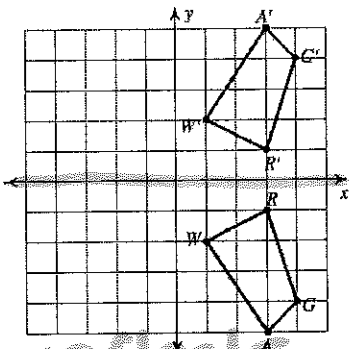
Identify the transformation.

9.



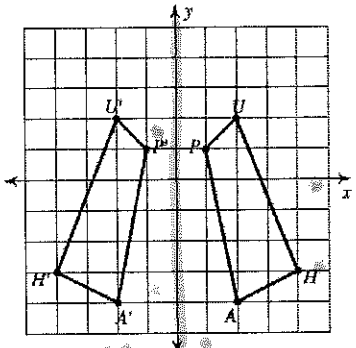
reflects over y = -x

10.



reflects over the x-axis

11.



reflects over the y-axis

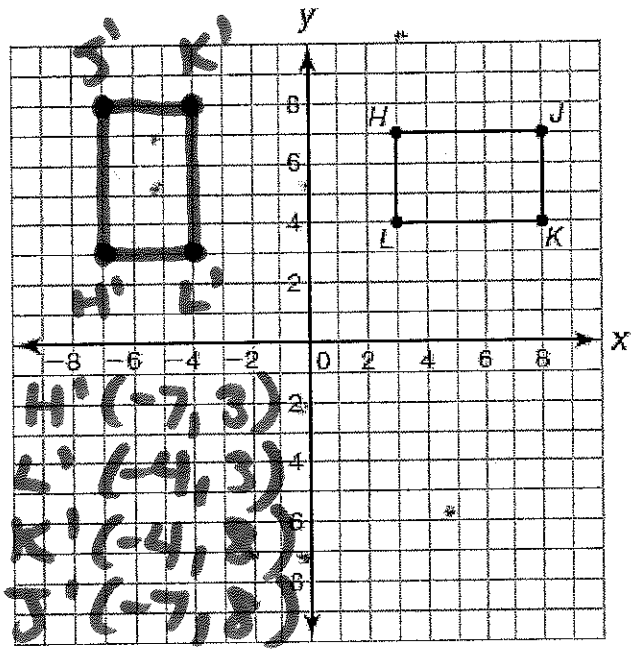
Transformations – Rotations **Name:** Key 3rd

Rotations

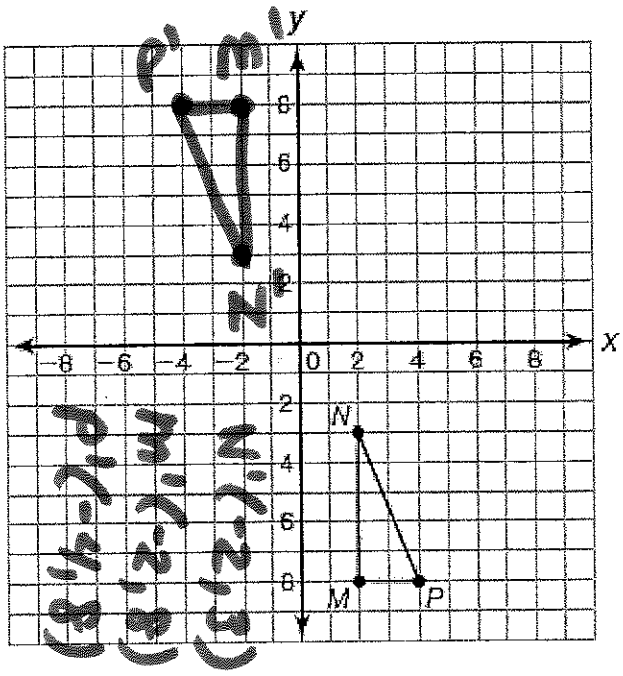
A rotation is a transformation in which a figure is turned about a fixed point. The fixed point is called the center of rotation. It can be rotated clockwise or counterclockwise.

- 90° Clockwise Rotation: $(x, y) \rightarrow (y, -x)$
- 90° Counter-Clockwise Rotation: $(x, y) \rightarrow (-y, x)$
- 180° Rotation: $(x, y) \rightarrow (-x, -y)$

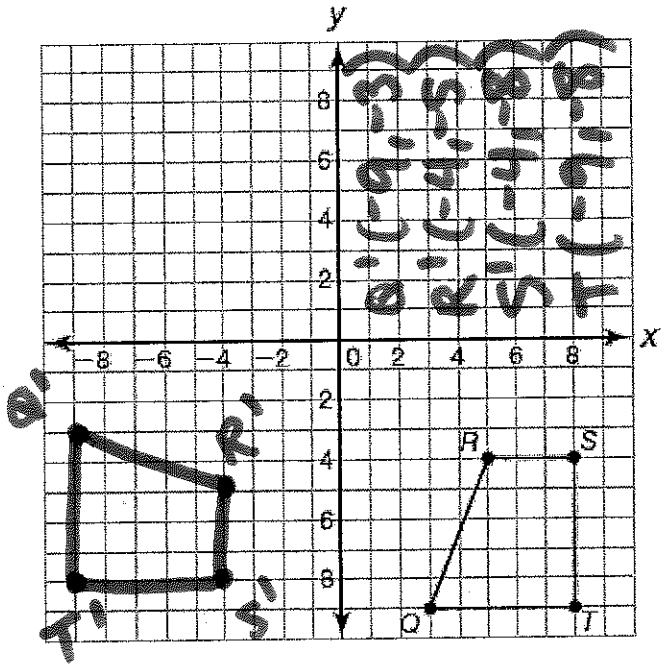
1. Rotate 90° counterclockwise about the origin.



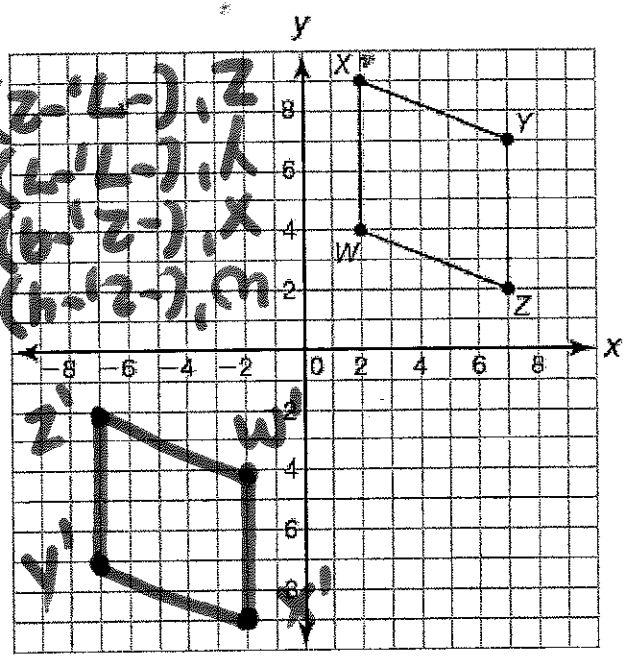
2. Rotate 180° about the origin.



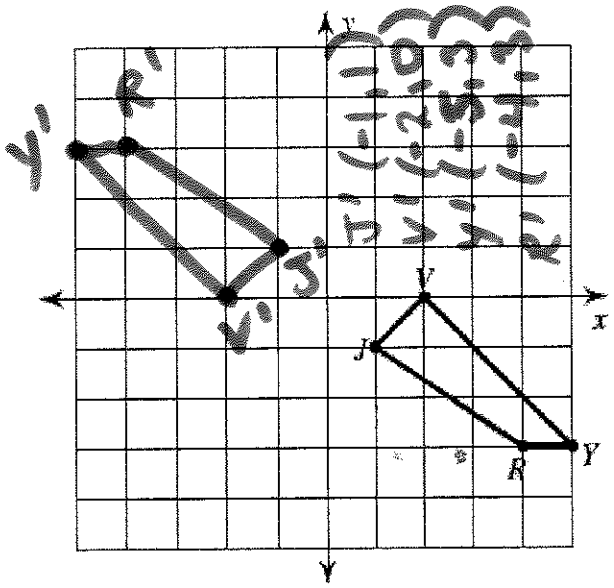
3. Rotate 90° clockwise about the origin.



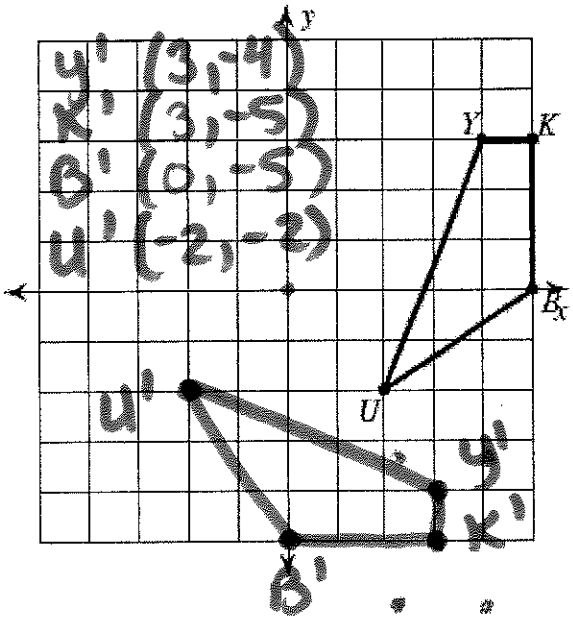
4. Rotate 180° about the origin.



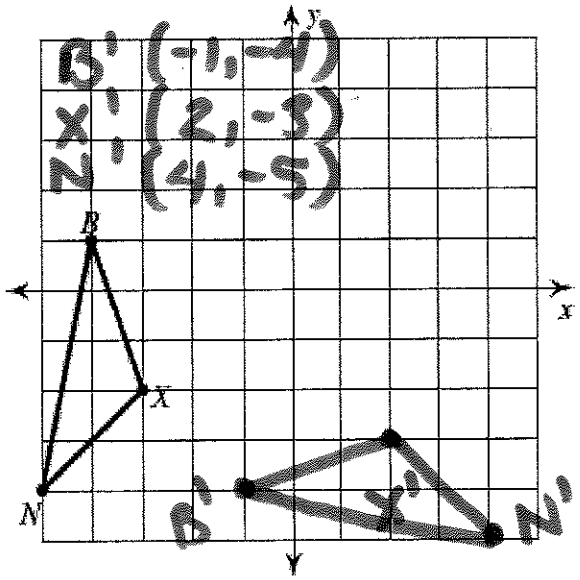
5. Rotate 180° about the origin.



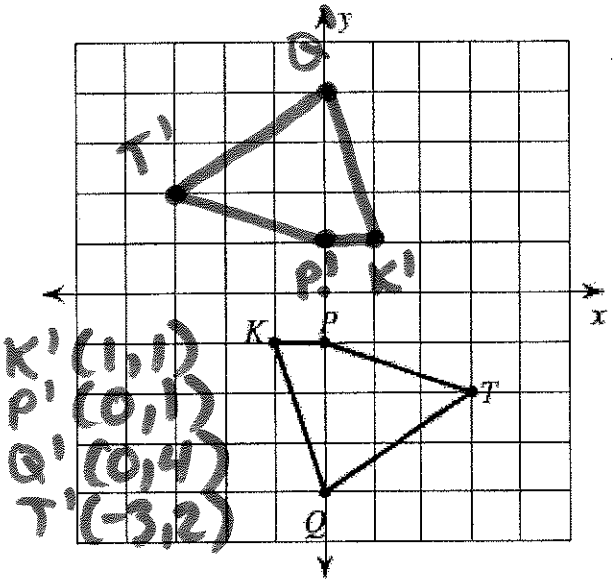
6. Rotate 90° clockwise about the origin.



7. Rotate 90° counterclockwise about the origin.

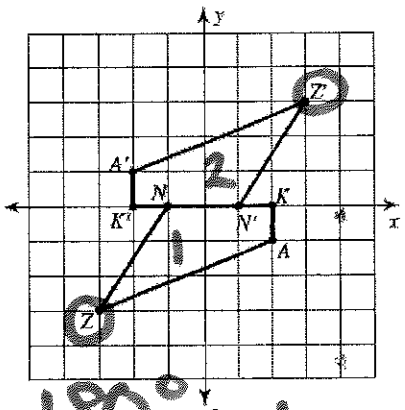


8. Rotate 180° about the origin.

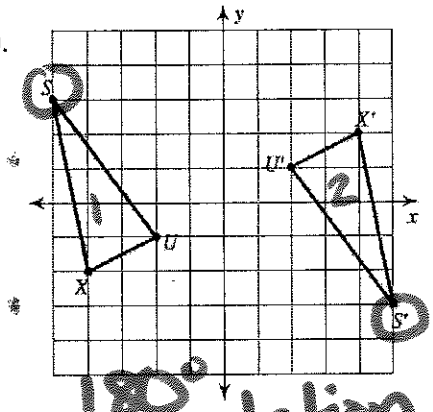
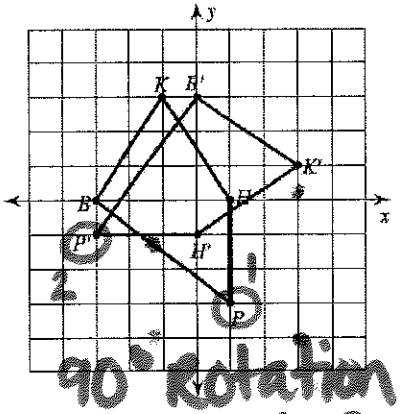


Identify the transformation.

9.



10.



11.