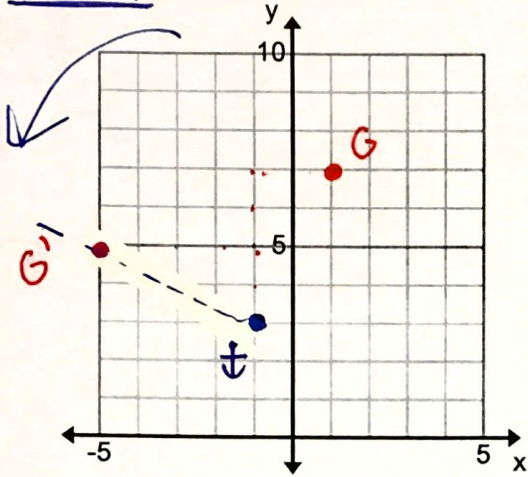Example 1   Rotate the point $G(1,7)$ 90° counterclockwise around the point ⚓ $(-1,3)$. What are the coordinates of G'?

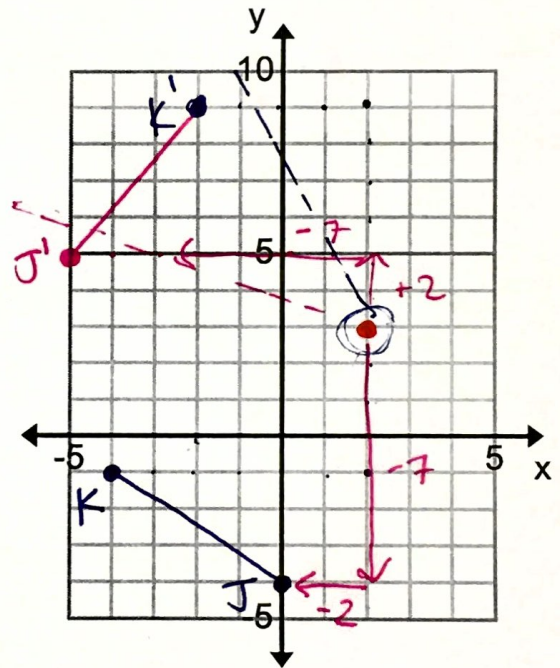⚓ to G: $\dfrac{4}{2}$ ⚓ to G': $\dfrac{2}{-4}$

$$\boxed{G'(-5,5)}$$

Example 2   Rotate the line segment $\overline{JK}$ 90° clockwise around the point $(2,3)$ $J(0,-4),\ K(-4,-1)$ What are the new coordinates?

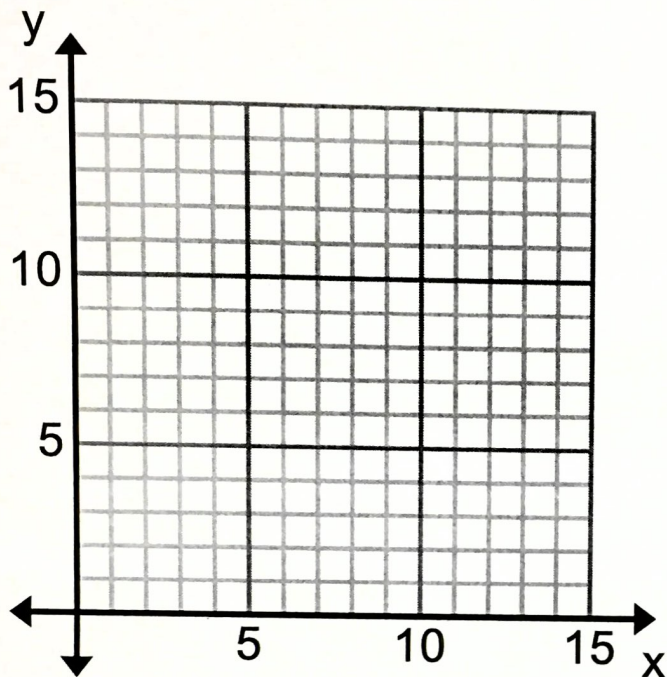⚓ to J: $\dfrac{-7}{-2} = \dfrac{7}{2}$ ⚓ to J': $\dfrac{2}{-7}$

⚓ to K: $\dfrac{-4}{-6} = \dfrac{4}{6}$ ⚓ to K': $\dfrac{6}{4}$
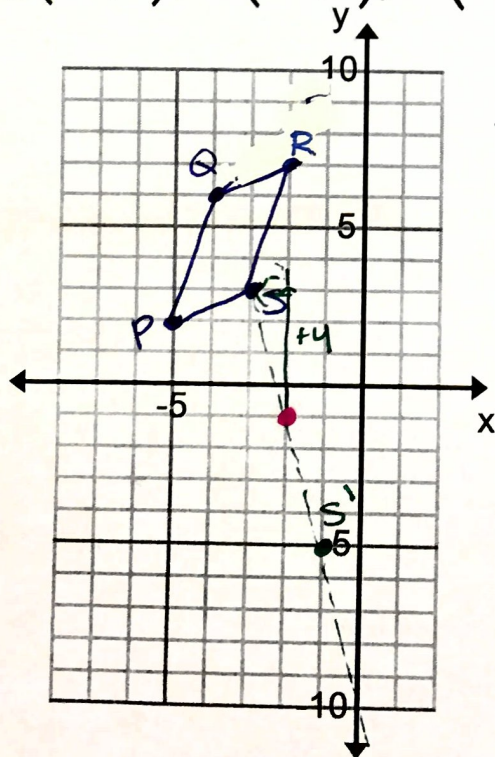
$$\boxed{K'(-2,9) \quad J'(-5,5)}$$

Example 3   Rotate Triangle **LMN** 90° clockwise around the point $(7,4)$

$L(4,5)$, $M(1,10)$, $N(6,12)$ State the coordinates of the new vertices.

Example 7   Rotate Quadrilateral **PQRS** 180° around $(-2,-1)$

$P(-5,2)$, $Q(-4,6)$, $R(-2,7)$, $S(-3,3)$ State the coordinates of the
new vertices

To S from $\clubsuit$: $\dfrac{4}{-1}$ $\clubsuit$ to S': $\dfrac{-4}{1}$