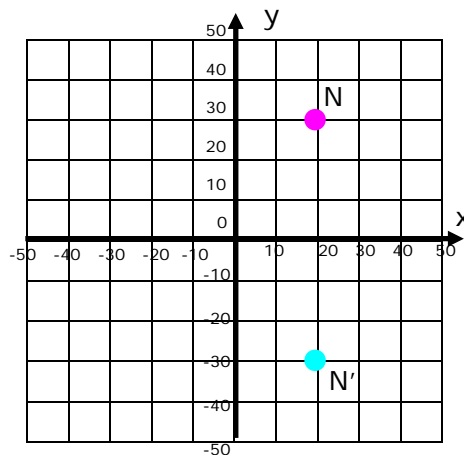


Properties of Rotations, Reflections, and Translations- Guided Lesson Explanation**Explanation#1**

Note that the first important term in the problem that we can identify is the word **reflection**. Reflections are a transformation where one figure is the mirror image of another. Sometimes it's referred to as a flip. So, when a point is reflected over the x-axis, the y-coordinate changes sign.

We will start with the point $N(20, 30)$ and the x-axis.

Now we have to find the mirror image of the point on the other side of the line. Therefore N is 30 units above the x-axis, N' is 30 units below the x-axis (negative). The x-axis stays at 20 because it is reflected over that axis.



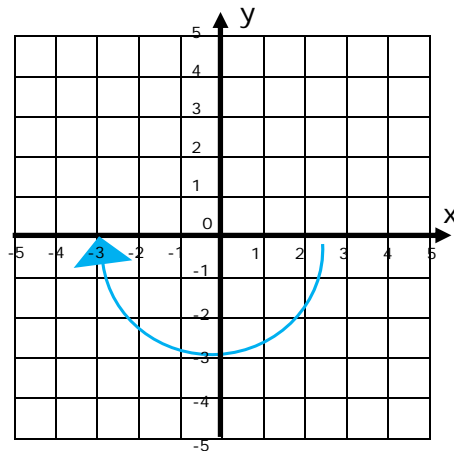
So, the image is $N'(20, -30)$.



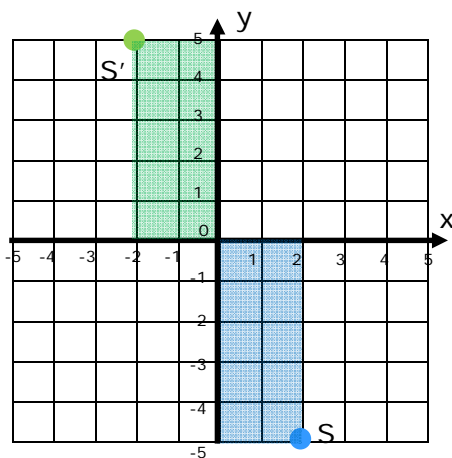
Explanation#2

A rotation is a transformation that turns a figure about a fixed point. It is also called a turn.

We also know that 180° is $\frac{1}{2}$ of a full turn. So, the rotation will turn the point $\frac{1}{2}$ of a full turn in the clockwise direction.



We will start with the point $S(2, -5)$. We will rotate the point $S(2, -5)$ 180° clockwise around the origin from Quadrant IV to Quadrant II. To calculate the exact location, we will imagine $(0,0)$ and S forming opposite corners of a box. Rotate the box, keeping the $(0,0)$ corner fixed.



So, S' has coordinates $(-2, 5)$.

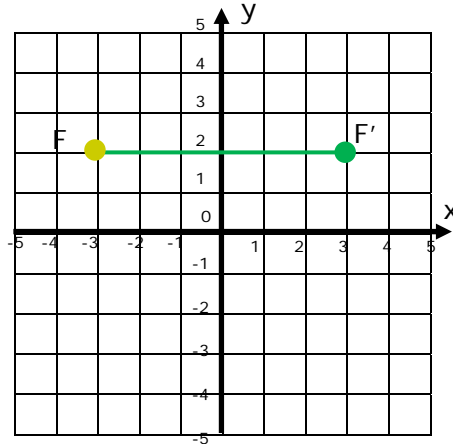


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Explanation#3

First we have to start with the point $F(-3,2)$. Then we should move 6 units right, as instructed by the translation of 6 units.



So, the image is on $F'(3, 2)$.

