

Name: \_\_\_\_\_

# Lesson Guide

This lesson guide accompanies the following video lesson:



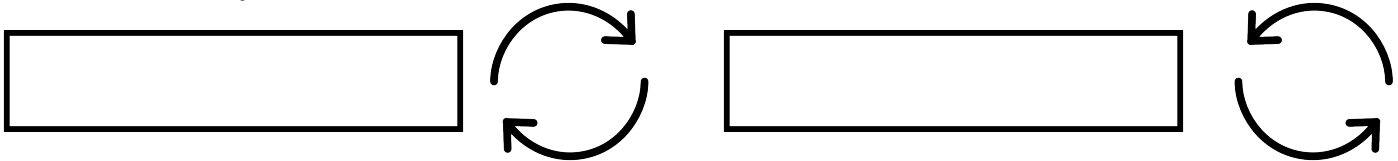
## Geometry Transformations: Rotations

In geometry, a rotation is a change in \_\_\_\_\_.

A rotation NOT a change \_\_\_\_\_ and a rotation is not a \_\_\_\_\_.

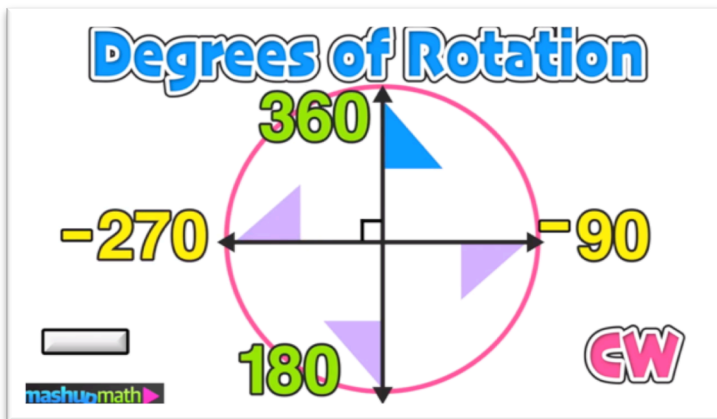
### ► Types of Rotations

There are two types of rotations:

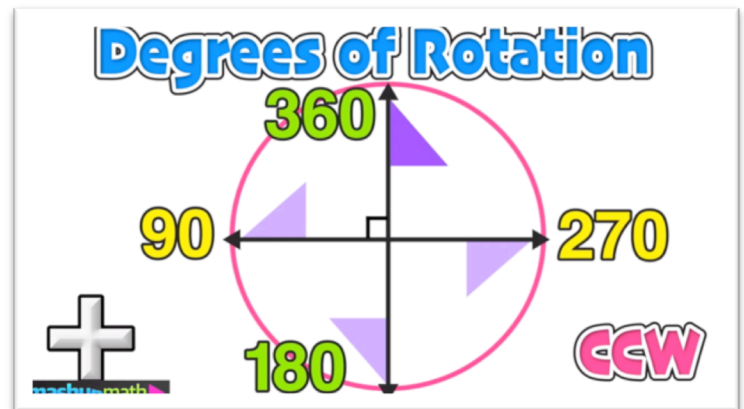


### ► Degrees of Rotations

Since rotations move in a circular direction, rotations are measured in degrees ranging from zero to \_\_\_\_\_.



**Negative rotations** move in a clockwise direction.



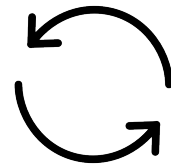
**Positive rotations** move in a counter-clockwise direction.

► **Notation:** A rotation of a figure is a \_\_\_\_\_ movement around a fixed point.

**R**<sub>90</sub>

**Example:** This notation denotes a rotation of positive 90 degrees.

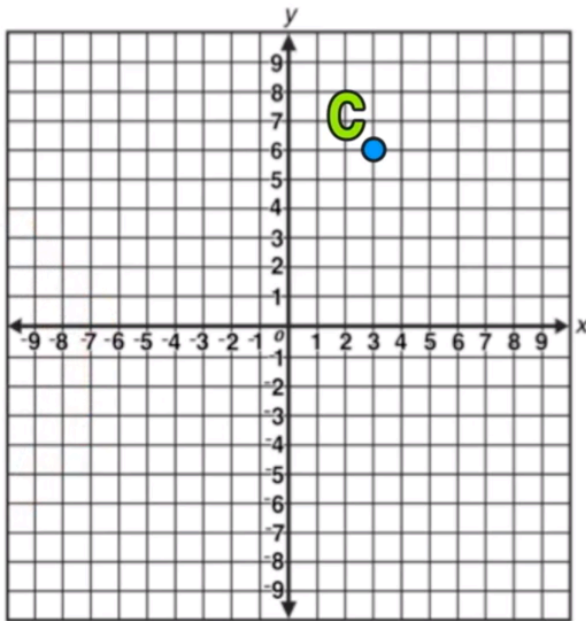
# COUNTER-CLOCKWISE ROTATIONS



## ➤ Example 01:

Perform the following rotation on point C:  $R_{90}$

You have to rotate the point \_\_\_\_\_ degrees in a \_\_\_\_\_ direction.

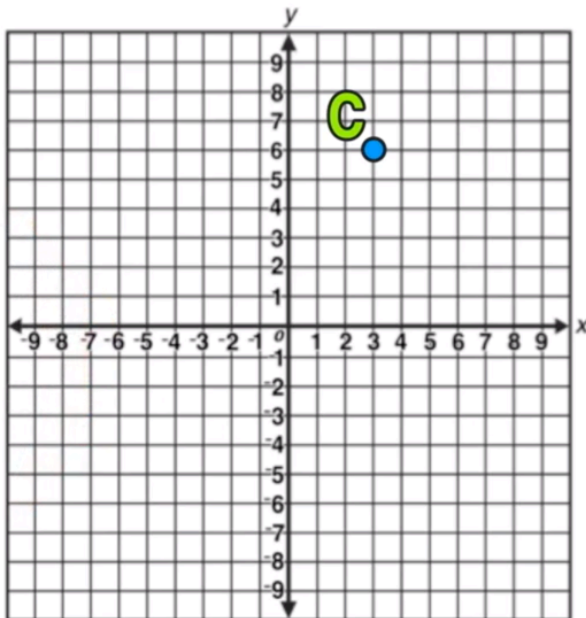


C' ( \_\_\_\_\_ , \_\_\_\_\_ )

## ➤ Example 02:

Perform the following rotation on point C:  $R_{180}$

You have to rotate the point \_\_\_\_\_ degrees in a \_\_\_\_\_ direction.

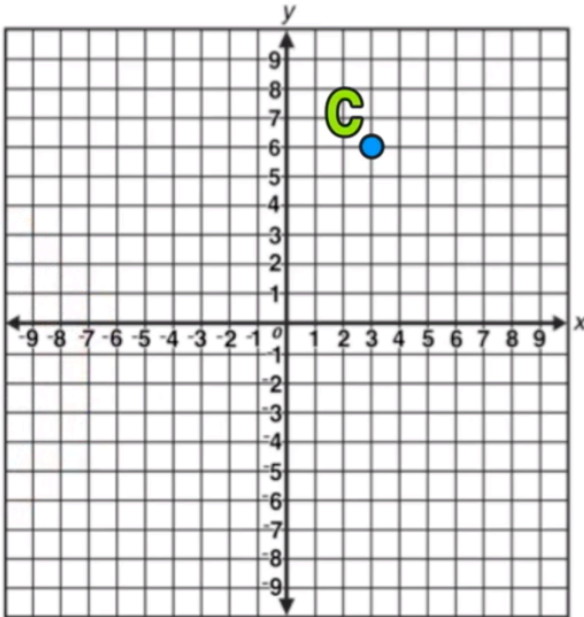


C' ( \_\_\_\_\_ , \_\_\_\_\_ )

➤ **Example 03:**

Perform the following rotation on point C:  $R_{270}$

You have to rotate the point \_\_\_\_\_ degrees in a \_\_\_\_\_ direction.



C' ( \_\_\_\_\_ , \_\_\_\_\_ )

Counter-Clockwise Rotation Rules:

**CCW**

**Rotation Rules**

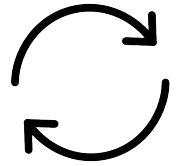
$P(x, y)$

$R_{90} \rightarrow P'(-y, x)$

$R_{180} \rightarrow P'(-x, -y)$

$R_{270} \rightarrow P'(y, -x)$

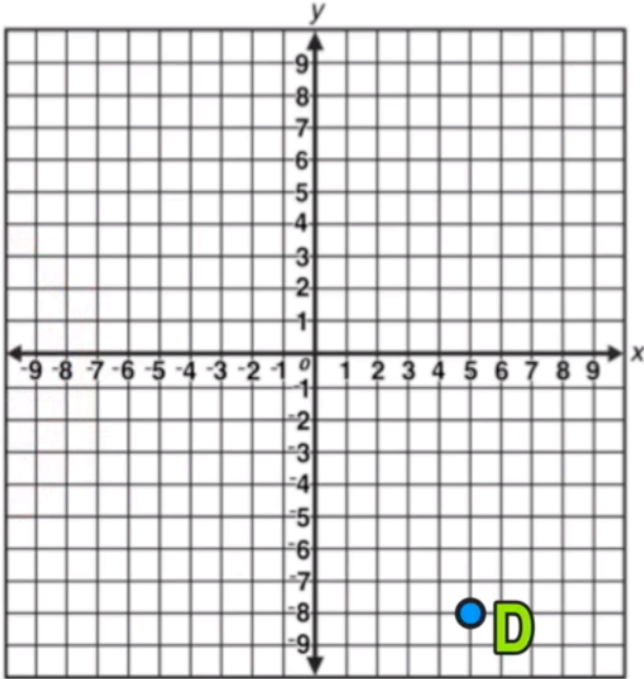
# CLOCKWISE ROTATIONS



## ➤ Example 01:

Perform the following rotation on point D:  $R_{-90}$

You have to rotate the point \_\_\_\_\_ degrees in a \_\_\_\_\_ direction.

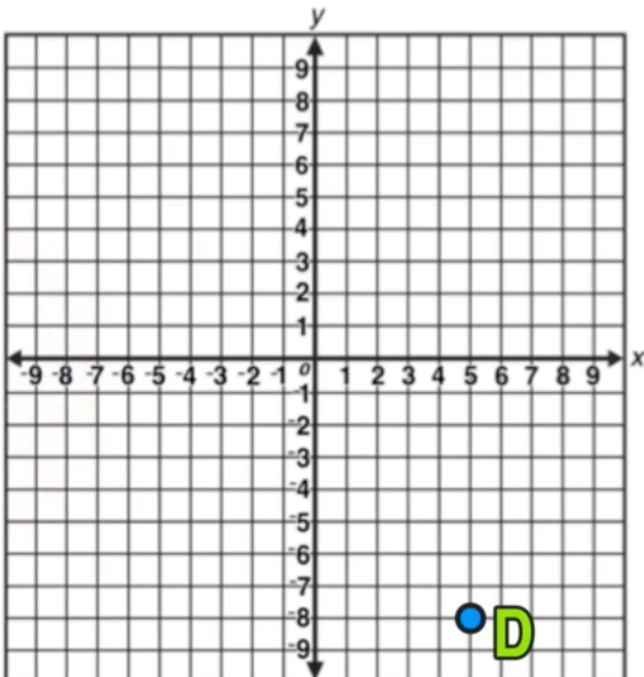


D' ( \_\_\_\_\_, \_\_\_\_\_ )

## ➤ Example 02:

Perform the following rotation on point D:  $R_{-180}$

You have to rotate the point \_\_\_\_\_ degrees in a \_\_\_\_\_ direction.

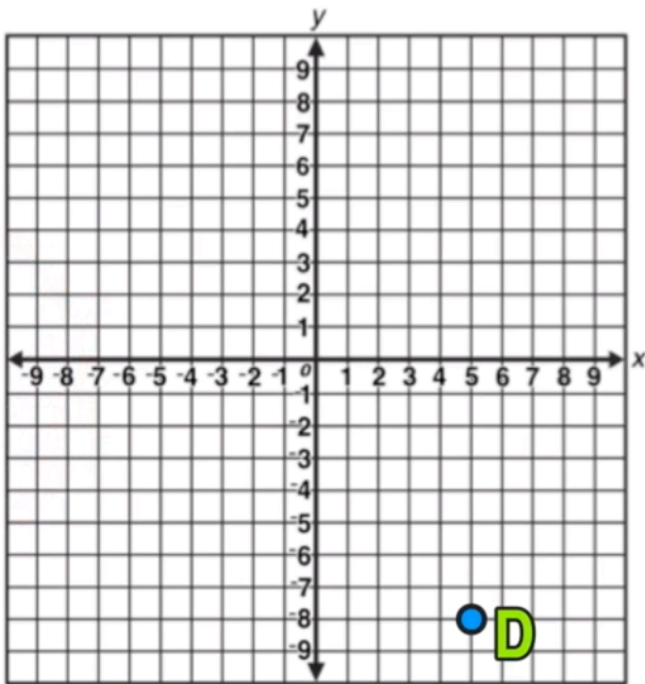


D' ( \_\_\_\_\_, \_\_\_\_\_ )

➤ **Example 03:**

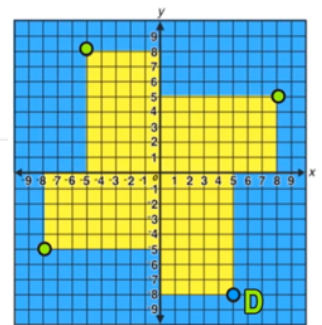
Perform the following rotation on point D:  $R_{-270}$

You have to rotate the point \_\_\_\_\_ degrees in a \_\_\_\_\_ direction.



D' ( \_\_\_\_\_ , \_\_\_\_\_ )

**Clockwise Rotation Rules:**



**Rotation Rules**

$R_{-90} \rightarrow P'(y, -x)$

$R_{-180} \rightarrow P'(-x, -y)$

$R_{-270} \rightarrow P'(-y, x)$

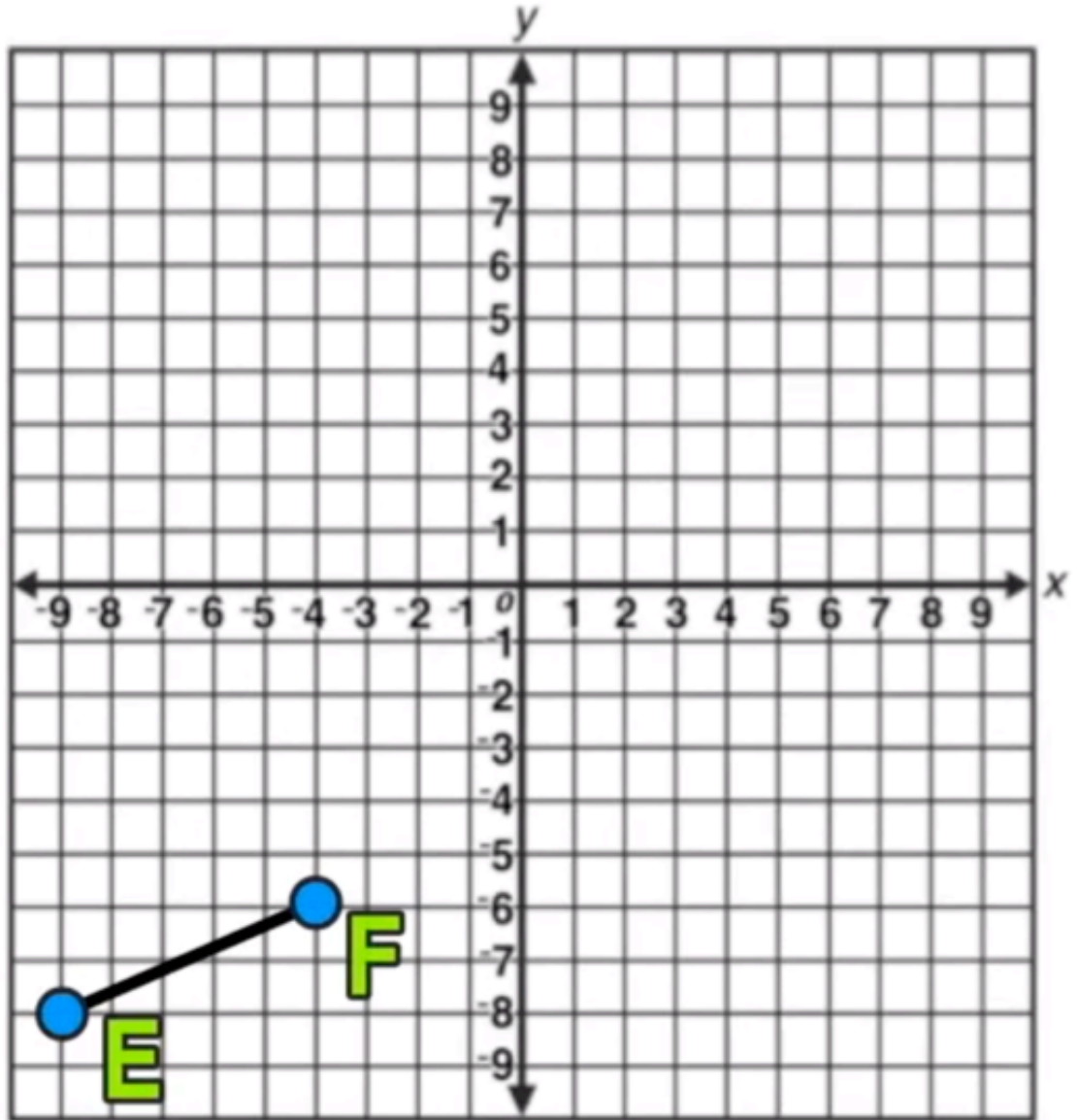
mashupmath

# Rotate a Line Segment

➤ **Example 01:**

Construct the image of  $\overline{EF}$  after a clockwise rotation of 90 degrees about the origin.

**R**



E' ( \_\_\_\_\_, \_\_\_\_\_ )

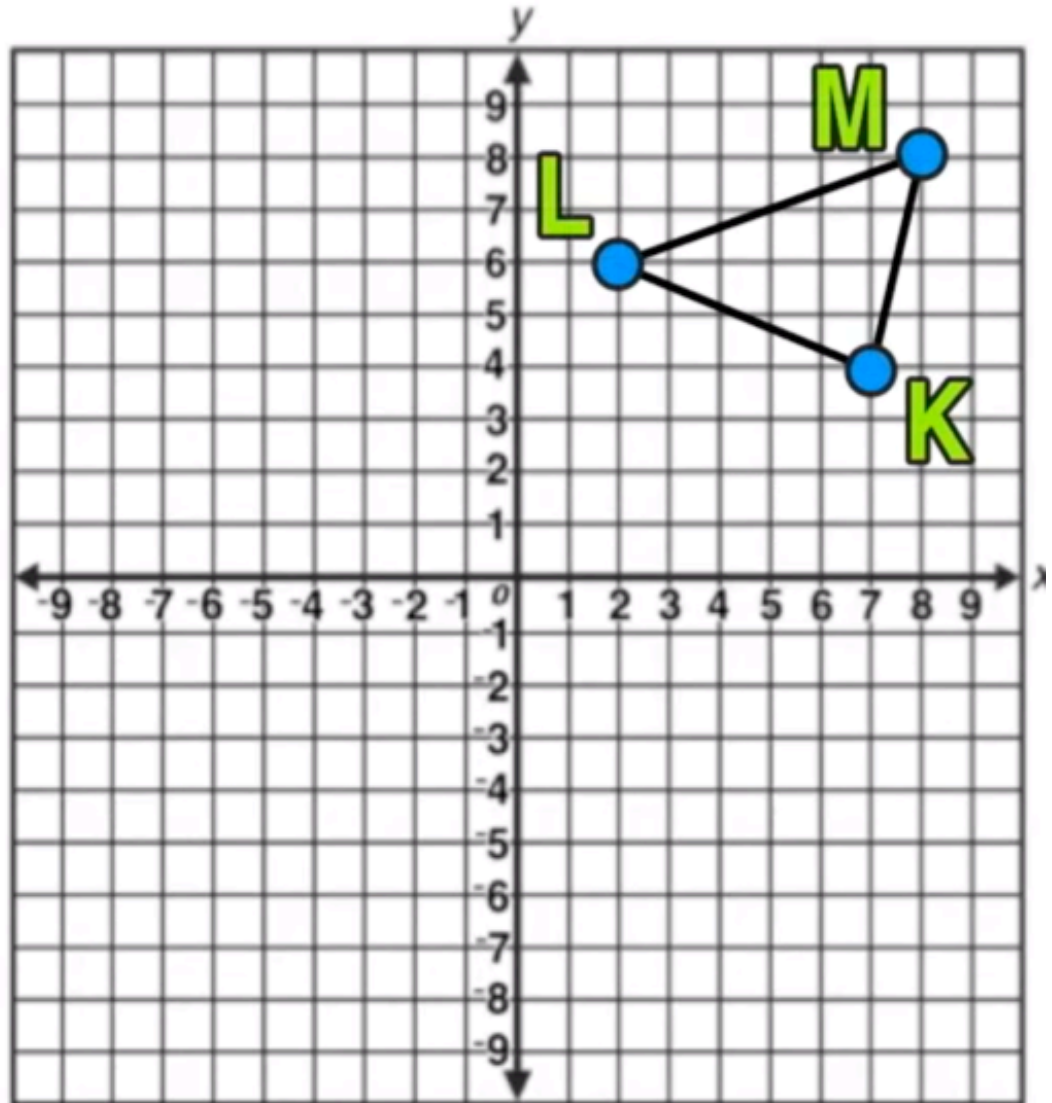
F' ( \_\_\_\_\_, \_\_\_\_\_ )

# Rotate a Figure

## ➤ Example 01:

Perform the following transformation on  $\triangle LMK$ :

$R_{180}$



L' ( \_\_\_\_\_, \_\_\_\_\_ )

M' ( \_\_\_\_\_, \_\_\_\_\_ )

K' ( \_\_\_\_\_, \_\_\_\_\_ )