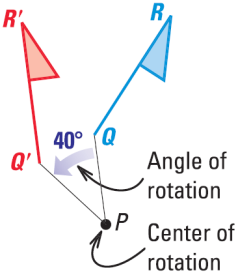
Geometry

9.4 Perform Rotations

# Rotation

Center of rotation

point

turned

* Figure is \_\_\_\_\_\_\_\_\_\_\_\_ about a \_\_\_\_\_\_\_\_\_\_ called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Angle of rotation

turning

* The amount of \_\_\_\_\_\_\_\_\_\_\_ is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

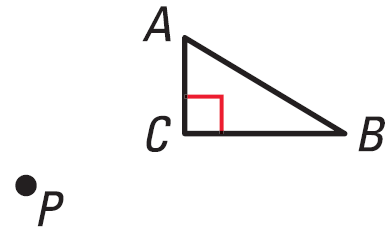
## Rotation Theorem

isometry

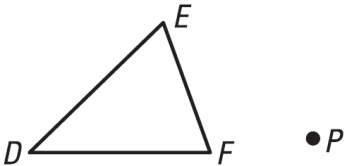
A rotation is an \_\_\_\_\_\_\_\_\_\_\_\_\_.

## Draw a rotation of ΔABC about P.

1. Draw a segment from A to P.
2. Draw a ray to form a 120° angle with
3. Draw A’ so that PA’ = PA
4. Repeat steps 1-3 for each vertex. Draw ΔA’B’C’.

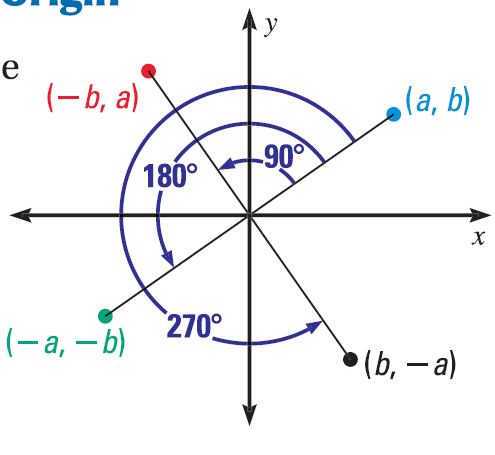


Draw a 50° rotation of ΔDEF about P.



## Coordinate Rules for Counterclockwise Rotations about the Origin

(-b, a)



* 90°: (a, b) 🡪 \_\_\_\_\_\_\_\_\_

(-a, -b)

* 180°: (a, b) 🡪 \_\_\_\_\_\_\_\_\_

(b, -a)

* 270°: (a, b) 🡪 \_\_\_\_\_\_\_\_\_

## Rotation Matrices (counterclockwise)

90°

* \_\_\_\_\_\_\_\_\_:

180°

* \_\_\_\_\_\_\_\_\_:

270°

* \_\_\_\_\_\_\_\_\_:
* \_\_\_\_\_\_\_\_\_:

image

polygon

Rotation

360°

* [\_\_\_\_\_\_\_\_\_\_\_\_\_\_Matrix] [\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Matrix] = [\_\_\_\_\_\_\_\_\_\_\_\_\_\_Matrix]

If E(-3, 2), F(-3, 4), G(1, 4), and H(2, 2). Find the image matrix for a 270° rotation about the origin.

Assignment: 602 #4-28 even, 32, 36-40 even, 41-46 all = 23