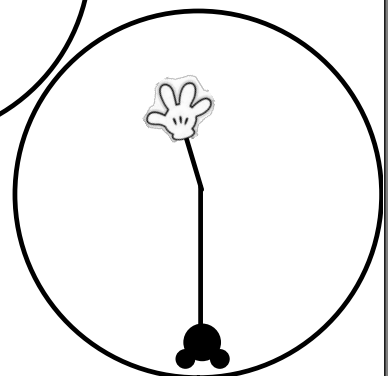
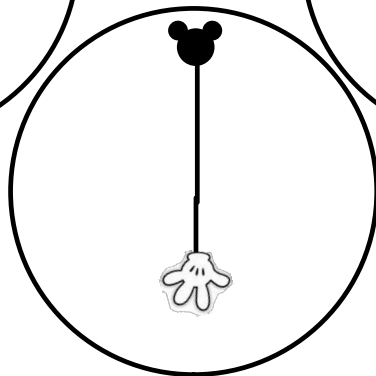
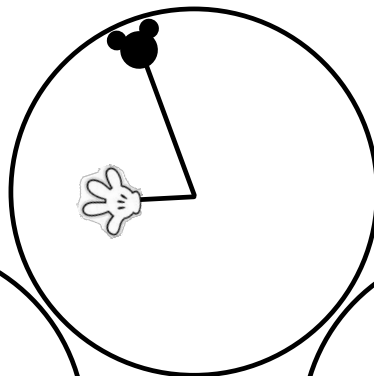
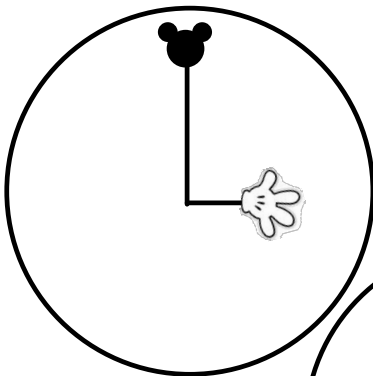


Geometry

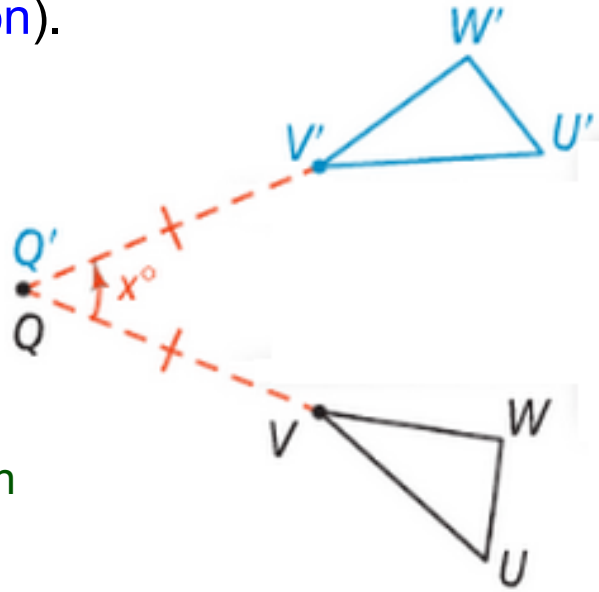
Chapter 9

Section 9-3

The clock below shows the hands at 3:00. Draw the clock as it would look at 6:00, 8:55, and 11:30.

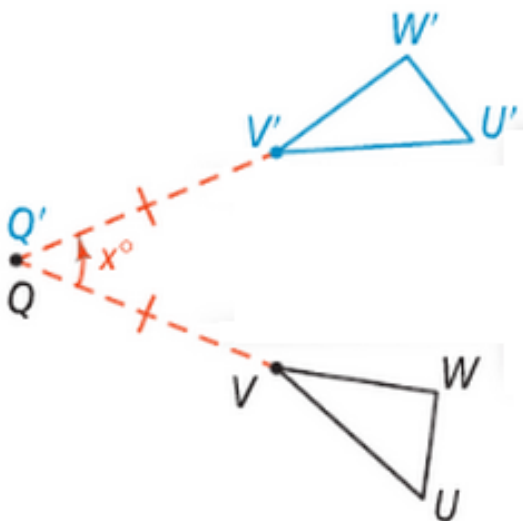


A **rotation** takes an object and spins it around a given point (called the **center of rotation**) at a given angle (called the **angle of rotation**).

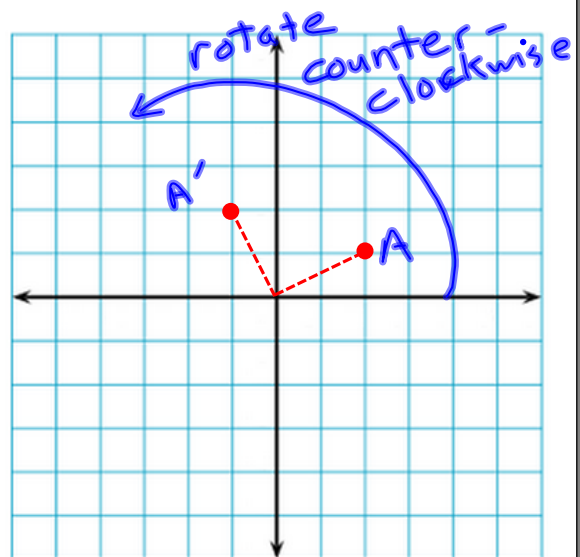


Q is the center of rotation
 $\angle VQV'$ is the angle of rotation

$$r_{(x, Q)}(\triangle UVW) = \triangle U'V'W'$$

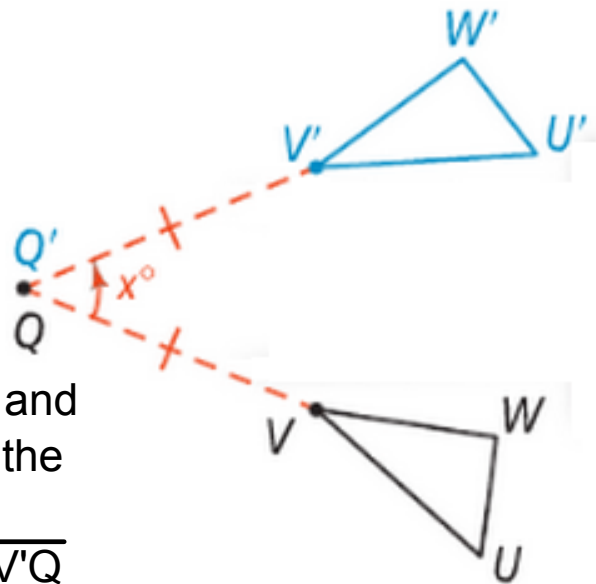


$$r_{(90)}(A) = A'$$



Properties of a rotation:

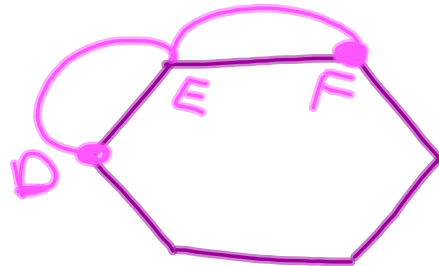
- The center of rotation stays in the same place
 - > Q is the same as Q'
- For any other point, the image and preimage are equidistant from the center
 - > \overline{VQ} is the same length as $\overline{V'Q}$
 - > $m\angle VQV' = x$



A regular hexagon (ABCDEF) is rotated 120° around the center of the hexagon. Which points in the preimage could have an image of point D?

$$\frac{120}{360} = \frac{1}{3}$$

B or F



Congratulations!

You're on Wheel of Fortune. Your marker is on the \$300 wedge of the wheel, which is congruent to all other wedges on the wheel.

Which wedge would you be on if you spun the wheel with a counterclockwise rotation of 210° ?



24 wedges

$$\frac{360}{24} = 15^\circ$$

$$\frac{210}{15} = 14 \text{ wedges}$$

\$900

What is $r_{(360^\circ, 0)}(A)$?

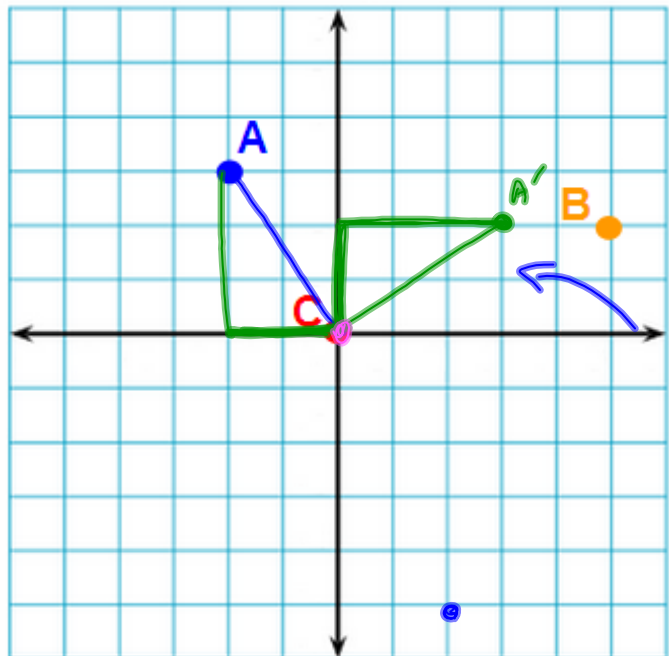
$$A = A'(-2, 3)$$

What is $r_{(270^\circ, 0)}(\Delta ABC)$?

$$A(-2, 3) \quad A'(3, 2)$$

$$B(5, 2) \quad B'(2, -5)$$

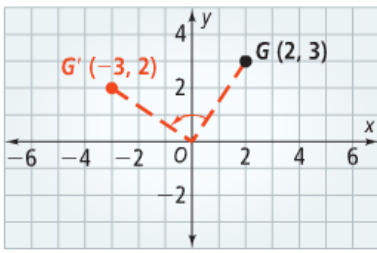
$$C(0, 0) \quad C'(0, 0)$$



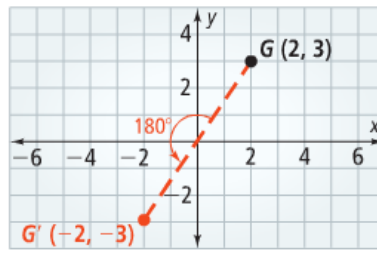
take note

Key Concept Rotation in the Coordinate Plane

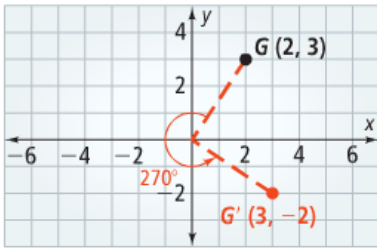
$r_{(90^\circ, O)}(x, y) = (-y, x)$



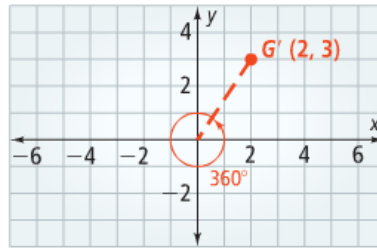
$r_{(180^\circ, O)}(x, y) = (-x, -y)$



$r_{(270^\circ, O)}(x, y) = (y, -x)$



$r_{(360^\circ, O)}(x, y) = (x, y)$



What is $r_{(180^\circ, O)}(A)$?

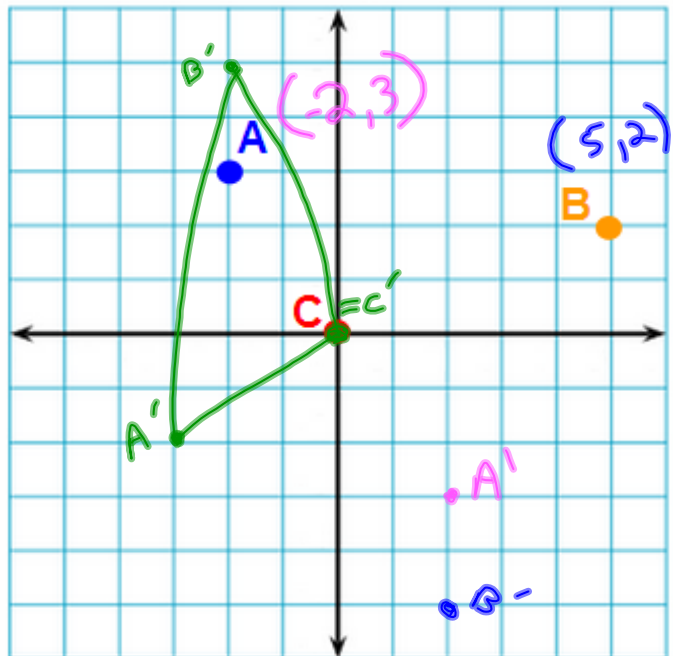
(2, -3)

What is $r_{(270^\circ, O)}(B)$?

(2, -5)

What is $r_{(90^\circ, O)}(\Delta ABC)$?

A'(-3, -2)
 B'(-2, 5)
 C'(0, 0)



Homework

Pages 565 - 566

17 - 21 all, 34, 35, 40 - 48 all