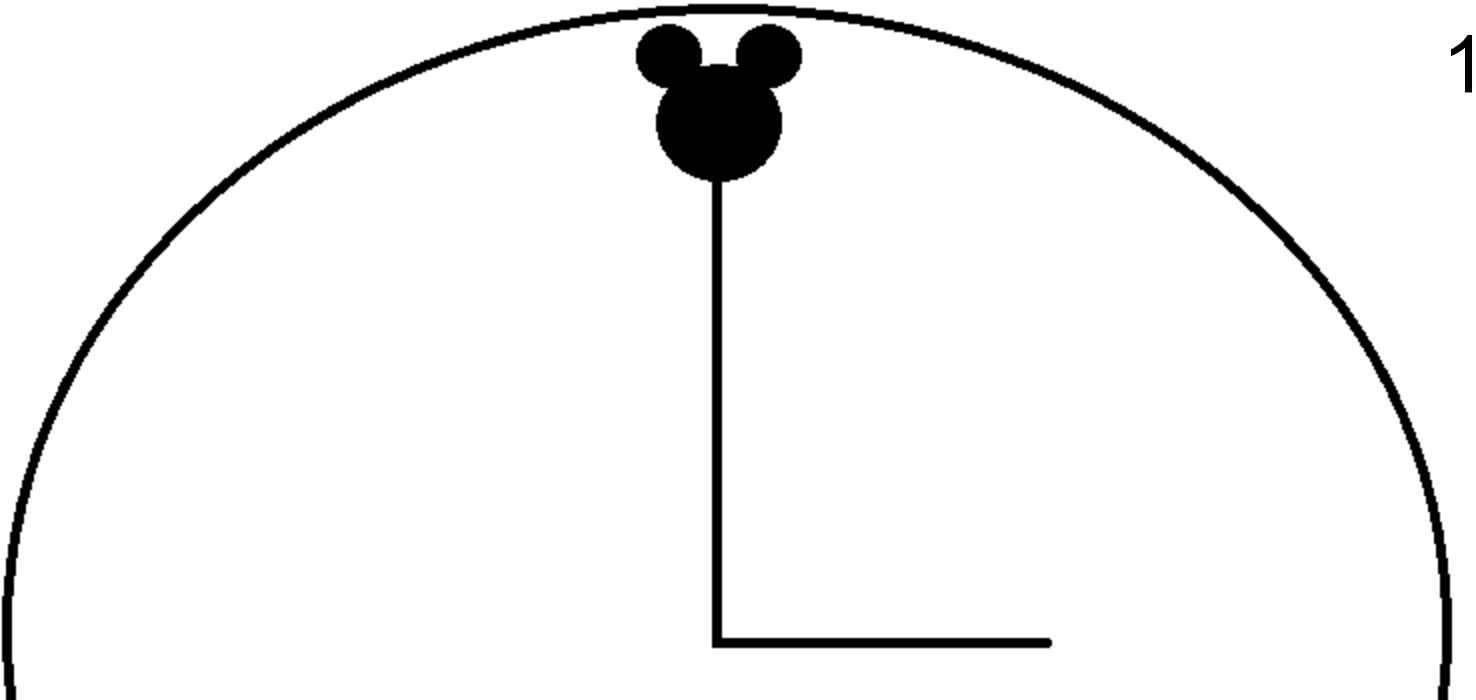
Geometry

Chapter 9
Section 9-3

Clock Hands

You are given a keepsake clock by a cartoon mouse. At 3:00 the hands look like:



What will the symbol on the minute hand look like at:

6:00?

11:30?

8:55?

Rotations

take note

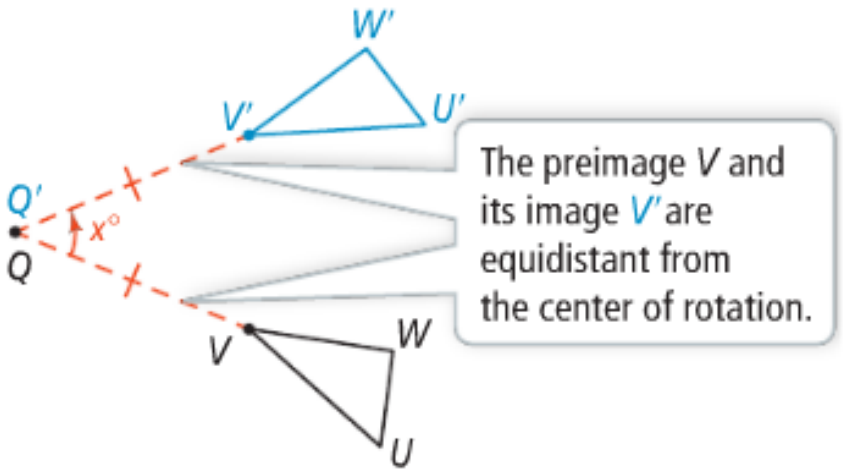
Key Concept Rotation About a Point

A **rotation** of $x°$ about a point Q, called the **center of rotation**, is a transformation with these two properties:

- The image of Q is itself (that is, $Q' = Q$).
- For any other point V, $QV' = QV$ and $m\angle VQV' = x$.

The number of degrees a figure rotates is the **angle of rotation**.

A rotation about a point is a rigid motion. You write the $x°$ rotation of $\triangle UVW$ about point Q as $r_{(x°, Q)}(\triangle UVW) = \triangle U'V'W'$.

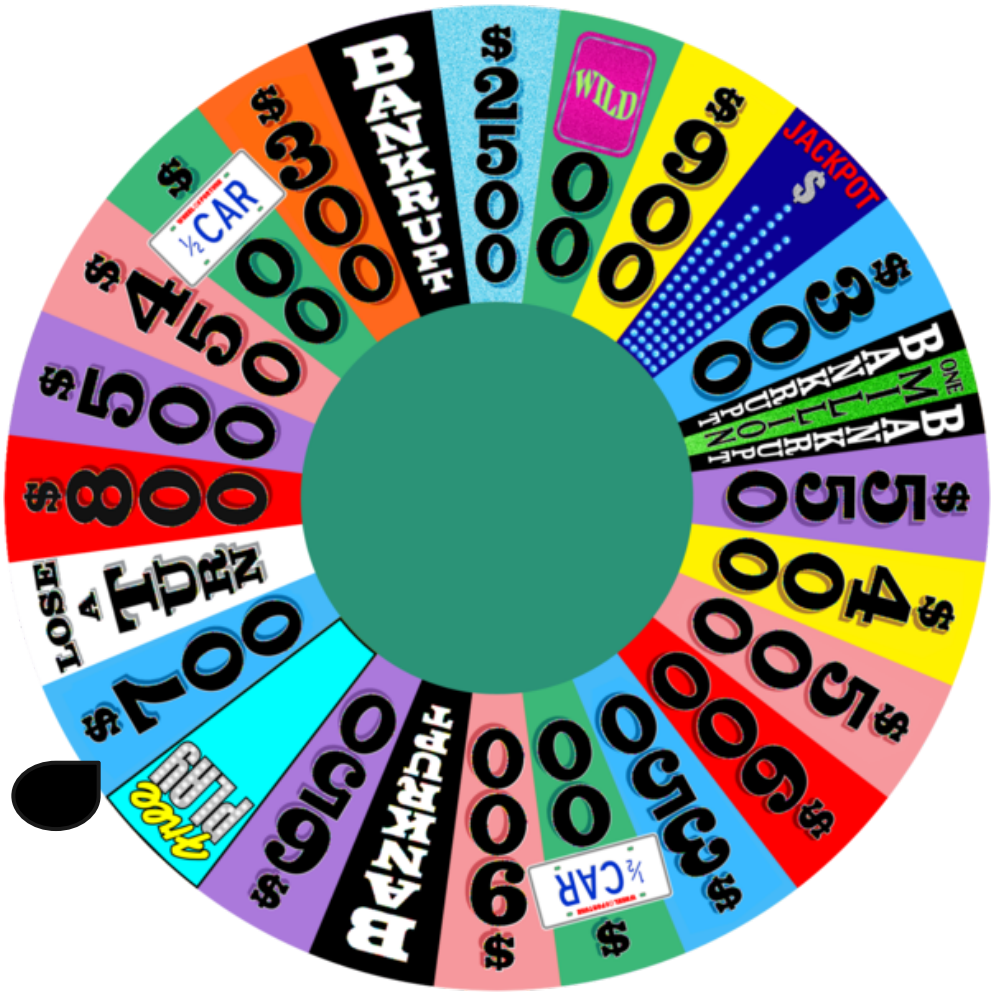


$r_{(30,A)}(\Delta XYZ)$ is the 30° rotation of ΔXYZ around point A

***rotations are always assumed to be counterclockwise

Using a Rotation

Congratulations!
You're on Wheel of Fortune. Your marker is on the $700 wedge of the wheel. There are 24 congruent wedges on the wheel. Which wedge would you be on if you spun the wheel counterclockwise at a rotation of 210^{O}?

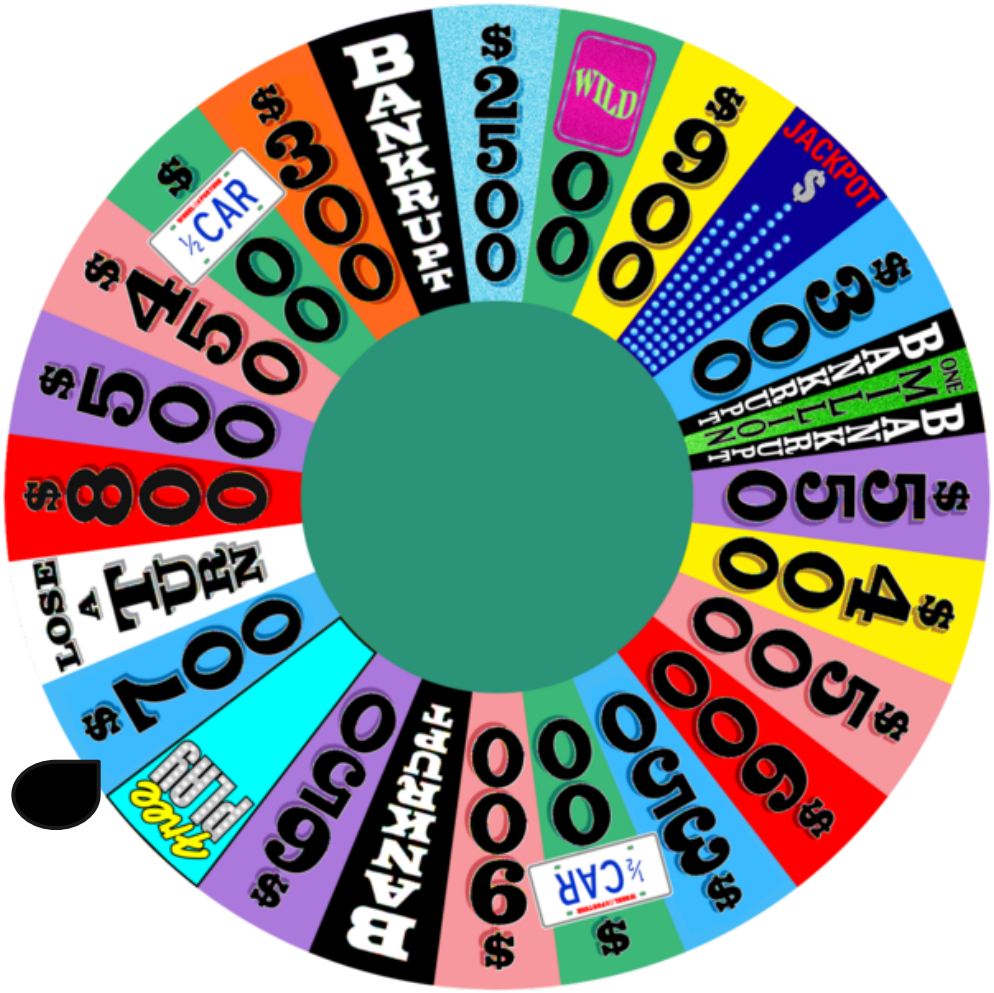


$900

Using a Rotation

A rotation of what measure would put you on $550?

150°



Rotations Within a Polygon

A regular hexagon (ABCDEF) is rotated 120º around the absolute center of the hexagon. Which points in the image of the transformation could be in the same position as point D in the preimage?

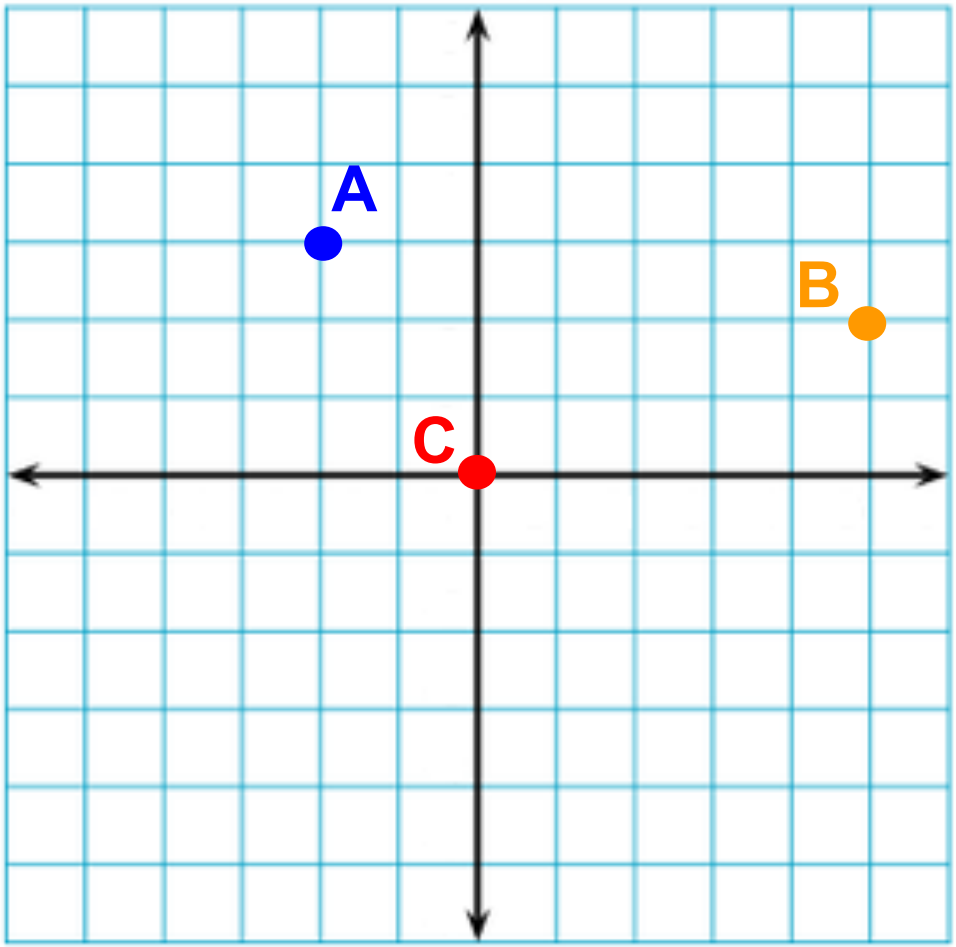
An equilateral triangle is centered at the origin. Write three rotation rules that would map the triangle onto itself?

Rotations in the Coordinate Plane

What is the $r_{(90, O)}(A)$?

What is the $r_{(270, O)}(B)$?

What is the $r_{(180, O)}(ABC)$?



*** "O" is the origin at (0, 0)

Homework

Pages 565 - 567
 # 17 - 22 all, 27, 31, 34, 35, 59, 60, 61