

Digits 9-3 Notes Rotations of Shapes

3/1/2019

Goal: I will be able to rotate a figure around a center of rotation.

Rotation
a rigid motion turns a figure about a point

Center of Rotation
The point the figure is rotated around

Angle of Rotation
The number of degrees it rotates.

Example Which of the following is a rotation?

$\angle AOA' = \angle BOB'$
Yes it is a rotation
 $\angle \Rightarrow$ angle

$\angle AOA' \neq \angle BOB'$
Not a rotation

$\angle AOA' \neq \angle COC'$
Not a rotation

Angle of Rotation What is the angle of rotation?

90° rotation

We Try

Rectangle ABCD has coordinates A (1,2), B (1,0), C (5,0), & D (5,2)

a) Rotate it 90° about the origin
b) Rotate it 180° about the origin
c) Rotate it 270° about the origin

d) Use arrow notation to describe the rotations.

90°
 $(x, y) \rightarrow (-y, x)$

$(x, y) \rightarrow (-y, x)$

Angle of Rotation	Original Coordinate	Rotated Coordinate
90°	A (1,2)	\rightarrow A' (-2,1)
	B (1,0)	\rightarrow B' (0,1)
	C (5,0)	\rightarrow C' (0,5)
	D (5,2)	\rightarrow D' (-2,5)

d) Use arrow notation to describe the rotations.

180°
 $(x, y) \rightarrow (-x, -y)$

Angle of Rotation	Original Coordinate	Rotated Coordinate
180°	A (1,2)	\rightarrow A' (-1,-2)
	B (1,0)	\rightarrow B' (-1,0)
	C (5,0)	\rightarrow C' (-5,0)
	D (5,2)	\rightarrow D' (-5,-2)

d) Use arrow notation to describe the rotations.

270°
 $(x, y) \rightarrow (y, -x)$

Angle of Rotation	Original Coordinate	Rotated Coordinate
270°	A (1,2)	\rightarrow A' (2,-1)
	B (1,0)	\rightarrow B' (0,-1)
	C (5,0)	\rightarrow C' (0,-5)
	D (5,2)	\rightarrow D' (2,-5)