

## Section 7.6 Rotations and Rotational Symmetry

### Rotational Symmetry

A figure has rotational symmetry if it can be turned around its center to match itself in less than a  $360^\circ$  turn.



- order of rotational symmetry
- angle of rotation

line of symmetry: same shape when reflected

rotational symmetry: same shape when rotated

## Order of rotational symmetry (degree of rotational symmetry)

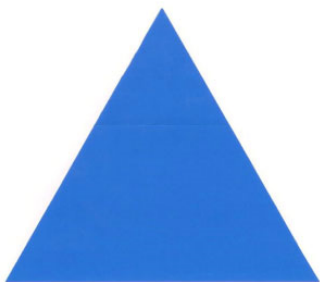
↳ The number of times in one complete turn that a figure matches itself

## Angle of Rotation

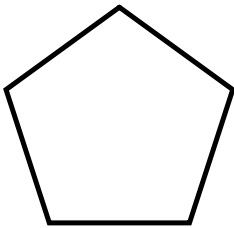
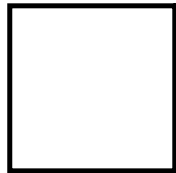
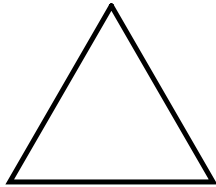
↳ The minimum angle required for a shape to rotate and coincide with itself

$$\frac{360^\circ}{\text{order of rotation}}$$





Use the drawings below to help you determine the order or degree of rotational symmetry for each of the regular polygons.



Number of Sides	Degree or Order of Rotational Symmetry
3	
4	
5	
6	
n	

Make a general statement describing the relationship between the number of sides and the degree OR order of rotational symmetry in regular polygons.

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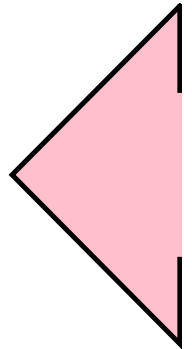
Number of Sides	Degree or Order of Rotational Symmetry	Angle of Rotation Symmetry
3		
4		
5		
6		

Try these!

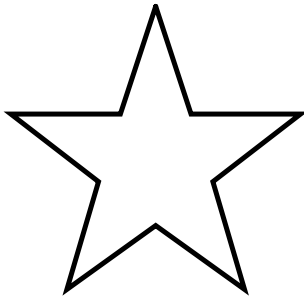
A)



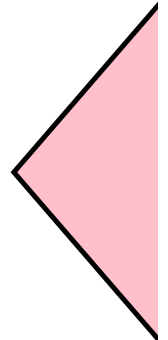
Order of Rotational Symmetry  
Angle of Rotation Symmetry



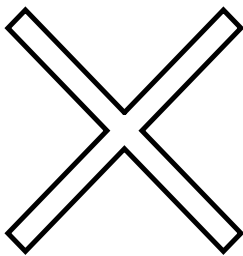
B)



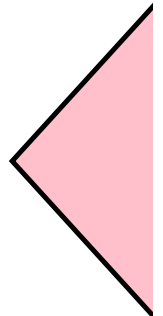
Order of Rotational Symmetry  
Angle of Rotation Symmetry



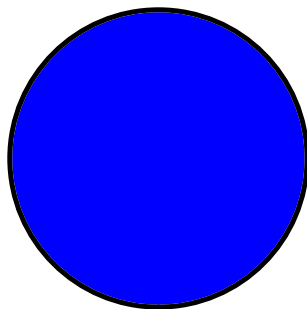
C)

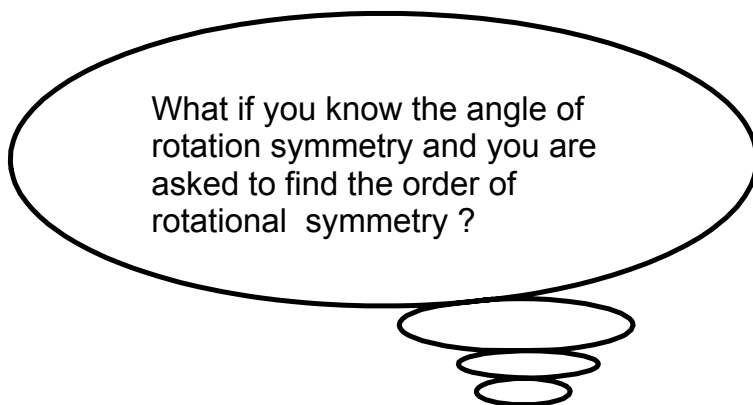


Order of Rotational Symmetry  
Angle of Rotation Symmetry



What do you think the order of symmetry is for a circle?





Examples:

What is the order of rotational symmetry for each angle of rotation symmetry?

A)  $90^\circ$

B)  $120^\circ$

