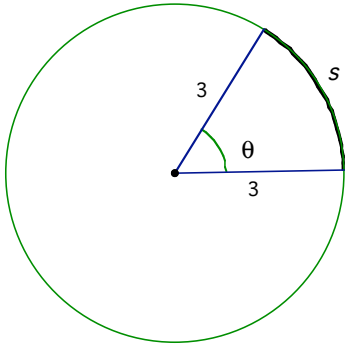
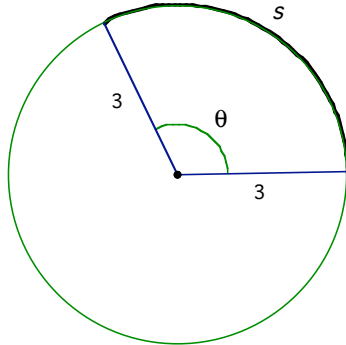


Radian Measure and Arc Length

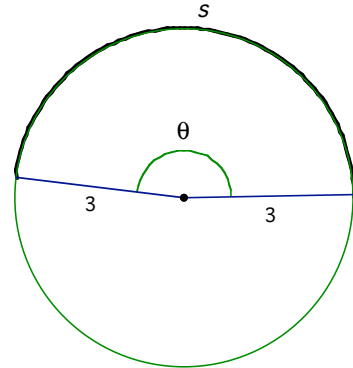
$\theta = 1$ radian



$\theta = 2$ radians



$\theta = 3$ radians



Fill in the table below:

Measure of Central Angle (θ)	Arc Length (s)
1 radian	
2 radians	
3 radians	
θ radians	

What relationship exists among central angle θ , radius r , and arc length s ?

Examples:

1. A circle has a radius of 3 inches. Find the length of an arc intercepted by a central angle whose measure is 2.5 radians.
2. In a circle whose radius measures 6 feet, a central angle intercepts an arc of length 9 feet. Find the radian measure of the central angle.
3. The bottom of a pendulum traces an arc 3 feet in length when the pendulum swings through an angle of $\frac{1}{2}$ radian. Find the number of feet in the length of the pendulum.
4. A ball is rolling in a circular path that has a radius of 10 inches. What distance, to the *nearest hundredth of an inch*, has the ball rolled when it has traveled along an arc that measures 54° ?
5. Joe buys a 12" pepperoni pizza. The angle of the pointed end of one of the slices is 1.1 radians. What is the length of the crust of the slice of pizza to *the nearest tenth of an inch*?