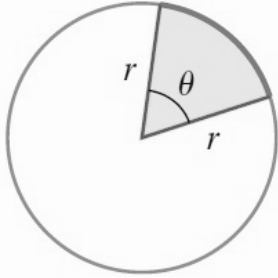


## 6.2 Applications of Radian Measure

### OBJECTIVE 1: Determining the Area of a Sector of a Circle

For a circle of radius  $r$ , and central angle of  $\theta$  radians, the **area,  $A$ , of a sector** of a circle is given by

$$A = \frac{1}{2}\theta r^2.$$

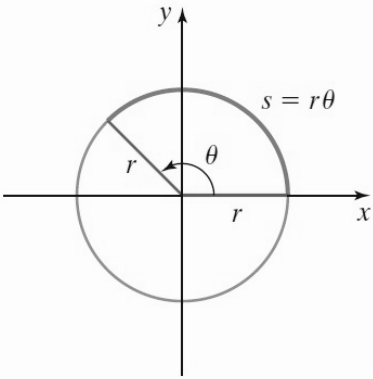


The formula for the area of a sector of a circle,  $A = \frac{1}{2}\theta r^2$  is only valid if the angle  $\theta$  is in radians. An angle given in degrees must first be converted to radians.

## OBJECTIVE 2: Computing the Arc Length of a Sector of a Circle

The arc length of a sector of a circle depends on the corresponding central angle that intercepts the arc and the length of the radius of the circle.

For a circle of radius  $r$ , the **length,  $s$ , of the arc** intercepted by a central angle of  $\theta$  radians is given by  $s = r\theta$ .



**The arc length formula  $s = r\theta$  is only valid if the angle  $\theta$  is in radians. An angle given in degrees must first be converted to radians.**