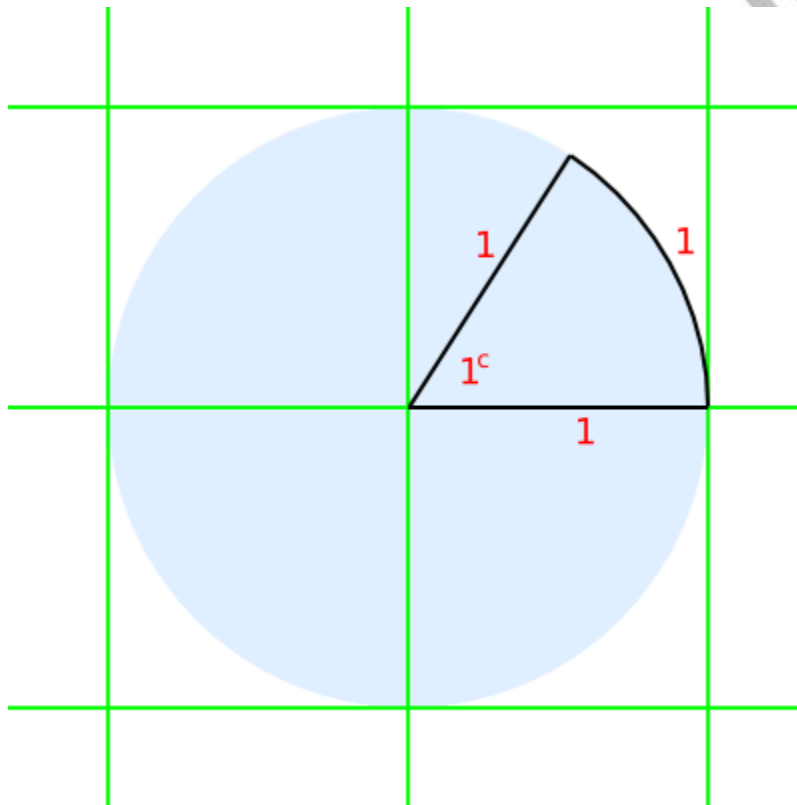

The radian measure:

One way to measure angles is in [radians](#). To signify that a given angle is in radians, a superscript c, or the abbreviation rad might be used. **If no unit is given on an angle measure, the angle is assumed to be in radians.**

$$\frac{3\pi^c}{2} \equiv \frac{3\pi}{2} \text{ rad.} \equiv \frac{3\pi}{2}$$

Defining a radian:

A single radian is defined as the angle formed in the minor sector of a circle, where the minor arc length is the same as the radius of the circle.



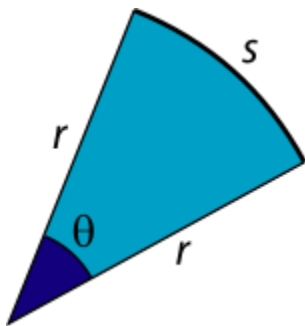
Defining a radian with respect to the unit circle

$$1 \approx 57.296^\circ$$

Measuring an angle in radians:

The size of an angle, in radians, is the length of the circle arc s divided by the circle radius r .

$$\text{angle in radians} = \frac{s}{r}$$



Measuring an Angle in Radians

We know the circumference of a circle to be equal to $2\pi r$, and it follows that a central angle of one full counterclockwise revolution gives an arc length (or circumference) of $s = 2\pi r$. Thus 2π radians corresponds to 360° , that is, there are 2π radians in a circle.

Converting from Radians to Degrees:

Because there are 2π radians in a circle:

To convert degrees to radians:

$$\theta^c = \theta^\circ \times \frac{\pi}{180}$$

To convert radians to degrees:

$$\phi^\circ = \phi^c \times \frac{180}{\pi}$$

Work Sheet:

Conversion from degrees to radians

- Convert
 - 180° into radian measure.
 - 90° into radian measure.
 - 45° into radian measure.
 - 137° into radian measure.

Conversion from radians to degrees:

- Convert:
 - $\frac{\pi}{3}$ Into Degree Measure.
 - $\frac{\pi}{6}$ Into Degree Measure.
 - $\frac{7\pi}{3}$ Into Degree Measure.
 - $\frac{3\pi}{4}$ Into Degree Measure.