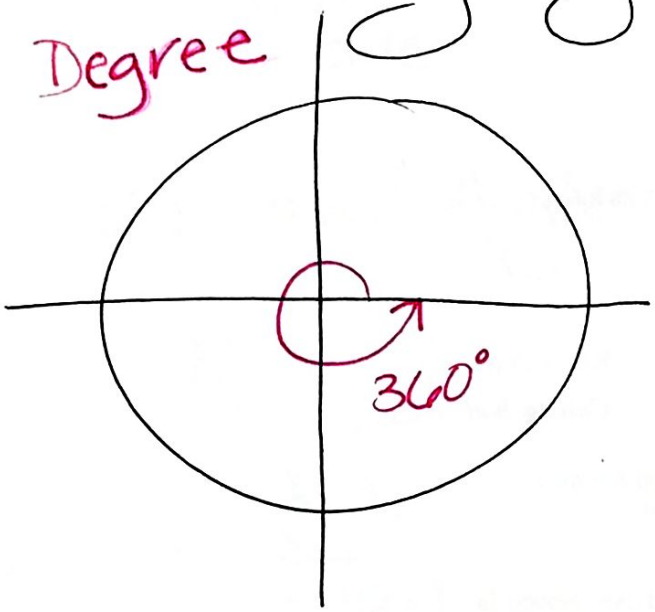
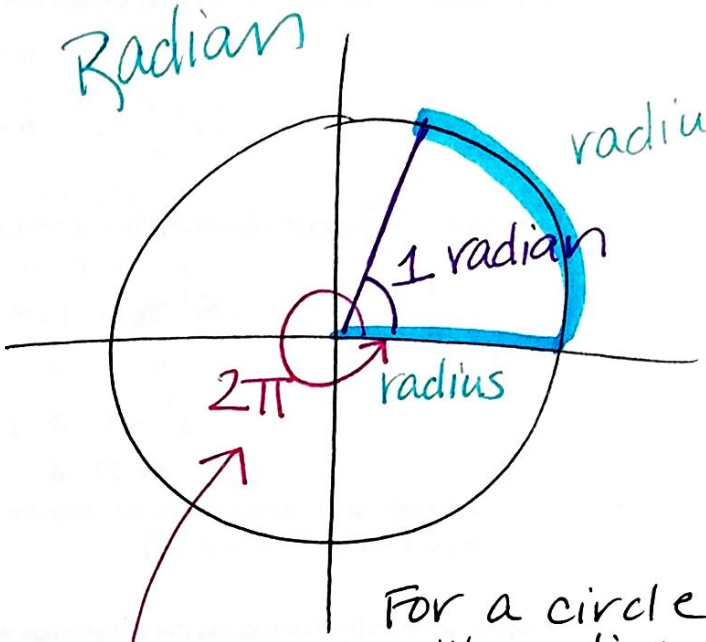
4.1 Radians, Degrees & Coterminal $\angle$'s

A radian is another unit used for measuring angles.

Degree



Radian



For a circle with radius = 1

$C = 2\pi r$

$C = 2\pi(1)$

$\boxed{C = 2\pi}$

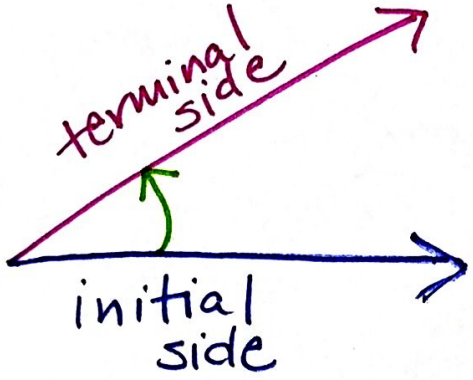
$\frac{360°}{2} = \frac{2\pi}{2}$ radians

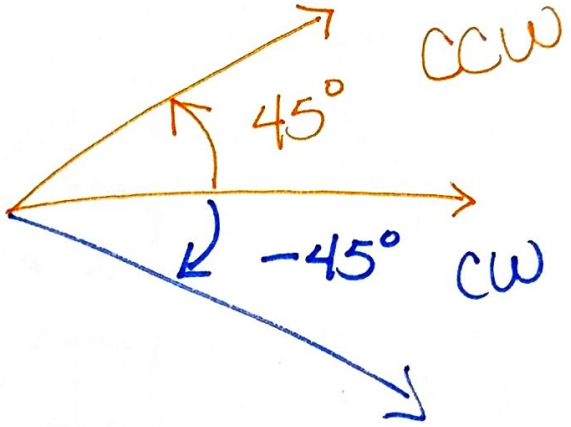
$\frac{180}{\pi} = 57.3°$

$\boxed{180° = \pi}$

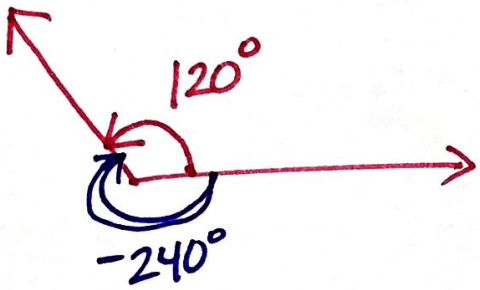
1 Radian $\approx 57.3°$

To convert...	Multiply by...	Example
Degrees to Radians	$\frac{\pi}{180°}$	$210° = ?$ radians $\overset{7}{\cancel{210}}° \cdot \frac{\pi}{\underset{6}{\cancel{180}}} = \boxed{\frac{7\pi}{6}}$ Radians are usually given in terms of π.
Radians to Degrees	$\frac{180°}{\pi}$	$\frac{2\pi}{3} = ?$ degrees $\frac{\cancel{2\pi}}{\cancel{3}} \cdot \frac{\overset{60}{\cancel{180}}}{\cancel{\pi}} = \boxed{120°}$



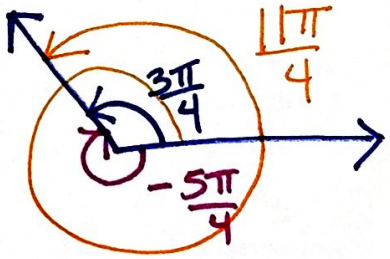


Coterminal Angles = angles that end at the same place.



* To find a coterminal angle
⟹ add or subtract 360° or 2π

ex: For $\frac{3\pi}{4}$ ...



Negative Coterminal $\measuredangle$

$$\frac{3\pi}{4} - \frac{2\pi}{1}\left(\frac{4}{4}\right) = \frac{3\pi}{4} - \frac{8\pi}{4} = \boxed{\frac{-5\pi}{4}}$$

Positive Coterminal $\measuredangle$

$$\frac{3\pi}{4} + 2\pi\left(\frac{4}{4}\right) = \frac{3\pi}{4} + \frac{8\pi}{4} = \boxed{\frac{11\pi}{4}}$$