

**Day 8 and 9 Trig – Intro to Radians**

Let's do an exploration to help us find the relationship between degrees and radians ☺

Angles can be measured in two different units. degrees and radians

$$360^\circ = 2\pi \text{ radians}$$

or

$$180^\circ = \pi \text{ radians}$$

Let convert some measurements!!

a)  $150^\circ \cdot \frac{\pi}{180} = \frac{150\pi}{180} = \boxed{\frac{5\pi}{6}}$     b)  $\frac{8\pi}{3} \cdot \frac{180}{\pi} = \frac{1440}{3} = \boxed{480^\circ}$     c)  $\frac{-9\pi}{4} \cdot \frac{180}{\pi} = \frac{-1620}{4} = \boxed{-405^\circ}$

Convert each of the following into degrees (the last three are done for you ☺)

1.  $\frac{\pi}{3} \cdot \frac{180}{\pi} = \boxed{60}$

2.  $\frac{\pi}{4} \quad \boxed{45}$

3.  $\frac{\pi}{6} \quad \boxed{30}$

4.  $\frac{5\pi}{3} \quad \boxed{300}$   
(ref L  $60^\circ$ )

5.  $\frac{3\pi}{4} \quad \boxed{135}$   
(ref L  $45^\circ$ )

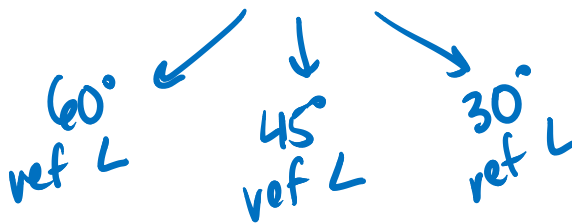
6.  $\frac{5\pi}{6} \quad \boxed{150}$   
(ref L  $30^\circ$ )

7.  $\frac{4\pi}{3} = 240^\circ$

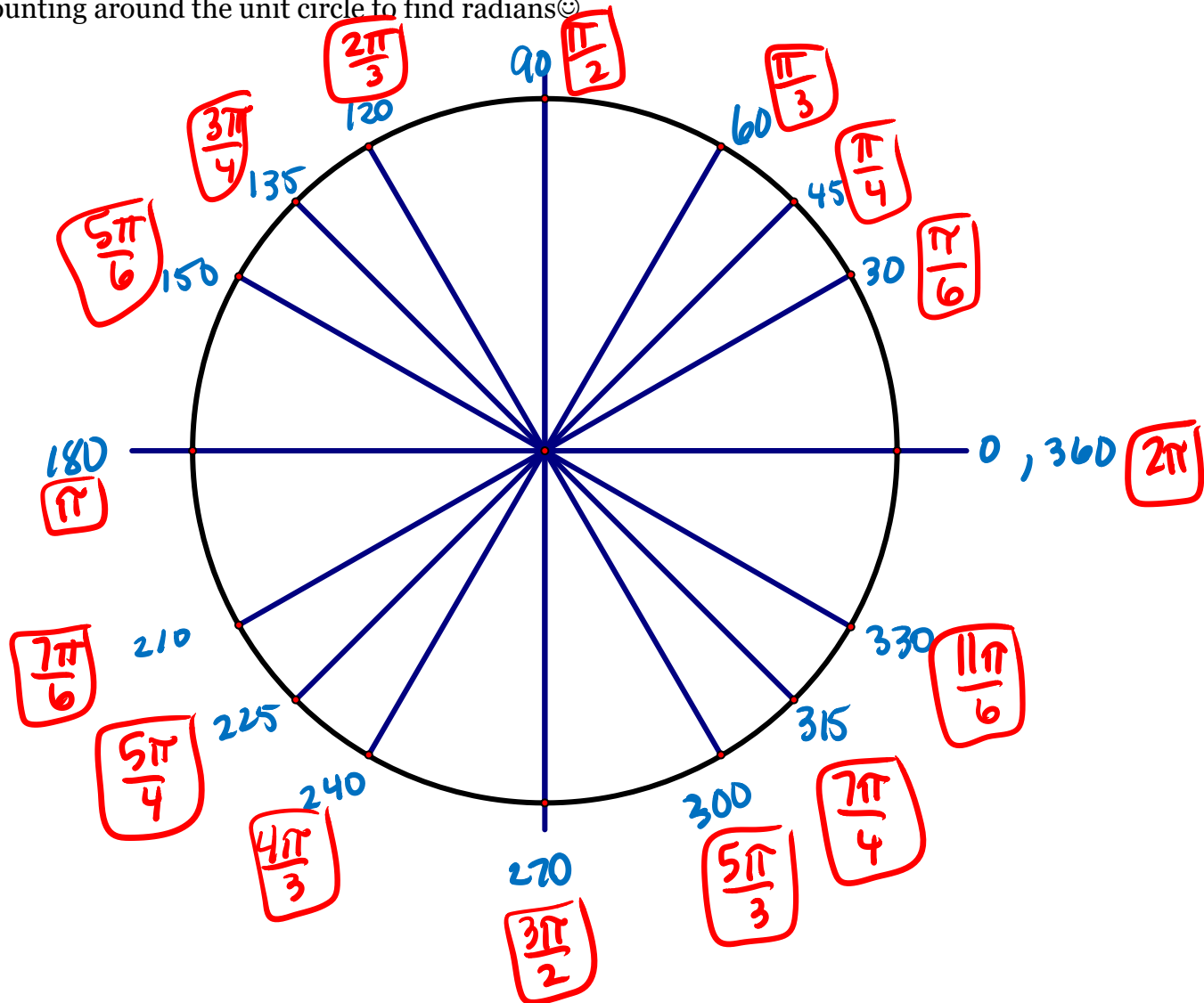
8.  $\frac{7\pi}{4} = 225^\circ$

9.  $\frac{11\pi}{6} = 330^\circ$

What do you notice about the angles that have a denominator of 3? 4? 6?



Counting around the unit circle to find radians ☺



\* Note:  $\frac{\pi}{6} = 30^\circ \text{ ref } L$

$$\frac{\pi}{4} = 45^\circ \text{ ref } L$$

$$\frac{\pi}{3} = 60^\circ \text{ ref } L$$