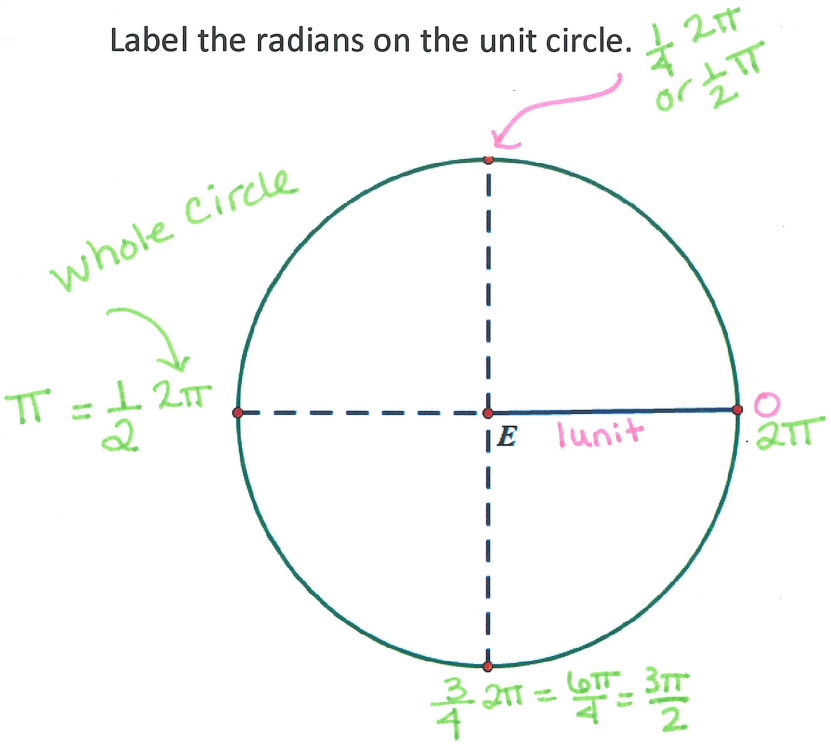
Sketching Angles Notes (Radians) 2016-2017

Label the radians on the unit circle.



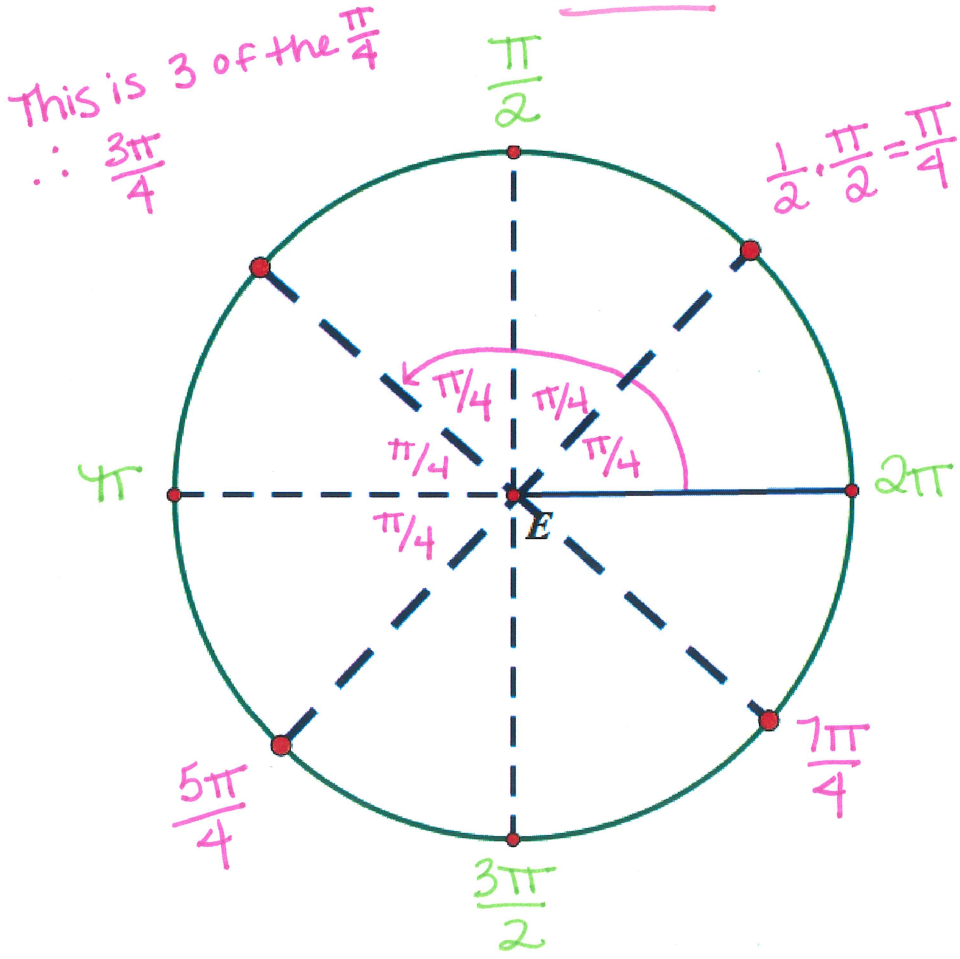
We know that the whole arc length of the circle is the circumference.

$C = 2\pi$ ← unit circle!

$\boxed{C = 2\pi}$

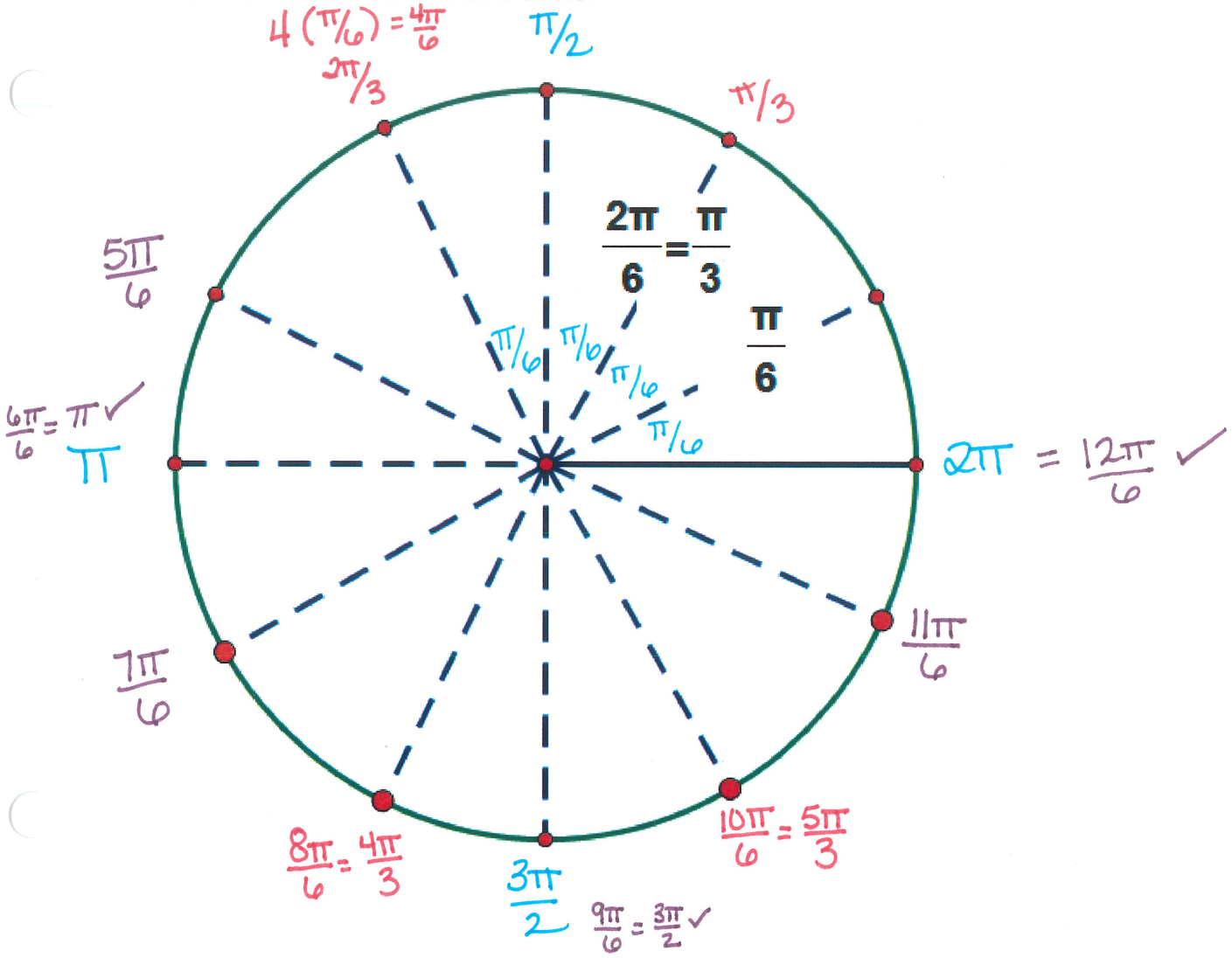
$\therefore$ 360° is 2π radians

Given the additional lines are angle bisectors, label the radians on the unit circle.

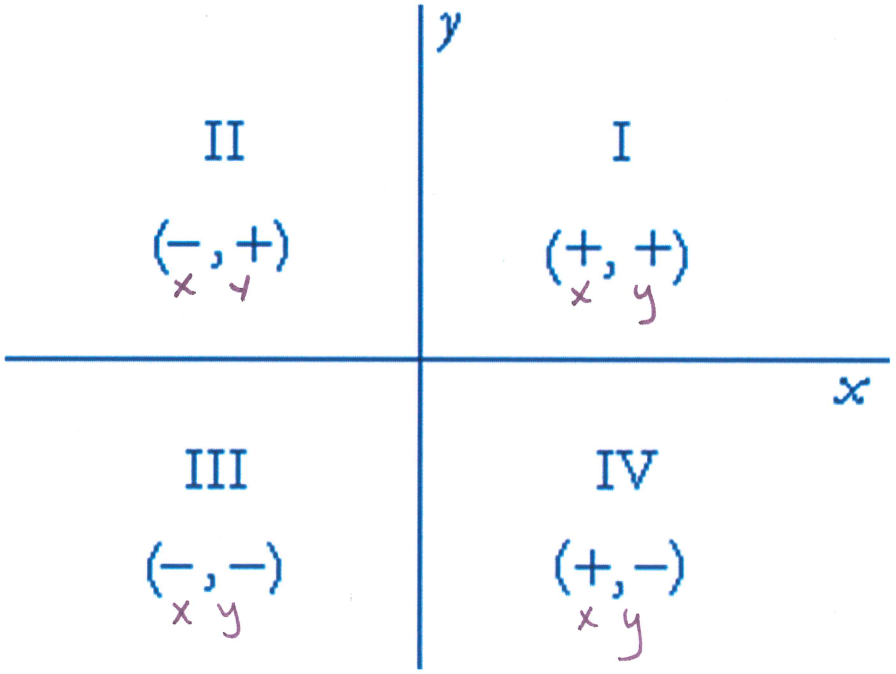


$\frac{6\pi}{4} = \frac{3\pi}{2}$ Look! It works!

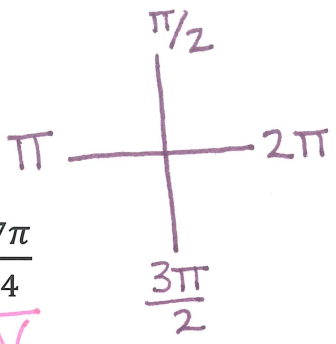
Label the radians on the unit circle.



Recall quadrants and what values are positive and negative.



Help to visualize the quadrants
Break down w/ Fractions



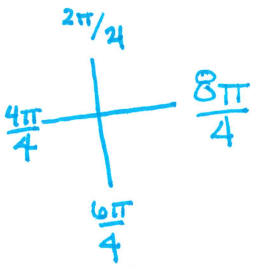
In-Class Practice:

Determine what quadrant the angle, given in radians, is located.

1. $\frac{3\pi}{4}$ II

2. $\frac{\pi}{4}$ I

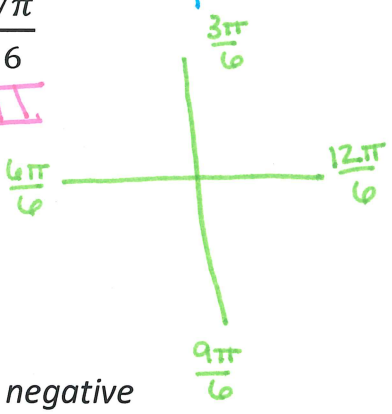
3. $\frac{7\pi}{4}$ IV



4. $\frac{2\pi}{3}$ II

5. $\frac{\pi}{6}$ I

6. $\frac{7\pi}{6}$ III



Examples: *Find one angle with positive measure and one angle with negative measure coterminal with each angle.* **(You must keep your answers in radians.)**

1. $\frac{7\pi}{6}$

one full rotation is 2π. Recall: Fractions must have common denominators!

$\frac{7\pi}{6} + 2\pi$

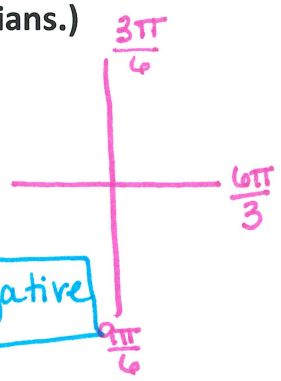
$\frac{7\pi}{6} + \frac{12\pi}{6} = \boxed{\frac{19\pi}{6} \text{ Positive}}$

$\frac{7\pi}{6} - \frac{12\pi}{6} = \boxed{\frac{-5\pi}{6} \text{ Negative}}$

2. $\frac{\pi}{6} + \frac{12\pi}{6}$

$\boxed{\frac{13\pi}{6} \text{ positive}}$

$\frac{\pi}{6} - \frac{12\pi}{6} = \boxed{\frac{-11\pi}{6} \text{ negative}}$



3. $-\frac{\pi}{3} + 2\pi$

$2\pi = \frac{6\pi}{3}$

$-\frac{\pi}{3} + \frac{6\pi}{3} = \boxed{\frac{5\pi}{3} \text{ positive}}$

$-\frac{\pi}{3} - \frac{6\pi}{3} = \boxed{\frac{-7\pi}{3} \text{ negative}}$

4. $\frac{15\pi}{4} + 2\pi$

$2\pi = \frac{8\pi}{4}$

$\frac{15\pi}{4} + \frac{8\pi}{4} = \boxed{\frac{23\pi}{4} \text{ Positive}}$

$\frac{15\pi}{4} - \frac{8\pi}{4} = \boxed{\frac{7\pi}{4} \text{ Positive}}$

$\frac{7\pi}{4} - \frac{8\pi}{4} = \boxed{\frac{-\pi}{4} \text{ negative}}$