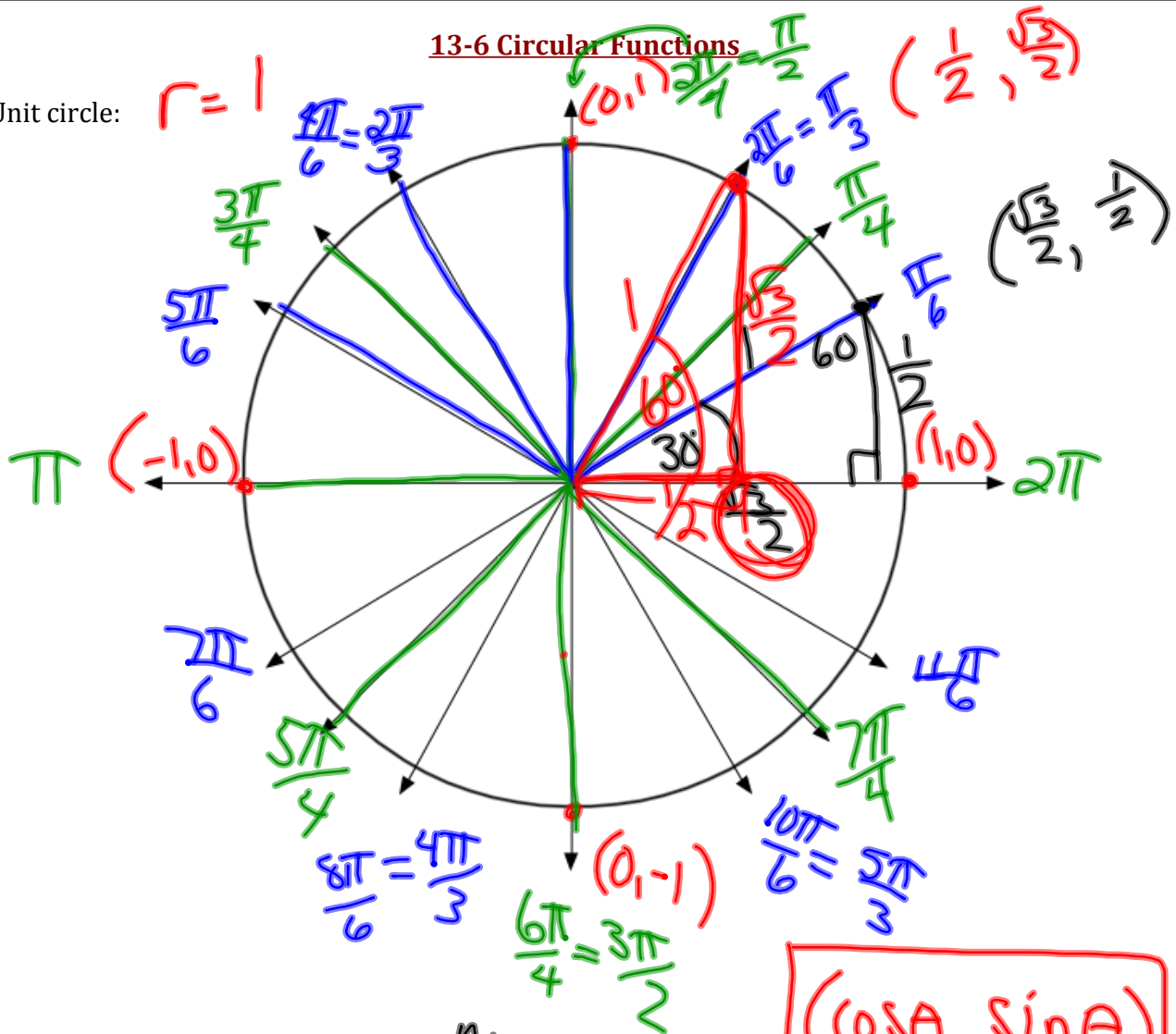


13-6 Circular Functions

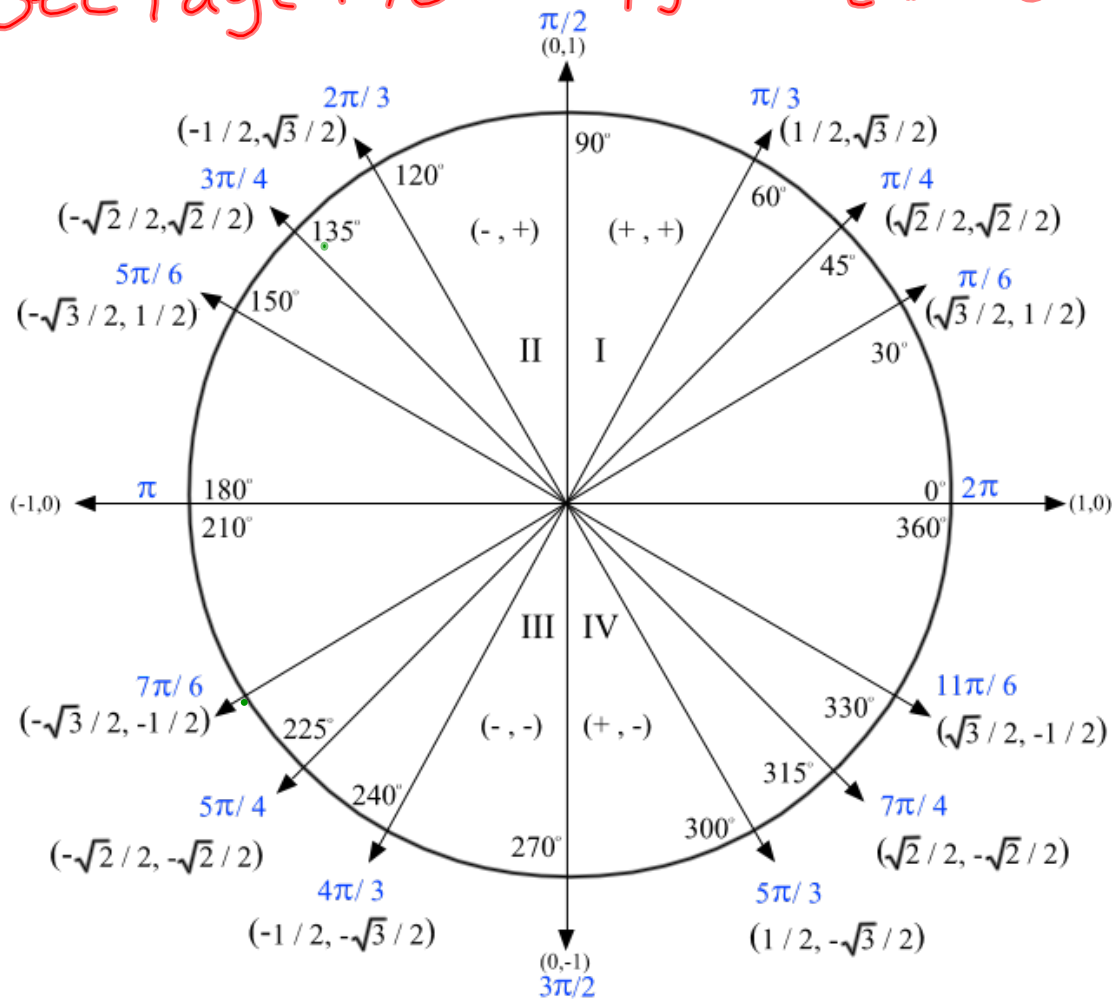
Unit circle: $r = 1$



$(\cos \theta, \sin \theta)$
 $x \quad y$

Need
 2
 know

*See Page 740 - Copy onto "cheat" sheet!



Given the point P on the unit circle. Find $\sin \theta$ and $\cos \theta$.

Ex 1) $P\left(\frac{2\sqrt{2}}{3}, -\frac{1}{3}\right)$

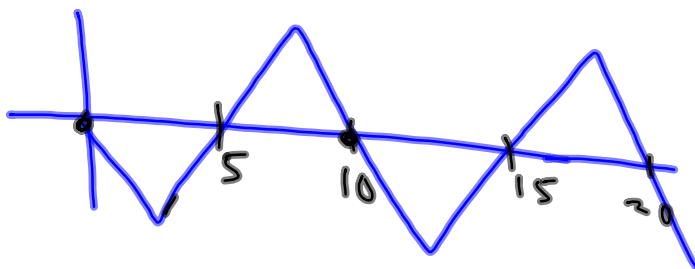
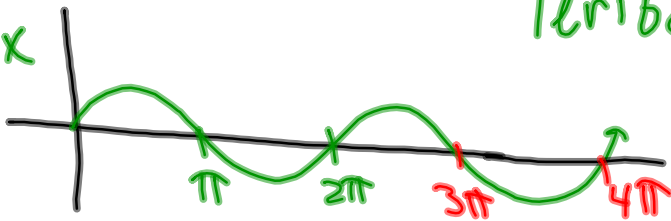
$$\sin \theta = -\frac{1}{3}$$

$$\cos \theta = \frac{2\sqrt{2}}{3}$$

Period Function: see page 741

Period: 2π

$y = \sin x$

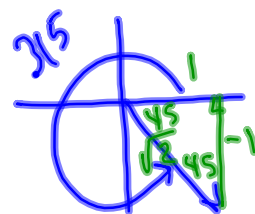


Period: 10

Find the exact value.

$$\text{Ex 2) } \cos 675 = \cos 315 = \frac{\sqrt{2}}{2} \quad \underline{\underline{\text{OR}}}$$

$$\begin{array}{r} 675 \\ - 360 \\ \hline 315 \end{array}$$



$$\begin{aligned} \cos 315 &= \frac{1}{\sqrt{2}} \\ &= \frac{\sqrt{2}}{2} \end{aligned}$$

$$\text{Ex 3) } \sin \left(\frac{-5\pi}{6} \right) = -\frac{1}{2}$$

Determine the period.

$$\text{Ex 4) graph } y = \tan x \quad \text{Period: } \pi$$

$$\text{Ex 5) graph } y = \sec x = \frac{1}{\cos x} \quad \text{Period: } 2\pi$$

Note

$$y = \csc x = \frac{1}{\sin x}$$

$$y = \cot x = \frac{1}{\tan x}$$

A period is how long it takes for a function to repeat.