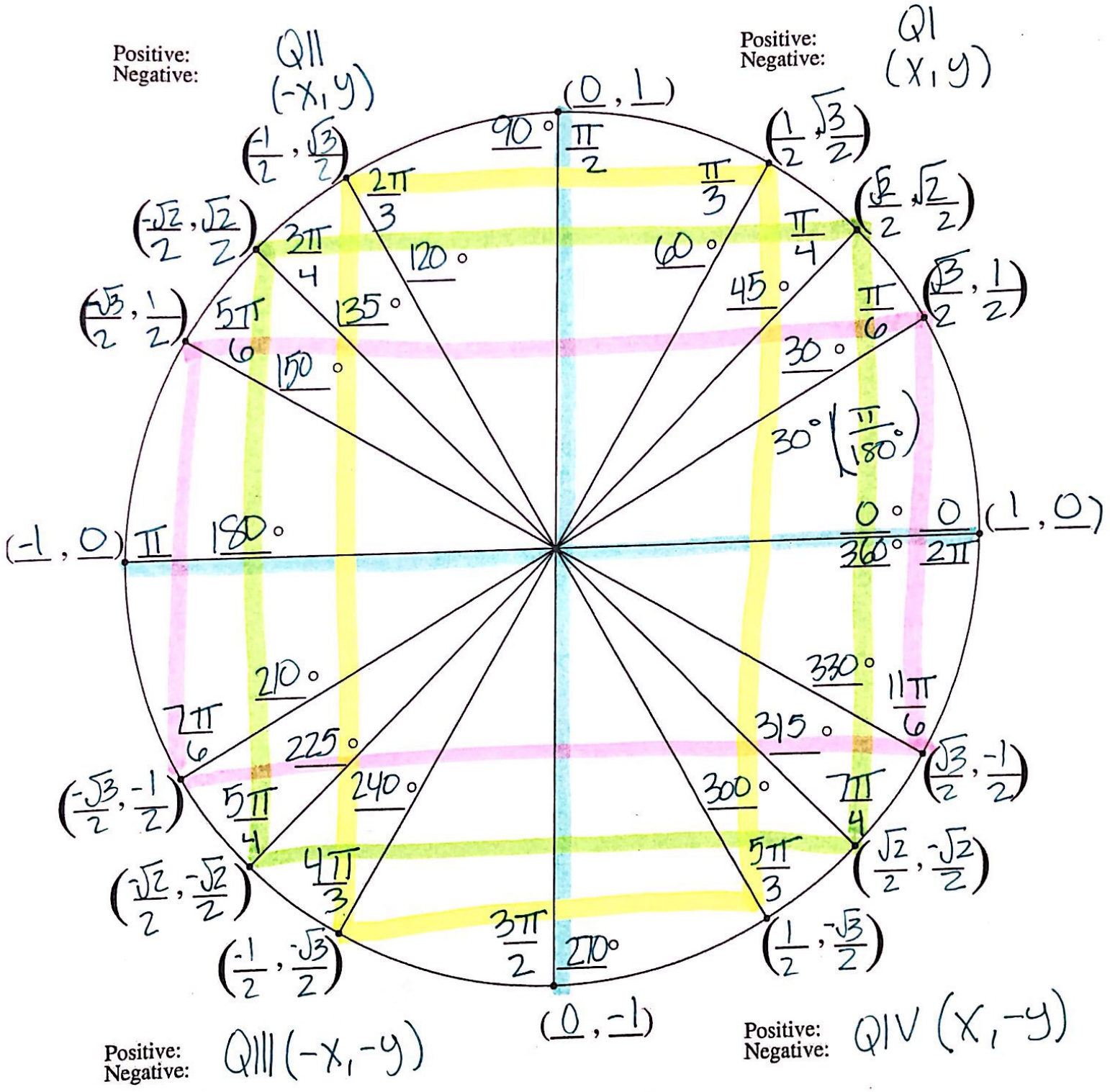


# Fill in The Unit Circle radius = 1 unit



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## 7.4: Exact Values from the Unit Circle

$\cos \theta = x\text{-coordinate}$

$\sin \theta = y\text{-coordinate}$

$$\text{Ex 1) } \cos \frac{\pi}{3} = \boxed{\frac{1}{2}}$$

$$\text{Ex 2) } \sin 225^\circ = \boxed{\frac{-\sqrt{2}}{2}}$$

$$\text{Ex 3) } \sin -\frac{\pi}{6} = \sin \frac{11\pi}{6} = \boxed{-\frac{1}{2}}$$

$$-\frac{\pi}{6} + 2\pi = \frac{11\pi}{6}$$

$$\text{Ex 4) } \cos 810^\circ = \cos 90^\circ = \boxed{0}$$

$$810^\circ - 360^\circ = 450^\circ - 360^\circ = 90^\circ$$

$$\sec \theta = \frac{1}{\cos \theta}$$

\* reciprocals (flip!)

$$\csc \theta = \frac{1}{\sin \theta}$$

$$\text{Ex 5) } \sec 240^\circ = \frac{-2}{1} = \boxed{-2}$$

$$\cos 240^\circ = -\frac{1}{2} \downarrow$$

$$\text{Ex 6) } \csc \frac{7\pi}{4} = \frac{-2}{\frac{\sqrt{2}}{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{-2\sqrt{2}}{2} = \boxed{-\sqrt{2}}$$

$$\sin \frac{7\pi}{4} = -\frac{\sqrt{2}}{2} \downarrow$$

$$\text{Ex 7) } \sec 30^\circ = \frac{2}{\frac{\sqrt{3}}{2}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \boxed{\frac{2\sqrt{3}}{3}}$$

$$\cos 30^\circ = \frac{\sqrt{3}}{2} \downarrow$$

$$\text{Ex 8) } \csc(-600^\circ) = \csc(120^\circ) = \frac{2}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \boxed{\frac{2\sqrt{3}}{3}}$$

$$-600^\circ + 360^\circ = -240^\circ + 360^\circ = 120^\circ$$

$$\sin(120^\circ) = \frac{\sqrt{3}}{2} \downarrow$$

$$\text{Ex 9) } \csc \frac{\pi}{2} = \boxed{1}$$

$$\sin \frac{\pi}{2} = \frac{1}{1} \downarrow$$

$$\tan \theta = \frac{\sin \theta}{\cos \theta}$$

$$\cot \theta = \frac{\cos \theta}{\sin \theta} = \frac{1}{\tan \theta}$$

$$\text{Ex 10) } \tan \frac{2\pi}{3} = \frac{\sin \frac{2\pi}{3}}{\cos \frac{2\pi}{3}} = \frac{\frac{\sqrt{3}}{2}}{-\frac{1}{2} \downarrow} \cdot \begin{matrix} \text{keep} \\ \text{change} \end{matrix} = \frac{\sqrt{3}}{2} \cdot \frac{-2}{1}$$

$$\text{Ex 11) } \tan 90^\circ = \frac{\sin 90^\circ}{\cos 90^\circ} = \frac{1}{0} = \boxed{\text{undefined}} = \boxed{-\sqrt{3}}$$

$$\text{Ex 12) } \cot \frac{7\pi}{6} = \frac{\cos \frac{7\pi}{6}}{\sin \frac{7\pi}{6}} = \frac{-\frac{\sqrt{3}}{2}}{-\frac{1}{2}} = \frac{+\frac{\sqrt{3}}{2}}{2} \cdot \frac{+2}{1} = \boxed{\sqrt{3}}$$