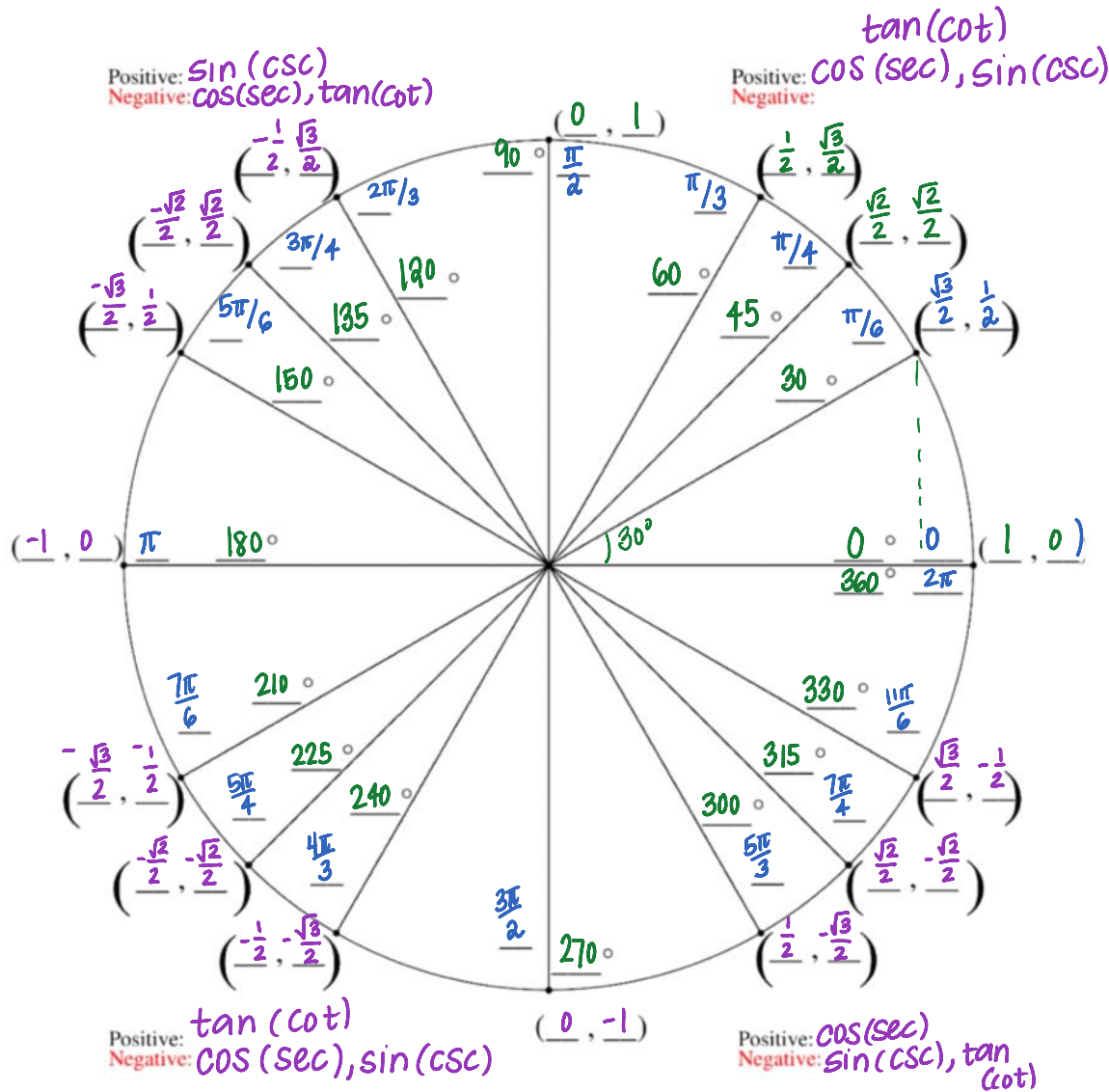


$$\tan = \frac{\sin}{\cos} *$$

$$\cos = x \quad \sin = y$$

UNIT CIRCLE

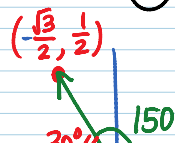


Evaluate the following angles without using a calculator. (Find the six trig functions)

① 225°

$$\sin 225^\circ = -\frac{\sqrt{2}}{2}$$

$$\cos 225^\circ = -\frac{\sqrt{2}}{2}$$



② 150°

$$\sin 150^\circ = \frac{1}{2}$$

$$\cos 150^\circ = -\frac{\sqrt{3}}{2}$$

③ 300° $(\frac{\sqrt{3}}{2}, -\frac{1}{2})$

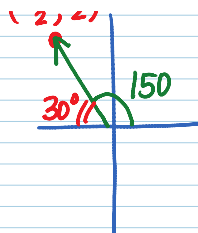
$$\sin 300^\circ = -\frac{1}{2}$$

$$\cos 300^\circ = \frac{\sqrt{3}}{2}$$

$$\sin 225^\circ = -\frac{\sqrt{2}}{2}$$

$$\cos 225^\circ = -\frac{\sqrt{2}}{2}$$

$$\tan 225^\circ = 1$$



$$\sin 150^\circ = \frac{1}{2}$$

$$\cos 150^\circ = -\frac{\sqrt{3}}{2}$$

$$\tan 150^\circ = \frac{\frac{1}{2}}{-\frac{\sqrt{3}}{2}} = \frac{1}{2} \cdot \frac{2}{-\sqrt{3}} = -\frac{1}{\sqrt{3}} = -\frac{\sqrt{3}}{3}$$

$$\sin 300^\circ = -\frac{\sqrt{3}}{2}$$

$$\cos 300^\circ = \frac{1}{2}$$

$$\tan 300^\circ = \frac{-\frac{\sqrt{3}}{2}}{\frac{1}{2}} = -\frac{\sqrt{3}}{2} \cdot \frac{2}{1} = -\sqrt{3}$$

$$\textcircled{4} \quad \frac{3\pi}{4} \times \frac{180}{\pi} = 135^\circ \quad (45^\circ) \quad \left(-\frac{\sqrt{2}}{2}, \frac{\sqrt{2}}{2}\right) \quad \textcircled{5} \quad -\frac{\pi}{6}$$

$$\textcircled{6} \quad \frac{5\pi}{4}$$

$$\sin = -\frac{\sqrt{2}}{2} \quad \csc = \frac{-2}{\sqrt{2} \cdot \sqrt{2}} = -\frac{2\sqrt{2}}{2}$$

$$\cos = -\frac{\sqrt{2}}{2} \quad \sec = -\sqrt{2}$$

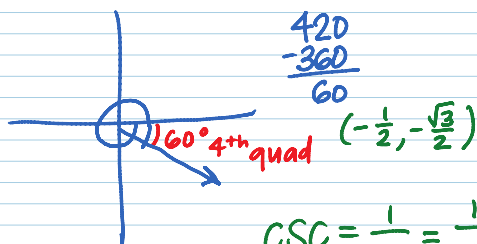
$$\tan = 1 \quad \cot = 1$$

Evaluate the following:

$$\textcircled{1} \quad \tan 240^\circ \quad \left(-\frac{1}{2}, -\frac{\sqrt{3}}{2}\right) \quad (60^\circ \text{ quad } 3) \quad \textcircled{2} \quad \csc(-420^\circ)$$

$$\textcircled{3} \quad \cos \frac{7\pi}{4}$$

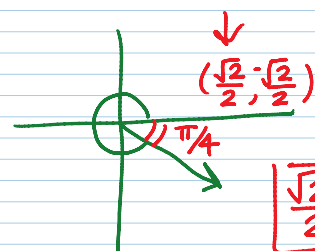
$$-\frac{\sqrt{3}}{2} \cdot -\frac{2}{1} = \sqrt{3}$$



$$\csc = \frac{1}{\sin} = \frac{1}{-\frac{\sqrt{3}}{2}}$$

$$= 1 \cdot -\frac{2}{\sqrt{3}}$$

$$= -\frac{2\sqrt{3}}{\sqrt{3}\sqrt{3}} = -\frac{2\sqrt{3}}{3}$$



$$\frac{\sqrt{2}}{2}$$