

$(\cos\theta, \sin\theta)$   
 $X, Y$

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

$\tan(90^\circ) = \frac{1}{0}$  undefined

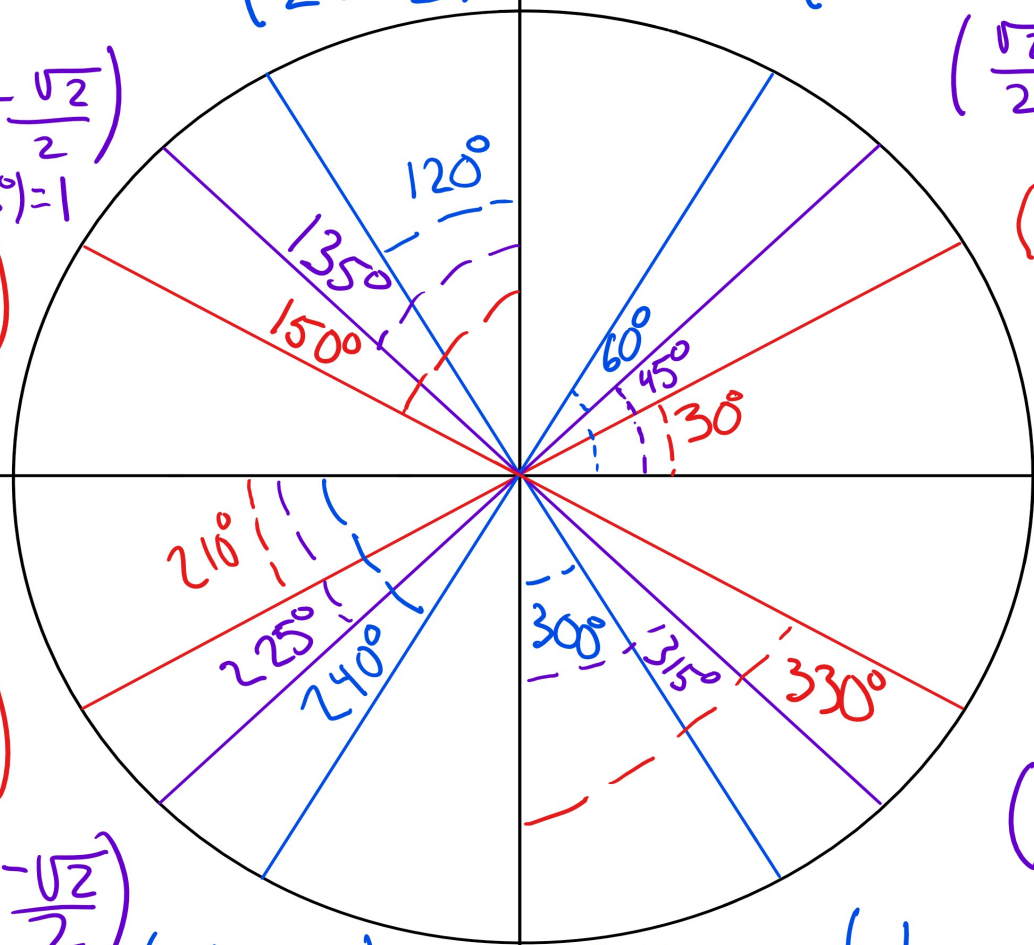
**Q I**

|              |              |              |
|--------------|--------------|--------------|
| $\sin\theta$ | $\cos\theta$ | $\tan\theta$ |
| +            | +            | +            |

**Q II**

|              |              |              |
|--------------|--------------|--------------|
| $\sin\theta$ | $\cos\theta$ | $\tan\theta$ |
| +            | -            | -            |

$\tan(180^\circ) = \frac{0}{-1} = 0$



$\left(\frac{1}{2}, \frac{\sqrt{3}}{2}\right) \tan(60^\circ) = \frac{\frac{\sqrt{3}}{2}}{\frac{1}{2}} = \sqrt{3}$

$\left(\frac{\sqrt{2}}{2}, \frac{\sqrt{2}}{2}\right) \tan(45^\circ) = \frac{\frac{\sqrt{2}}{2}}{\frac{\sqrt{2}}{2}} = 1$

$\left(\frac{\sqrt{3}}{2}, \frac{1}{2}\right) \tan(30^\circ) = \frac{\frac{1}{2}}{\frac{\sqrt{3}}{2}} = \frac{1}{\sqrt{3}}$

$0^\circ (1,0) \tan(0) = \frac{0}{1} = 0$

$\left(\frac{\sqrt{3}}{2}, -\frac{1}{2}\right) \tan(330^\circ) = -\frac{1}{\sqrt{3}}$

$\left(\frac{\sqrt{2}}{2}, -\frac{\sqrt{2}}{2}\right) \tan(315^\circ) = -1$

$\left(\frac{1}{2}, -\frac{\sqrt{3}}{2}\right) \tan(300^\circ) = -\sqrt{3}$

$270^\circ (0,-1)$   
 $\tan(270^\circ) = \text{undefined}$

$\left(-\frac{1}{2}, -\frac{\sqrt{3}}{2}\right) \tan(240^\circ) = \sqrt{3}$

$\left(-\frac{\sqrt{2}}{2}, -\frac{\sqrt{2}}{2}\right) \tan(225^\circ) = 1$

$\left(-\frac{\sqrt{3}}{2}, -\frac{1}{2}\right) \tan(210^\circ) = -\frac{1}{\sqrt{3}}$

$(-1,0) 180^\circ$

$\left(\frac{\sqrt{3}}{2}, -\frac{1}{2}\right) \tan(150^\circ) = -\frac{1}{\sqrt{3}}$

$\left(\frac{\sqrt{2}}{2}, -\frac{\sqrt{2}}{2}\right) \tan(135^\circ) = -1$

$\left(\frac{1}{2}, -\frac{\sqrt{3}}{2}\right) \tan(120^\circ) = -\sqrt{3}$

**Q IV**

|              |              |              |
|--------------|--------------|--------------|
| $\sin\theta$ | $\cos\theta$ | $\tan\theta$ |
| -            | +            | -            |