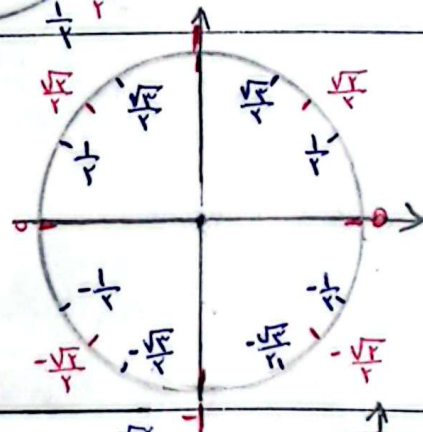
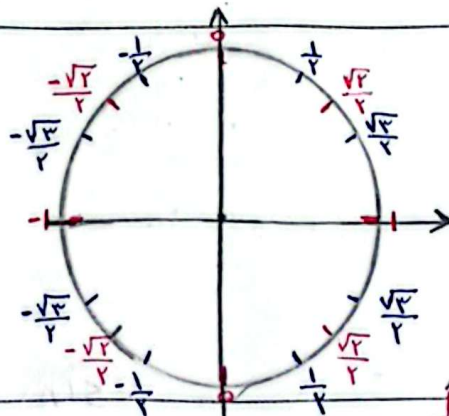
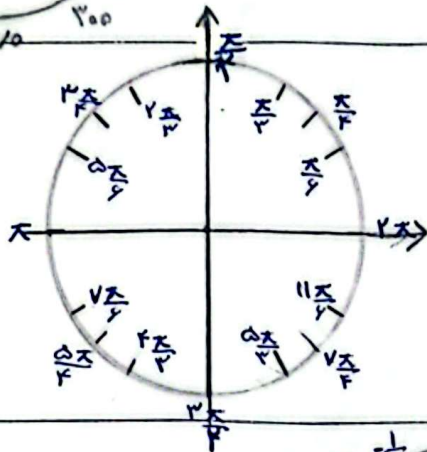
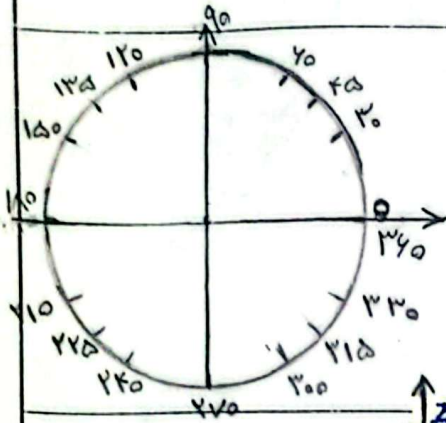




$\tan: \frac{\sin}{\cos}$

$\tan 0: 0 = \frac{0}{1}$

$\tan 180: 0$

$\tan 270: 0$

$\tan 90: \frac{1}{0}$ تعریف نشده

$\tan 180: \frac{0}{1}$ تعریف نشده

$\tan 30: \frac{\frac{1}{2}}{\frac{\sqrt{3}}{2}} = \frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{3}$

$\tan 150: \frac{\frac{1}{2}}{-\frac{\sqrt{3}}{2}} = -\frac{1}{\sqrt{3}} = -\frac{\sqrt{3}}{3}$

$\tan 45: 1$

$\tan 225: -1$

$\tan 330: -\frac{\sqrt{3}}{3}$

$\tan 45: 1$

$\tan 135: -1$

$\tan 225: -1$

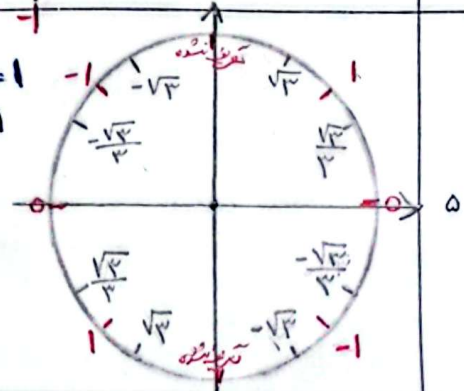
$\tan 315: 1$

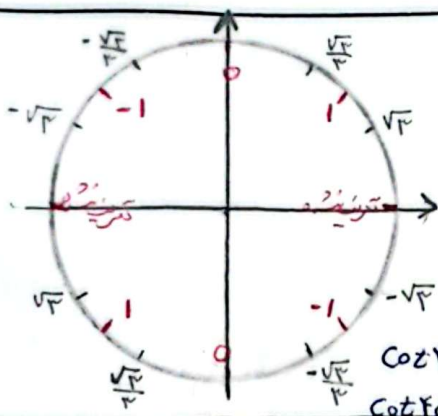
$\tan 45: 1$

$\tan 135: -1$

$\tan 225: -1$

$\tan 315: 1$





$$\cot \alpha = \frac{\cos}{\sin}$$

$$\cot 45^\circ = \frac{\frac{\sqrt{3}}{2}}{\frac{1}{2}} = \sqrt{3}$$

$$\cot 0^\circ = \frac{1}{0} = \text{undefined}$$

$$\cot 150^\circ = -\sqrt{3}$$

$$\cot 30^\circ = \frac{1}{\frac{1}{\sqrt{3}}} = \sqrt{3}$$

$$\cot 210^\circ = -\sqrt{3}$$

$$\cot 180^\circ = \frac{1}{0} = \text{undefined}$$

$$\cot 90^\circ = \frac{0}{1} = 0$$

$$\cot 90^\circ = \frac{0}{1} = 0$$

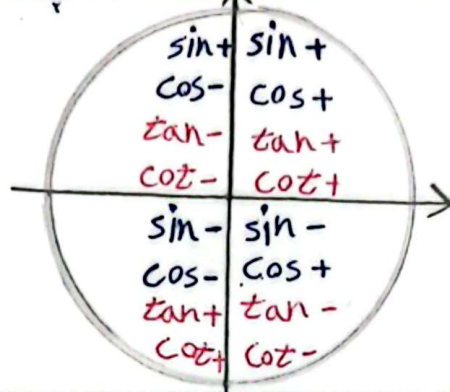
$$\cot 135^\circ = -1$$

$$\cot 270^\circ = \frac{0}{-1} = 0$$

$$\cot 240^\circ = -\frac{1}{\sqrt{3}}$$

$$\cot 135^\circ = -1 \quad \cot 225^\circ = 1$$

$$\cot 300^\circ = \frac{1}{\sqrt{3}}$$



$$\sin 135^\circ = \frac{\sqrt{2}}{2} \Rightarrow \sin 135^\circ = \sin 45^\circ = \frac{\sqrt{2}}{2}$$

(الف)

$$\cos 150^\circ = -\frac{\sqrt{3}}{2} \Rightarrow \cos 150^\circ = \cos 210^\circ = -\frac{\sqrt{3}}{2}$$

(ب)

$$\tan 225^\circ = 1 \Rightarrow \tan 225^\circ = \tan 45^\circ = 1$$

(ج)

$$\cot 135^\circ = -1 \Rightarrow \cot 135^\circ = \cot 225^\circ = -1$$

(د)

$$\cos \frac{2\pi}{3} = -\frac{1}{2} \Rightarrow \cos 120^\circ = -\frac{1}{2}$$

(الف)

$$\sin \alpha = \frac{1}{2} \Rightarrow \alpha = 30^\circ, 150^\circ \Rightarrow \begin{cases} \sin 30^\circ = \frac{1}{2} \\ \sin 150^\circ = \frac{1}{2} \end{cases}$$

$$\cos \frac{11\pi}{6} = \frac{\sqrt{3}}{2} \Rightarrow \cos 330^\circ = \frac{\sqrt{3}}{2}$$

(ب)

$$\sin \alpha = -\frac{\sqrt{3}}{2} \Rightarrow \alpha = 210^\circ, 330^\circ \Rightarrow \begin{cases} \sin 210^\circ = -\frac{1}{2} \\ \sin 330^\circ = -\frac{1}{2} \end{cases}$$

$$\cot \frac{5\pi}{6} = -\frac{1}{\sqrt{3}} = \cot 150^\circ \Rightarrow \cos \alpha = -\frac{1}{2} \Rightarrow \alpha = 120^\circ \Rightarrow$$

(الف)

$$\cot \frac{5\pi}{6} = \cos 150^\circ = -\frac{1}{2}$$

$$\cos 150^\circ = -\frac{\sqrt{3}}{2} = \cos 210^\circ = -\frac{\sqrt{3}}{2} \Rightarrow \sin \alpha = \frac{\sqrt{3}}{2} \Rightarrow \alpha = 60^\circ, 120^\circ$$

(ب)

$$\Rightarrow \cos 150^\circ = \sin 60^\circ = \sin 120^\circ$$