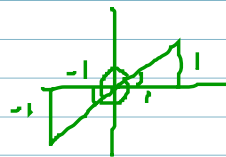


$$\tan\left(\frac{\theta}{2} + \frac{\pi}{3}\right) = 1$$

$$\tan(u) = 1$$

$$u = \frac{\pi}{4} + 2\pi n = \frac{\theta}{2} + \frac{\pi}{3}$$

$$\begin{aligned} \rightarrow \frac{\pi}{4} &= \frac{2\pi}{12} & \frac{\pi}{3} &= \frac{4\pi}{12} \\ \frac{3\pi}{4} &= \frac{15\pi}{12} & & \end{aligned}$$



$$-\frac{\pi}{2} + 2\pi n = \frac{\pi}{2}$$

$$\frac{3\pi}{2} + 2\pi n =$$

$$\frac{\pi}{4} + \pi n = \frac{\pi}{2} + \frac{\pi}{3}$$

$$-\frac{\pi}{4} + \pi n = \frac{\pi}{6}$$

$$-\frac{\pi}{6} + 2\pi n = \theta$$

$$\theta \in [0, 2\pi)$$

$$\begin{aligned} -\frac{\pi}{6} + 4\pi n &= \theta \\ \frac{11\pi}{6} + 4\pi n &= \end{aligned}$$

$$\frac{\pi}{6} + 2\pi n = \theta$$

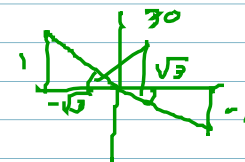
$$2\pi \cdot \frac{1}{6} = \frac{12\pi}{6}$$

$$-\frac{\pi}{6}, \frac{11\pi}{6}, \frac{23\pi}{6}$$



$$\cot\left(\frac{2\theta}{3}\right) = -\sqrt{3}$$

$$\frac{2\theta}{3} = -\frac{\pi}{6} + 2\pi n > -\frac{\pi}{6} + \pi n$$



$$\theta = -\frac{3\pi}{12} + \frac{3\pi}{2}n = \boxed{-\frac{\pi}{4} + \frac{3\pi}{2}n, n \in \mathbb{Z}} \quad \frac{3\pi}{2} = \frac{6\pi}{4}$$

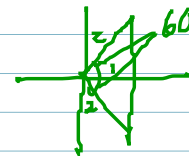
$$\theta \in [0, 2\pi) \quad \cancel{\frac{\pi}{4}}, \boxed{\frac{5\pi}{4}}, \cancel{\frac{9\pi}{4}}$$

$$\cos\left(\frac{\theta}{3} - \frac{\pi}{4}\right) = \frac{1}{2}$$

$$\cos(u) = \frac{1}{2}$$

$$u = \frac{\pi}{3} + 2\pi n = \frac{\theta}{3} - \frac{\pi}{4}$$

$$\begin{aligned} \frac{\pi}{3} &= \frac{2\pi}{12} \\ \frac{\pi}{4} &= \frac{3\pi}{12} \end{aligned}$$



$$\frac{2\pi}{12} + 2\pi n = \frac{\theta}{3}$$

$$-\frac{\pi}{12} + 2\pi n =$$

$$\theta \in [0, 2\pi) \quad \boxed{\frac{2\pi}{3}}$$

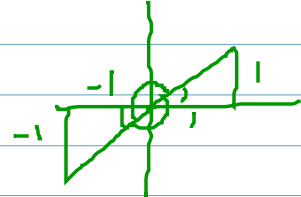
$$\begin{aligned} \theta &= \frac{2\pi}{3} + 6\pi n, n \in \mathbb{Z} \\ &= -\frac{4\pi}{3} + 6\pi n \end{aligned}$$

$$\tan\left(\frac{\theta}{2} + \frac{\pi}{3}\right) = 1$$

$$\tan(u) = 1$$

$$x = \frac{\pi}{4} + 2\pi n = \frac{\theta}{2} + \frac{\pi}{3}$$

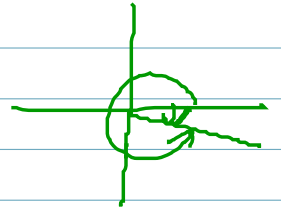
$$\begin{aligned} \frac{\pi}{4} &= \frac{3\pi}{12} & \frac{\pi}{3} &= \frac{4\pi}{12} \\ \frac{6\pi}{4} &= \frac{15\pi}{12} \end{aligned}$$



$$-\frac{\pi}{12} + 2\pi n = \frac{\theta}{2}$$

$$\frac{11\pi}{12} + 2\pi n =$$

$$\begin{aligned} -\frac{\pi}{6} + 4\pi n &= \theta \\ \frac{11\pi}{6} + 4\pi n &= \end{aligned}$$



$$\frac{\pi}{4} + \pi n = \frac{\theta}{2} + \frac{\pi}{3}$$

$$-\frac{\pi}{12} + \pi n = \frac{\theta}{2}$$

$$-\frac{\pi}{6} + 2\pi n = \theta$$

$$-\frac{\pi}{6} + 2\pi n = \theta$$

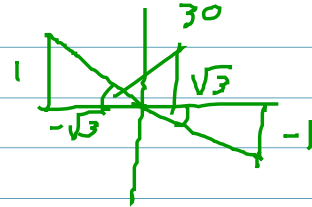
$$2\pi \cdot \frac{6}{6} = \frac{12\pi}{6}$$

$$\theta \in [0, 2\pi)$$

$$-\frac{\pi}{6}, \frac{11\pi}{6}, \frac{23\pi}{6}$$

$$\cot\left(\frac{2\theta}{3}\right) = -\sqrt{3}$$

$$\frac{2\theta}{3} - \frac{\pi}{6} + 2\pi n > -\frac{\pi}{6} + \pi n$$



$$\theta = -\frac{3\pi}{12} + \frac{3\pi}{2}n = -\frac{\pi}{4} + \frac{3\pi}{2}n, n \in \mathbb{Z}$$

$$\frac{3\pi}{2} \cdot \frac{2}{2} = \frac{6\pi}{4}$$

$$\theta \in [0, 2\pi)$$

$$-\frac{\pi}{4}, \frac{5\pi}{4}, \frac{11\pi}{4}$$

$$\cos\left(\frac{\theta}{3} - \frac{\pi}{4}\right) = \frac{1}{2}$$

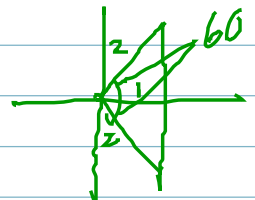
$$\cos(u) = \frac{1}{2}$$

$$u = \frac{\pi}{3} + 2\pi n = \frac{6}{3} \cdot \frac{\pi}{4}$$

$$-\frac{\pi}{3} + 2\pi n =$$

$$\frac{\pi}{4} \cdot \frac{3}{3} = \frac{3\pi}{12}$$

$$\frac{\pi}{3} \cdot \frac{4}{4} = \frac{4\pi}{12}$$



$$\frac{2\pi}{12} + 2\pi n = \frac{\theta}{3}$$

$$-\frac{\pi}{12} + 2\pi n =$$

$$\theta \in [0, 2\pi)$$

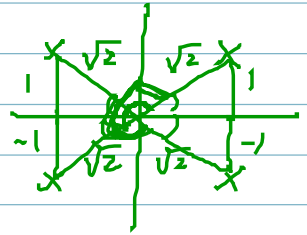
$$\frac{2\pi}{4}$$

$$\begin{aligned} \theta &= \frac{2\pi}{4} + 6\pi n, n \in \mathbb{Z} \\ &= -\frac{\pi}{4} + 6\pi n \end{aligned}$$

$$2 \sin^2(\theta + \frac{\pi}{3}) = 1$$

$$\sin^2(\theta + \frac{\pi}{3}) = \frac{1}{2}$$

$$\sin(\theta + \frac{\pi}{3}) = \pm \sqrt{\frac{1}{2}} = \pm \frac{1}{\sqrt{2}} = \pm \frac{\sqrt{2}}{2}$$



$$\theta + \frac{\pi}{3} = \frac{\pi}{4} + 2\pi n$$

$$= \frac{3\pi}{4} + 2\pi n$$

$$= \frac{5\pi}{4} + 2\pi n$$

$$= \frac{7\pi}{4} + 2\pi n$$

$$\left. \begin{array}{l} \frac{\pi}{4} + \pi n \\ \frac{3\pi}{4} + \pi n \end{array} \right\} \frac{\pi}{4} + \frac{\pi}{2} n$$

$$\frac{\pi}{3} = \frac{4\pi}{12}$$

$$\frac{\pi}{4} = \frac{3\pi}{12}$$

$$\theta = -\frac{\pi}{12} + \frac{\pi}{2} n, n \in \mathbb{Z}$$

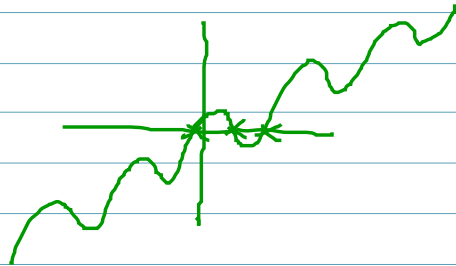
$$\frac{\pi}{2} \cdot \frac{6}{6} = \frac{6\pi}{12}$$

$$\theta \in [0, 2\pi)$$

$$\frac{\pi}{12}, \frac{5\pi}{12}, \frac{11\pi}{12}, \frac{17\pi}{12}$$

$$x + 5 \cos(x) = 0$$

$$-1.306, 1.977, 3.837$$



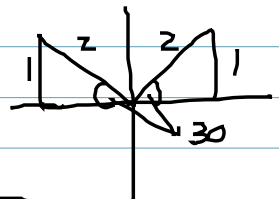
$$\sin(2\theta - \frac{\pi}{3}) = \frac{1}{2}$$

$$u = \frac{\pi}{6} + 2\pi n = 2\theta - \frac{\pi}{3}$$

$$\frac{5\pi}{6} + 2\pi n$$

$$\sin(u) = \frac{1}{2}$$

$$\frac{2\pi}{6}$$



$$\frac{\pi}{6} + 2\pi n = 2\theta$$

$$\frac{5\pi}{6} + 2\pi n$$

$$\theta = \frac{\pi}{12} + \pi n, n \in \mathbb{Z}$$

$$= \frac{7\pi}{12} + \pi n$$

$$\theta \in [0, 2\pi)$$

$$\frac{\pi}{12}, \frac{5\pi}{12}, \frac{19\pi}{12}, \frac{25\pi}{12}$$

$$\frac{7\pi}{12}, \frac{11\pi}{12}, \frac{23\pi}{12}, \frac{31\pi}{12}$$

$$\frac{4\pi}{4}$$

$$\frac{12\pi}{12}$$