

$$\text{C) } 4\sin^2\theta - 1 = 0$$

$$\text{D) } (3\cot^2\theta - 1)(\cot^2\theta - 3) = 0$$

$$\text{E) } 3\tan^2\theta - 1 = 0$$

$$\text{F) } \cos^2\theta = 3\sin^2\theta$$

$$\text{G) } 2\cos^2\theta + \cos\theta = 0$$

$$\text{H) } 2\sin\theta\cos\theta = \cos\theta$$

$$2xy - y = 0$$

$$y(2x - 1)$$

$$2x^2 + x = 0$$

$$x(2x + 1) = 0$$

$$x = 0 \quad 2x + 1 = 0$$

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

$$x^2 - x - 2 = 0$$

$$(x - 2)(x + 1) = 0$$

$$x^2 - 2x - 3 = 0$$

$$(G) \quad 2\cos^2\theta + \cos\theta = 0$$

$$\cos\theta(2\cos\theta + 1) = 0$$

$$\cos\theta = 0 \quad 2\cos\theta + 1 = 0$$

$$\theta = 90^\circ / 270^\circ \quad \cos\theta = -\frac{1}{2}$$

$$II \rightarrow \theta = 180 - 60 = 120$$

$$III \rightarrow \theta = 180 + 60 = 240$$

$$(H) \quad \begin{array}{l} 2\sin\theta \cos\theta = \cos\theta \\ -\cos\theta \quad -\cos\theta \end{array}$$

$$2\sin\theta \cos\theta - \cos\theta = 0$$

$$\cos\theta(2\sin\theta - 1) = 0$$

$$\cos\theta = 0$$

$$\theta = 90^\circ$$

$$\theta = 270^\circ$$

$$2\sin\theta - 1 = 0$$

$$\sin\theta = \frac{1}{2}$$

$$\theta = 30^\circ$$

$$\theta = 180 - 30^\circ = 150^\circ$$

$$D) \quad \csc^2\theta - \csc\theta = 2$$

$$\csc^2\theta - \csc\theta - 2 = 0$$

$$(\csc\theta - 2)(\csc\theta + 1) = 0$$

$$\csc\theta - 2 = 0 \quad \csc\theta + 1 = 0$$

$$\csc\theta = 2 \quad \csc\theta = -1$$

$$\sin\theta = \frac{1}{2} \quad \sin\theta = -1$$

$$\theta = 30^\circ / 150^\circ \quad \theta = 270^\circ$$

$$J) \quad \sin^3\theta = \sin\theta$$

$$\sin^3\theta - \sin\theta = 0$$

$$\sin\theta(\sin^2\theta - 1) = 0$$

$$\sin\theta = 0 \quad \sin^2\theta - 1 = 0$$

$$\theta = 0, 180, 360 \quad \sin^2\theta = 1$$

$$\sin\theta = \pm 1$$

$$\theta = 90^\circ, 270^\circ$$

$$(K) \quad \tan^2\theta - 2\tan\theta - 3 = 0$$

$$(\tan\theta - 3)(\tan\theta + 1) = 0$$

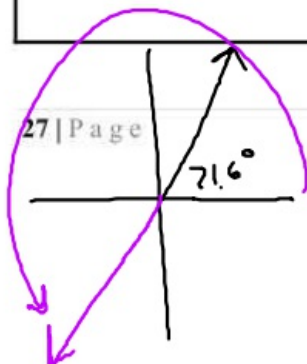
$$\tan\theta = 3 \quad \tan\theta = -1$$

$$\theta = 71.6^\circ$$

$$\theta = 180 + 71.6^\circ$$

$$\theta = 251.6^\circ$$

$$\theta = 135^\circ / 315^\circ$$



Solve between $[0, 2\pi]$

$$\textcircled{1} \quad \boxed{\theta = 2 \sin \theta}$$

y_1 y_2

$$0 = 2 \sin \theta - \theta$$

$$\theta \approx \theta (2 \sin \theta - 1)$$

$$\theta = 0, 1.95 \text{ rad}$$

$$\textcircled{2} \quad \sec^2 x - 2 \tan x = 4$$

$$\frac{1}{\cos^2 x} - 2 \tan x = 4$$

$$x = 1.24, 2.356, 4.390, 5.497$$

$$\textcircled{3} \quad \csc^2 x - .5 \cot x - 5 = 0$$

$$\left(\frac{1}{\sin^2 x} \right) - .5 \left(\frac{1}{\tan x} \right) - 5 = 0$$