

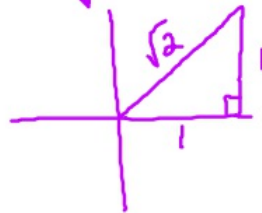
$$\frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}$$

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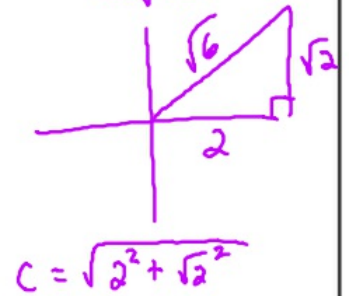
$$\cos\left(\sin^{-1}\left(\frac{\sqrt{2}}{2}\right)\right)$$

$$\cos(45^\circ) = \frac{\sqrt{2}}{2}$$

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

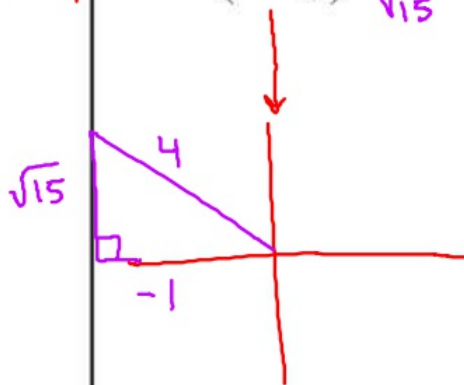


2. $\sin\left(\tan^{-1}\left(\frac{\sqrt{2}}{2}\right)\right) = \frac{\sqrt{2}}{\sqrt{6}}$

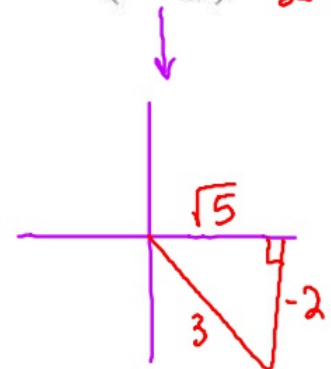


$$\sec\left(\cos^{-1}\left(\frac{-1}{4}\right)\right) = -4$$

3. $\cot\left(\cos^{-1}\left(\frac{-1}{4}\right)\right) = \frac{-1}{\sqrt{15}}$



4. $\csc\left(\sin^{-1}\left(\frac{-2}{3}\right)\right) = \frac{3}{-2}$



Solve for θ between $[0, 360]$ and $[0, 2\pi]$

$$\frac{315\pi}{180} = \frac{7\pi}{4}$$

A) $\sqrt{2} \cos \theta - 1 = 0$

$$\frac{\sqrt{2} \cos \theta}{\sqrt{2}} = \frac{1}{\sqrt{2}}$$

$$\cos \theta = \frac{1}{\sqrt{2}}$$

$$\cos \theta = \frac{\sqrt{2}}{2}$$

$$\theta = 45^\circ = \frac{\pi}{4}$$

$$\theta = 360 - 45^\circ = 315^\circ = \frac{7\pi}{4}$$

$$= 2\pi - \frac{\pi}{4} = \frac{8\pi}{4} - \frac{\pi}{4} = \frac{7\pi}{4}$$

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

$$\frac{4 \sin^2 \theta}{4} = \frac{1}{4}$$

$$\sqrt{\sin^2 \theta} = \sqrt{\frac{1}{4}}$$

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

$$\theta = 30^\circ = \frac{\pi}{6} \quad \theta = 210^\circ = \frac{7\pi}{6}$$

$$\theta = 150^\circ = \frac{5\pi}{6} \quad \theta = 330^\circ = \frac{11\pi}{6}$$

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

$$\tan \theta = \pm \frac{1}{\sqrt{3}} = \frac{1/2 \sin \theta}{\cos \theta}$$

- $\theta = 30$
- $\theta = 150$
- $\theta = 210$
- $\theta = 330$

G) ~~$2 \cos \theta + \cos \theta = 0$~~

B) $\sqrt{3} \csc \theta - 2 = 0$

$$\frac{\sqrt{3} \csc \theta}{\sqrt{3}} = \frac{2}{\sqrt{3}}$$

$$\csc \theta = \frac{2}{\sqrt{3}}$$

$$\sin \theta = \frac{\sqrt{3}}{2}$$

$$\theta = 60^\circ = \frac{\pi}{3}$$

$$\theta = 180 - 60^\circ = 120^\circ = \frac{2\pi}{3}$$

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

$$\frac{3 \cot^2 \theta - 1}{3} = \frac{1}{3}$$

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

$$\cot \theta = \pm \frac{1}{\sqrt{3}} \quad \frac{4\pi}{3}$$

$$\tan \theta = \pm \sqrt{3} \quad \frac{5\pi}{3}$$

F) $\cos^2 \theta = 3 \sin^2 \theta$

$$\frac{\cos^2 \theta}{\cos^2 \theta} = \frac{3 \sin^2 \theta}{\cos^2 \theta}$$

$$1 = 3 \left(\frac{\sin \theta}{\cos \theta} \right)^2$$

$$1 = 3 \tan^2 \theta$$

H) ~~$2 \sin \theta \cos \theta = \cos \theta$~~

$$\cot^2 \theta - 3 = 0$$

$$\cot^2 \theta = 3$$

$$\cot \theta = \pm \sqrt{3}$$

$$\tan \theta = \pm \frac{1}{\sqrt{3}}$$

$$\theta = 30^\circ$$

$$\theta = 150^\circ$$

$$\theta = 210^\circ$$

$$\theta = 330^\circ$$

$$\frac{1}{3} = \tan^2 \theta$$

$$\pm \frac{1}{\sqrt{3}} = \tan \theta$$