

$$\sec^2 m - \tan^2 m = 1 \Rightarrow \sec^2 m = 1 + \tan^2 m \Rightarrow \sec^2 m = \frac{1}{\cos^2 m}$$

$$\Rightarrow \sec^2 m = 1 \Rightarrow \cos^2 m = \frac{1}{1} \Rightarrow \cos m = \pm \frac{1}{2} \Rightarrow m = \dots$$



✓

$$\frac{\cos^2 m}{\sin^2 m} = 1 + \frac{\cos^2 m}{\sin^2 m}$$

$$\cos^2 m + 2(\frac{\cos^2 m}{\sin^2 m} - 1) = -2$$

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$$\cos^2 m = 0 \Rightarrow m = \dots$$

$$\sin^2 m (1 - \sin^2 m) + \sin^2 m = 1$$

$$-\cos^2 m + \sin^2 m = 1$$

$$\sin^2 m = 1 \Rightarrow m = \dots$$

$$\frac{\pi}{4} + \frac{3\pi}{4} + \frac{5\pi}{4} = \frac{9\pi}{4}$$

$$\frac{1}{\cos^2 m} + \frac{1}{\sin^2 m} = 0 \Rightarrow \frac{2 \sin^2 m}{\cos^2 m \sin^2 m} + \frac{1}{\cos^2 m \sin^2 m} = 0$$

$$\alpha = \frac{\pi}{2} \Rightarrow 2\alpha = \pi \Rightarrow \tan 2\alpha = -\sqrt{3}$$

$$1 - \sin^2 \alpha = 0 \Rightarrow \sin^2 \alpha = 1 \Rightarrow \sin \alpha = \pm 1$$

✓

$$\frac{5\pi}{12} - \frac{\pi}{12} = \frac{\pi}{3}$$

$$\Rightarrow 2\alpha = 2k\pi + \frac{\pi}{2} \Rightarrow \alpha = k\pi + \frac{\pi}{4} \quad \text{و} \quad 2\alpha = 2k\pi + \frac{3\pi}{2} \Rightarrow \alpha = k\pi + \frac{3\pi}{4}$$

$$\tan 2\alpha = \tan 21^\circ = \frac{\sqrt{3}}{3}$$

$$\tan 2\alpha = \pm \frac{\sqrt{3}}{3}$$

$$\frac{\sqrt{3}\pi}{12}, \frac{11\pi}{12} \leftarrow [0, \pi]$$

$$\cos^2 m - \sin^2 m = \frac{\sqrt{3}}{3}$$

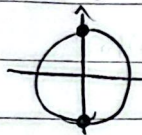
$$\cos^2 m - \sin^2 m = \frac{\sqrt{3}}{3}$$

$$(\cos^2 m - \sin^2 m) \cdot \left(\frac{\sqrt{3}}{3}\right)^2 \Rightarrow \sin^2 m = \frac{1}{4}$$

$$m = \frac{\sqrt{4}}{2} = \sqrt{4} \times \frac{1}{2} = \sqrt{4}$$

$$m = 4$$

$$\cos\left(n - \frac{\pi}{2}\right) = \cos\left(\frac{\pi}{2} - n\right) \Rightarrow \sin\left(n + \frac{\pi}{2}\right) = 1 \Rightarrow \sin\left(n + \frac{\pi}{2}\right) = \pm 1$$



دارای دو جواب است

$$\frac{\pi}{2} \rightarrow \frac{3\pi}{2}$$

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

$$n = k\pi$$

$$\sin n + \sqrt{3} \cos n = \sqrt{2}$$

$\div \sin$

$$1 + \sqrt{3} \cot n = \frac{\sqrt{2}}{\sin n}$$

طرفین در یک ضروب می بینیم

$$\Rightarrow \frac{\sqrt{2} - \sin n}{\sin n} = \sqrt{3} \cot n \Rightarrow \sqrt{2} - \sin n = \sqrt{3} \cot n$$

$$\sin\left(n + \frac{\pi}{2}\right) = \frac{\sqrt{2}}{2}$$

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

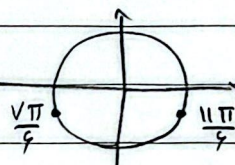
$$n + \frac{\pi}{2} = k\pi + \frac{3\pi}{4}$$

$$\sin n \sin\left(\frac{3\pi}{4} - n\right) = 1$$

$$\Rightarrow -\sin n \cos n = 1 \Rightarrow \sin 2n = -1$$

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

$$\Rightarrow \frac{1}{2} \sin 2\alpha = -\frac{1}{2} \Rightarrow \sin 2\alpha = -1$$



$$\Rightarrow 2\alpha = \frac{3\pi}{2} \Rightarrow \alpha = \frac{3\pi}{4}$$

$$2\alpha = \frac{7\pi}{2} \Rightarrow \alpha = \frac{7\pi}{4}$$

$$\frac{3\pi}{4} + \frac{7\pi}{4} = \frac{10\pi}{4} = \frac{5\pi}{2}$$

$$2\pi = 0$$

$$(1 + \cos 2\alpha)(1 + \cos 4\alpha)(1 + \cos 8\alpha) = \frac{1}{\Lambda} \Rightarrow 2 \cos^2 \alpha 2 \cos^2 2\alpha 2 \cos^2 4\alpha = \frac{1}{\Lambda}$$

$$\Rightarrow \cos^2 \alpha \cos^2 2\alpha \cos^2 4\alpha = \frac{1}{14} \xrightarrow{\times \frac{\sin \alpha}{\sin \alpha}} \sin^2 \alpha \cos^2 \alpha \cos^2 2\alpha \cos^2 4\alpha = \frac{1}{14}$$

$$\Rightarrow \frac{1}{14} \sin^2 2\alpha = \frac{1}{14} \Rightarrow \sin^2 2\alpha = 1 \Rightarrow 2\alpha = \frac{\pi}{2} \Rightarrow \alpha = \frac{\pi}{4}$$

$$\tan 2\alpha = \frac{1}{\tan \alpha} \Rightarrow \tan 2\alpha = \cot \alpha = \tan\left(\frac{\pi}{2} - \alpha\right)$$

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

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

$$\frac{\pi}{3}$$

$$\cos \alpha \cos 2\alpha \cos 4\alpha = \pm \frac{1}{\Lambda}$$

$\times \sin \alpha$

$\sin \alpha \neq 0$

$$\sin 8\alpha = \pm \sin \alpha \rightarrow$$

$$8n = \frac{k\pi}{\Lambda}$$

$$n = \frac{k\pi}{8}$$

$$\frac{k\pi}{8}$$

$$\frac{k\pi}{8}$$

$$\tan \alpha = \frac{1}{\Lambda}$$