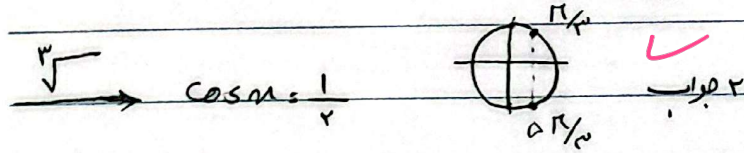


۲۰ آفرین به شما

مبانی ریاضی

$$\Delta \cos \alpha = 1 + \tan^2 \alpha \rightarrow \Delta \cos \alpha = \frac{1}{\cos^2 \alpha} \rightarrow \Delta \cos \alpha = 1 \rightarrow \cos \alpha = \frac{1}{1} \quad (1)$$



$$\Delta \sin^2 \alpha + 2 \cos^2 \alpha + 2 = 0 \xrightarrow{\text{تلاش}} \Delta \sin^2 \alpha + 2 \cos^2 \alpha = 0 \quad (2)$$

فرض ۲ عبارت معادله صفر

$$\Delta \sin^2 \alpha = 0 \rightarrow \sin \alpha = 0 \rightarrow \alpha = k\pi, \pi, 0, \pi \quad (1)$$

فرض ۲ عبارت معادله صفر

$$4 \cos^2 \frac{3\alpha}{2} = 0 \rightarrow \cos \frac{3\alpha}{2} = 0 \rightarrow \frac{3\alpha}{2} = k\pi + \frac{\pi}{2} \quad (2)$$

$$\textcircled{2} \alpha = \frac{\pi}{3}, \pi, \frac{5\pi}{3}, 2\pi \quad \alpha = \frac{2k\pi}{3} + \frac{\pi}{3}$$

$$\textcircled{1} \wedge \textcircled{2} \rightarrow \pi, -\pi \rightarrow \text{۲ جواب}$$

$$2 \sin \alpha \cos \alpha + \sin \alpha - 1 = 0 \quad \cos \alpha = 1 - \sin^2 \alpha \rightarrow 2 \sin \alpha - \sin^2 \alpha - 1 = 0 \quad (3)$$

$$- \sin^2 \alpha - 2 \sin \alpha + 1 = 0 \xrightarrow{\text{مع فرض توانمند}} t^2 + 2t - 1 = 0 \quad t = \sin \alpha$$

در عدد برابر است

$$t^2 - 4t + 1 = 0$$

$$\sin \alpha = -1 \rightarrow \alpha = \frac{3\pi}{2}$$

$$\sin \alpha = \frac{1}{2} \rightarrow \alpha = \frac{\pi}{6}, \frac{5\pi}{6}$$

$$\left\{ \frac{3\pi}{2} + \frac{\pi}{6} + \frac{5\pi}{6} = \frac{10\pi}{6} = \frac{5\pi}{3} \right.$$

$$\sin\left(\frac{\pi}{r} + rm\right) = -\cos\left(\frac{\pi}{r} + rm\right) \rightarrow \cos rm = \sin rm \quad (1)$$

صورتی و منفرجه

$$\sin rm - \cos rm = 0 \rightarrow r \sin rm \cos rm - \cos rm = 0 \rightarrow \cos rm (r \sin rm - 1) = 0$$

$$\cos rm = 0 \quad \text{و غ$$

$$\sin rm = \frac{1}{r} \rightarrow rm = \frac{\pi}{4}, \frac{3\pi}{4} \rightarrow m = \frac{\pi}{12}, \frac{5\pi}{12} \quad \text{اوقات} \quad \frac{7\pi}{12} = \frac{\pi}{3}$$

$$\tan \frac{\pi}{r} = -\sqrt{3} \quad \checkmark$$

$$\cos\left(m + \frac{\pi}{r}\right) = \cos m \times \frac{\sqrt{2}}{r} - \sin m \times \frac{\sqrt{2}}{r} = \frac{\sqrt{2}}{r} (\cos m - \sin m) = \frac{1}{\sqrt{3}} \quad (2)$$

$$\rightarrow \cos m - \sin m = \frac{\sqrt{2}}{r} \quad \text{و غ} \quad 1 - \frac{r \sin m \cos m}{\sin rm} = \frac{r}{r} \rightarrow \sin rm = \frac{1}{r}$$

$$\text{و غ} : m \frac{\sqrt{2}}{\sqrt{3}} = 3\sqrt{4} \times \frac{1}{3} = \sqrt{4} \rightarrow m = 4 \quad \checkmark$$

$$\sin\left(m + \frac{\pi}{r}\right) \cos\left(\frac{\pi}{r} - m\right) = 1 \quad \text{و غ} \quad \sin\left(m + \frac{\pi}{r}\right) = 1 \quad (3)$$

$$\sin\left(m + \frac{\pi}{r}\right) = +1 \rightarrow m + \frac{\pi}{r} = k\pi + \frac{\pi}{r} \rightarrow m = k\pi \quad \checkmark$$



جواب ۲

$$\sin m + \frac{\sin \frac{\pi}{r}}{\cos \frac{\pi}{r}} \cos m = \sqrt{2} \rightarrow \frac{\sin m \cos \frac{\pi}{r} + \sin \frac{\pi}{r} \cos m}{\cos \frac{\pi}{r}} = \sqrt{2} \quad (4)$$

$$\sin\left(m + \frac{\pi}{r}\right) = \frac{\sqrt{2}}{r} \rightarrow m + \frac{\pi}{r} = 2k\pi + \frac{\pi}{r}, \quad 2k\pi + \frac{3\pi}{r}$$

$$m = -\frac{\pi}{12}, \frac{13\pi}{12}, \frac{2\pi}{12} \quad \text{و غ} \quad \frac{9\pi}{12} \quad \checkmark$$

Date: / /

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$$\sin x - \cos x = 1 \rightarrow -\sqrt{2} \sin \left(x - \frac{\pi}{4}\right) = 1 \rightarrow \sin \left(x - \frac{\pi}{4}\right) = -\frac{1}{\sqrt{2}} \quad (8)$$

$$\left. \begin{aligned} x &= k\pi - \frac{\pi}{4} \\ x &= k\pi + \frac{3\pi}{4} \end{aligned} \right\} \frac{11\pi}{12}, \frac{5\pi}{12}, \frac{13\pi}{12}, \frac{17\pi}{12} = 0\pi \quad (9)$$

$$(1 + \cos 2\alpha)(1 + \cos 4\alpha)(1 + \cos 8\alpha) = \frac{1}{\sqrt{2}} \quad (9)$$

$$\sqrt{2} \cos^2 \alpha \times \sqrt{2} \cos^2 2\alpha \times \sqrt{2} \cos^2 4\alpha = \frac{1}{\sqrt{2}}$$

$$\cos^2 \alpha \times \cos^2 2\alpha \times \cos^2 4\alpha = \frac{1}{\sqrt{2}} \rightarrow \cos \alpha \cos 2\alpha \cos 4\alpha = \pm \frac{1}{\sqrt{2}}$$

$$\rightarrow \frac{\sin \alpha}{\sin \alpha} \times \cos \alpha \times \cos 2\alpha \times \cos 4\alpha = \frac{1}{\sqrt{2}} \sin 8\alpha = \pm \frac{1}{\sqrt{2}} \sin \alpha$$

 $\sin \alpha \neq 0$

$$\rightarrow \sin 8\alpha = \pm \sin \alpha \rightarrow \alpha = \frac{r k \pi}{8} \quad \alpha = \frac{r k \pi}{9}$$

$$\alpha = \frac{r k \pi}{8} + \frac{\pi}{8} \quad \alpha = \frac{r k \pi}{9} + \frac{\pi}{9} \quad \text{بزرگترین} = \frac{11\pi}{9} \quad (10)$$

$$\tan \psi_m = \frac{1}{\tan \alpha} \rightarrow \tan \psi_m = \cot(\alpha)$$

$$\tan \psi_m = \tan \left(\frac{\pi}{2} - \alpha \right)$$

$$\psi_m = k\pi + \frac{\pi}{2} - \alpha \rightarrow \psi_m = k\pi + \frac{\pi}{2} \rightarrow \alpha = \frac{k\pi}{2} + \frac{\pi}{2}$$

$$\alpha = \frac{9\pi}{2}, \frac{11\pi}{2}, \frac{13\pi}{2}, \frac{15\pi}{2} \quad \text{موجب} \rightarrow 4\pi$$

