

سؤالات تالیف سنی ۱۷

معمود کیلی

سوال ۱

$$\Lambda \cos x - \tan^2 x = 1 \rightarrow \Lambda \cos x - \frac{(\tan^2 x + 1)}{\cos^2 x} = 0 \times \cos^2 x \rightarrow \Lambda \cos^2 x - 1 = 0$$

$$\cos^2 x = \frac{1}{\Lambda} \rightarrow \cos x = \frac{1}{\sqrt{\Lambda}}$$

$$\cos x = \cos \frac{\pi}{\sqrt{\Lambda}} \rightarrow x = 2k\pi \pm \frac{\pi}{\sqrt{\Lambda}}$$

$$\Delta \sin^2(x) + 2 \cos(x) = 2 \rightarrow \Delta \sin^2(x) + 2 \cos(x) - 2 = 0$$

$$\Delta (1 - \cos^2(x)) + 2 \cos(x) - 2 = 0 \rightarrow \Delta - \Delta \cos^2(x) + 2 \cos(x) - 2 = 0$$

$$\Delta \cos^2(x) - 2 \cos(x) + 2 = 0$$

$$\cos x = \cos \pi$$

$$x = 2k\pi \pm \pi$$

$$m = \pi, m = -\pi$$

جواب نار، $\Delta < 0$

جمع ضرب = 0 = یکی از ریشه ها -1

جمع ضرب زوج = 0

$$2 \sin x \times \cos(x) + \sin x = 1 \rightarrow 2 \sin x (-2 \sin^2 x + 1) + \sin x - 1 = 0$$

$$-4 \sin^3 x + 2 \sin x + \sin x - 1 = 0$$

$$-4t^3 + 3t - 1 = 0 \rightarrow (t+1) \rightarrow (-4t^2 + 4t - 1) \rightarrow -(2t-1)^2$$

$$t = \sin x \rightarrow t = -1$$

$$\sin x = -1$$

$$x = \frac{3\pi}{2}$$

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

$$\sin x = -\frac{1}{2} \rightarrow x = \frac{7\pi}{6}, \frac{11\pi}{6}$$

$$\frac{1}{\sin} + \frac{1}{\cos} = 0 \rightarrow \sin = -\cos \rightarrow \cos\left(\frac{\pi + 2k\pi}{2}\right) = -\sin\left(\frac{\pi + 2k\pi}{2}\right)$$

$$\sin\left(\frac{\pi + 2k\pi}{2}\right) \neq 0$$

$$\cos\left(\frac{\pi + 2k\pi}{2}\right) \neq 0$$

$$x \neq \frac{\pi}{2}, x \neq \frac{3\pi}{2}$$

$$x = \frac{\pi}{2}, \frac{3\pi}{2}$$

$$x = \frac{\pi}{2}, \frac{3\pi}{2}$$

$$\tan y_d = \tan 140 = -\sqrt{2}$$

$$\cos\left(m + \frac{\pi}{4}\right) = \frac{1}{\sqrt{2}} \rightarrow -\frac{1}{\sqrt{2}} (\sin m - \cos m) = \frac{1}{\sqrt{2}} \rightarrow (\sin m - \cos m)^2 = \left(\frac{1}{\sqrt{2}}\right)^2$$

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

$$1 - 2 \sin m \cos m = \frac{1}{2}$$

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

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

$$m = \frac{\pi}{4}, \frac{3\pi}{4}, \frac{5\pi}{4}, \frac{7\pi}{4}$$

سوال ۴ ←
 $\sin(m + \frac{\pi}{4}) \cos(m - \frac{\pi}{4}) = 1$ $\frac{m + \frac{\pi}{4} - m + \frac{\pi}{4}}{2} = \frac{\pi}{4}$ $\sin^2(m + \frac{\pi}{4}) = 1 \rightarrow \sin(m + \frac{\pi}{4}) = \pm 1$
 $\rightarrow \cos(-m + \frac{\pi}{4})$

$m + \frac{\pi}{4} = \frac{\pi}{4} \rightarrow m = \frac{\pi}{4}$ $m + \frac{\pi}{4} = 2k\pi + \frac{\pi}{4} - \frac{\pi}{4} \rightarrow m = 2k\pi + \frac{\pi}{4}$
 $m + \frac{\pi}{4} = \frac{3\pi}{4} \rightarrow m = \frac{\pi}{2}$ $m + \frac{\pi}{4} = 2k\pi + \pi - \frac{\pi}{4} \rightarrow m = 2k\pi + \frac{5\pi}{4}$

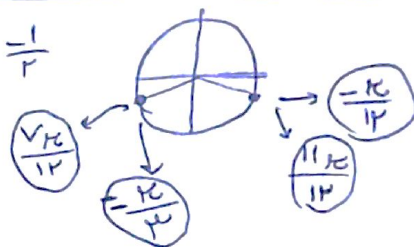


۲ جواب دارد

سوال ۷ ←
 $\frac{\sin m + \sqrt{2} \cos m}{2} = \frac{\sqrt{2}}{2} \rightarrow \sin(m + \frac{\pi}{4}) = \sin(\frac{\pi}{4}) \rightarrow m + \frac{\pi}{4} = \frac{\pi}{4} \rightarrow m = -\frac{\pi}{4}$

$\text{جمع} = -\frac{\pi}{12} + \frac{5\pi}{12} + \frac{4\pi}{12} = \frac{8\pi}{12} = \frac{2\pi}{3}$ $m + \frac{\pi}{4} = 2k\pi + \pi - \frac{\pi}{4} \rightarrow m = \frac{5\pi}{4}$

سوال ۸ ←
 $\sin m \sin(\frac{5\pi}{4} - m) = 1 \rightarrow -\frac{1}{2} \sin(2m) = 1 \rightarrow \sin(2m) = -\frac{1}{2}$
 $\downarrow$
 $-\cos(-m)$
 $-\cos(m)$



$\sin^2 m \rightarrow \frac{1}{2} \sin^2 2m \rightarrow \frac{1}{2} \sin^2 4m$

سوال ۹ ←
 $\frac{\sin^2 m \times \cos^2 m \times \cos^2 m \times \cos^2 m}{\sin^2 m} = \frac{1}{1} \rightarrow \frac{\cos^4 m}{\sin^2 m} = \frac{1}{1} \rightarrow \sin m = \cos 2m$
 $\sin(m) = \sin(2m)$

$-m + 2k\pi + \pi = 2m \rightarrow 3m = \frac{2k\pi + \pi}{3} \rightarrow m = \frac{2k\pi + \pi}{9}$ جواب مورد نظر
 $+m + 2k\pi + \pi = 2m \rightarrow m = \frac{2k\pi + \pi}{1} \rightarrow m = \frac{2k\pi + \pi}{1}$

سوال ۱۰ ←
 $\tan(m) \tan(2m) = 1 \rightarrow \tan m = \frac{1}{\tan(2m)} \rightarrow \tan m = \cot(2m)$
 $\rightarrow \tan(\frac{\pi}{2} - 2m)$

$m = \frac{\pi}{4} - 2m \rightarrow 3m = \frac{\pi}{4} \rightarrow m = \frac{\pi}{12}$

$+m = 2k\pi + \pi - \frac{\pi}{4} + 2m \rightarrow -m = 2k\pi + \frac{3\pi}{4} \rightarrow m = -2k\pi - \frac{3\pi}{4}$
 $\rightarrow \text{جواب} = 4\pi + \frac{\pi}{4}$ $k \in \mathbb{Z}$ طبق راسخ نقطه $\sqrt{2}$ قابل قبول می باشد