

مردی کردی سنجانی - تالیف سه‌ماهه ۱۷

7:00

$$1 \cos x = 1 + \tan^2 x \Rightarrow 1 \cos x = \frac{1}{\cos^2 x} \Rightarrow \cos^3 x = \frac{1}{1} \Rightarrow \cos x = \frac{1}{1} \quad (1)$$

8:00

$$x = 2K\pi \pm \frac{\pi}{3} \Rightarrow x = \frac{\pi}{3}, \frac{5\pi}{3} \quad \text{و جواب}$$

9:00

$$\omega(1 - \cos^2 x) + 2(2 \cos^3 x - 3 \cos x) = -2 \quad (2)$$

10:00

$$\omega - \omega \cos^2 x + 4 \cos^3 x - 6 \cos x = -2 \Rightarrow (1 \cos^3 x - 1 \cos x + 1)(\cos x + 1)$$

بدون جواب

11:00

$$\cos x = -1 \Rightarrow x = -\pi, \pi$$

12:00

$$\sin x(2 \cos^2 x + 1) = 1 \Rightarrow \sin x(4 \cos^2 x - 1) = \sin x(4 - 4 \sin^2 x - 1) \quad (3)$$

13:00

$$= 3 \sin x - 4 \sin^3 x = 1 \Rightarrow \sin^3 x = 1 \Rightarrow x = 2K\pi + \frac{\pi}{2}$$

14:00

$$x = \frac{2K\pi}{2} + \frac{\pi}{2} \Rightarrow x = \frac{\pi}{2}, \frac{5\pi}{2}, \frac{9\pi}{2} \Rightarrow \text{جواب} = \frac{5\pi}{2}$$

15:00

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

16:00

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

$$x = K\pi \pm \frac{\pi}{2} \rightarrow \text{و جواب}$$

$$x = \frac{K\pi + \frac{\pi}{2}}{K\pi + \frac{5\pi}{2}} \xrightarrow{\text{انتخاب}} = \frac{5\pi}{12} = \frac{\pi}{4}$$

$$\Rightarrow \tan \frac{\pi}{4} = -\sqrt{3}$$

December

Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
31					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

$$\cos x \cos \frac{\pi}{2} - \sin x \sin \frac{\pi}{2} = \frac{1}{\sqrt{3}} \Rightarrow \frac{\sqrt{3}}{2} (\cos x - \sin x) = \frac{1}{\sqrt{3}} \quad (5)$$

$$\Rightarrow 1 - \sin^2 x = \frac{2}{3} \Rightarrow \sin^2 x = \frac{1}{3}$$

$$\Rightarrow m^2 \left(1 - \frac{\sin^2 x}{\frac{1}{2}}\right) = 2 \Rightarrow m^2 = 3 \Rightarrow m = \pm \sqrt{3}$$

$$\sin\left(x + \frac{\pi}{4}\right) = \cos\left(\frac{\pi}{2} - x\right) \Rightarrow \cos\left(x - \frac{\pi}{2}\right) \cos\left(x - \frac{\pi}{2}\right) = 1 \quad (4)$$

$$\Rightarrow \cos\left(x - \frac{\pi}{2}\right) = 1 \Rightarrow x - \frac{\pi}{2} = 2K\pi$$

$$x = 2K\pi + \frac{\pi}{2}$$

یک جواب

$$\sin x + \sqrt{3} \cos x = 2 \sin\left(x + \frac{\pi}{6}\right) = \sqrt{3} \Rightarrow \sin\left(x + \frac{\pi}{6}\right) = \frac{\sqrt{3}}{2} \quad (V)$$

$$x + \frac{\pi}{6} = \frac{\pi}{3} \Rightarrow x = \frac{\pi}{6}$$

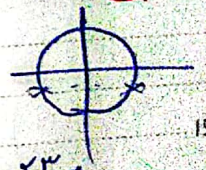
$$\Rightarrow x + \frac{\pi}{6} = 2K\pi + \frac{\pi}{3} \Rightarrow x = 2K\pi + \frac{\pi}{6}$$

$$x + \frac{\pi}{6} = 2K\pi + \frac{5\pi}{6} \Rightarrow x = 2K\pi + \frac{2\pi}{3}$$

$$\sin x \cos x = -1 \Rightarrow \sin^2 x = -1 \Rightarrow \sin^2 x = \frac{-1}{2}$$

$$\Rightarrow \left. \begin{aligned} 2x = 2K\pi + \frac{5\pi}{4} &\Rightarrow x = K\pi + \frac{5\pi}{8} \\ 2x = 2K\pi + \frac{11\pi}{4} &\Rightarrow x = K\pi + \frac{11\pi}{8} \end{aligned} \right\} \Rightarrow x = \frac{5\pi}{8}, \frac{11\pi}{8}, \frac{13\pi}{8}, \frac{19\pi}{8}$$

$$\Rightarrow x = \frac{5\pi}{8} = \boxed{\frac{5\pi}{8}}$$



$$\underbrace{(1 + \cos 5\alpha)}_{\cos^2 \alpha} \underbrace{(1 + \cos 4\alpha)}_{\cos^2 \alpha} \underbrace{(1 + \cos 3\alpha)}_{\cos^2 \alpha} = \frac{1}{\Lambda}$$

$$\cos^2 \alpha \cos^2 4\alpha \cos^2 5\alpha = \frac{1}{4\epsilon} \Rightarrow \frac{\sin^2 1\alpha}{\sin^2 \alpha} = 1$$

$$\Rightarrow \sin^2 1\alpha = \sin^2 \alpha \Rightarrow \alpha_{\max} = \frac{K\pi + \pi}{9}$$

$$\Rightarrow \alpha_{\max} = \frac{11\pi}{9}$$

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

$$\pi x = K\pi + \frac{\pi}{x} - x \Rightarrow \pi x = K\pi + \frac{\pi}{x} \Rightarrow x = \frac{K\pi}{\epsilon} + \frac{\pi}{\Lambda}$$

$$x = \frac{9\pi}{\Lambda}, \frac{11\pi}{\Lambda}, \frac{13\pi}{\Lambda}, \frac{15\pi}{\Lambda} \Rightarrow \text{Range} = 9\pi$$