

تلف سياره (17)

13, 15

پروبان (تعمیری) - دارنده دفتر A

$$\Lambda \cos x - \tan^2 x = 1 \rightarrow \Lambda \cos x = 1 + \tan^2 x \rightarrow \Lambda \cos x = \frac{1}{\cos^2 x} \rightarrow \Lambda \cos^3 x = 1 \quad (\text{سوال 1})$$

$$\rightarrow \cos^3 x = \frac{1}{\Lambda} \rightarrow \cos x = \frac{1}{\sqrt[3]{\Lambda}} \Rightarrow x = \frac{\pi}{3}, \frac{2\pi}{3} \rightarrow \text{جواب}$$

$$\Delta \sin^3 x + \gamma \cos(3x) = -\gamma \rightarrow \Delta(1 - \cos^3 x) + \gamma(\cos^3 x - \cos x) = -\gamma \quad (\text{سوال 2})$$

$$\rightarrow \Delta - \Delta \cos^3 x + \Lambda \cos^3 x - \gamma \cos x + \gamma = 0 \rightarrow \Lambda \cos^3 x - \Delta \cos^3 x - \gamma \cos x + \gamma = 0 \quad \div (\cos x + 1)$$

$$(\cos x + 1)(\Lambda \cos^2 x - \Delta \cos^2 x - \gamma \cos x + \gamma) = 0 \rightarrow \cos x + 1 = 0 \rightarrow \cos x = -1 \rightarrow x = -\pi, \pi \rightarrow \text{جواب}$$

$$\gamma \sin(x) \cos(\gamma x) + \sin(x) = 1 \rightarrow \sin(x)(\gamma \cos(\gamma x) + 1) = 1 \rightarrow \sin x (\gamma(1 - \gamma \sin^2 x) + 1) = 1 \quad (\text{سوال 3})$$

$$= \sin x (\gamma - \gamma^2 \sin^2 x + 1) = 1 \rightarrow -\gamma^2 \sin^2 x + \gamma \sin x - 1 = 0 \quad \div (\sin x + 1)$$

$$\left. \begin{array}{l} \sin x = -1 \rightarrow x = \frac{3\pi}{2} \\ \sin x = \frac{1}{\gamma} \rightarrow x = \frac{\pi}{6}, \frac{5\pi}{6} \end{array} \right\} \frac{\pi}{6} + \frac{5\pi}{6} + \frac{3\pi}{2} = \frac{5\pi}{2}$$

$$\frac{1}{\sin(\frac{\pi+\gamma x}{\gamma})} + \frac{1}{\cos(\frac{\pi+\gamma x}{\gamma})} = \frac{1}{\sin(\frac{\pi}{\gamma} + \gamma x)} + \frac{1}{\cos(\frac{\pi}{\gamma} + \gamma x)} = \frac{1}{\cos \gamma x} + \frac{1}{-\sin \gamma x} \quad (\text{سوال 4})$$

$$\Rightarrow \frac{-\sin \gamma x + \cos^2 \gamma x}{\cos^2 \gamma x - \sin \gamma x} = 0 \rightarrow -\sin \gamma x + \cos^2 \gamma x = 0 \rightarrow -\gamma \sin^2 \gamma x + \cos^2 \gamma x = 0$$

$$\rightarrow \cos^2 \gamma x (-\gamma \sin^2 \gamma x + 1) = 0 \rightarrow \begin{cases} \cos^2 \gamma x = 0 \rightarrow \gamma x = \frac{\pi}{2} \rightarrow x = \frac{\pi}{\gamma} \\ -\gamma \sin^2 \gamma x = -1 \rightarrow \sin^2 \gamma x = \frac{1}{\gamma} \rightarrow x = \frac{\pi}{\gamma}, \frac{2\pi}{\gamma} \rightarrow \alpha = \frac{5\pi}{4} - \frac{\pi}{4} = \frac{\pi}{2} \end{cases}$$

$$\rightarrow \tan \frac{\pi}{\gamma} = \sqrt{3} \quad \text{اگر } \cos x = 0 \text{ باشد مخرج عبارت اولیه صفر می شود که غیر قابل قبول است!}$$

$$\sin^2 \gamma x = \frac{1}{\gamma} \rightarrow \gamma x = \gamma k\alpha + \frac{\pi}{4} \text{ یا } \gamma k\alpha + \frac{3\pi}{4} \rightarrow x = k\alpha + \frac{\pi}{4} \text{ یا } k\alpha + \frac{3\pi}{4}$$

$$\frac{\pi}{4} \leq x \leq \frac{3\pi}{4} \rightarrow k=0 \rightarrow x = \frac{\pi}{4} \text{ یا } \frac{3\pi}{4} \rightarrow \frac{3\pi}{4} - \frac{\pi}{4} = \frac{\pi}{2}$$

$$\alpha = \frac{\pi}{2} \rightarrow \tan(\gamma \alpha) = \tan\left(\frac{\gamma \pi}{2}\right) = -\sqrt{3}$$

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

$$\rightarrow \frac{\sqrt{2}}{2} (\cos x - \sin x) = \frac{\sqrt{2}}{2} \rightarrow \cos x - \sin x = \frac{\sqrt{2}}{2} = \frac{\sqrt{2}\sqrt{2}}{2\sqrt{2}} = \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{2}}{\sqrt{2}}$$

$$\rightarrow (\cos x - \sin x)^2 = \cos^2 x + \sin^2 x - 2 \cos x \sin x = \frac{4}{9} \rightarrow \sin 2x = \frac{2}{9} = \frac{1}{\frac{9}{2}} \quad (2)$$

$$\rightarrow m \left(\frac{\sqrt{2}}{\sqrt{2}} \right) - 2 \sqrt{2} \left(\frac{1}{\sqrt{2}} \right) = \sqrt{2} \rightarrow m \frac{\sqrt{2}}{\sqrt{2}} = 2\sqrt{2} \rightarrow \boxed{m = 4}$$

$$\sin a \cos b = \frac{1}{2} (\sin(a+b) + \sin(a-b)) \quad (4 \text{ سؤال})$$

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

$$\rightarrow 2x - \frac{\pi}{4} = \frac{\pi}{2} \rightarrow 2x = \frac{5\pi}{4} \rightarrow x = \frac{5\pi}{8} = \frac{\pi}{2} + \frac{\pi}{8}$$

$$a \sin x + b \cos x = \frac{a}{|a|} \sqrt{a^2 + b^2} \sin\left(x + \alpha\right) \quad \tan \frac{b}{a} \quad (1 \text{ سؤال})$$

$$\rightarrow \sin x + \sqrt{3} \cos x = 1 \rightarrow \frac{1}{2} \sin\left(x + \frac{\pi}{3}\right) = \frac{1}{2} \rightarrow \sin\left(x + \frac{\pi}{3}\right) = \frac{\sqrt{3}}{2}$$

$$\left. \begin{aligned} x + \frac{\pi}{3} &= \frac{\pi}{2} \rightarrow x = \frac{\pi}{2} - \frac{\pi}{3} = \frac{\pi}{6} \\ x + \frac{\pi}{3} &= \frac{2\pi}{3} \rightarrow x = \frac{2\pi}{3} - \frac{\pi}{3} = \frac{\pi}{3} \end{aligned} \right\} \quad \frac{\pi}{6} + \frac{2\pi}{3} = \frac{5\pi}{6} = \frac{\pi}{2} + \frac{\pi}{3}$$

$$f \sin x \sin\left(\frac{3\pi}{4} - x\right) = 1 \rightarrow -f \sin x \cos x = 1 \rightarrow -f (\sin x \cos x) = 1 \quad (1 \text{ سؤال})$$

$$\rightarrow -f \sin 2x = 1 \rightarrow \sin 2x = -\frac{1}{f} \quad \left. \begin{aligned} 2x &= \frac{11\pi}{6} \rightarrow x = \frac{11\pi}{12} \\ 2x &= \frac{7\pi}{6} \rightarrow x = \frac{7\pi}{12} \end{aligned} \right\} \quad \frac{11\pi}{12} + \frac{7\pi}{12} = \frac{18\pi}{12} = \frac{3\pi}{2} \quad (1, 2, 5)$$

$$\sin\left(\frac{3\pi}{4} - x\right) = -\cos x$$

$$f \sin x (-\cos x) = 1 \rightarrow -f (\sin x \cos x) = 1 \rightarrow \sin 2x = -\frac{1}{f}$$

$$2x = 2k\pi - \frac{\pi}{6} \leq 2k\pi + \frac{\pi}{6} \rightarrow x = k\pi - \frac{\pi}{12} \leq k\pi + \frac{\pi}{12}$$

$$\begin{aligned} 0 \leq x < 2\pi & \quad \left. \begin{aligned} k=0, 1 & \rightarrow x = \frac{11\pi}{12}, \frac{7\pi}{12} \\ k=1, 2 & \rightarrow x = \frac{23\pi}{12}, \frac{19\pi}{12} \end{aligned} \right\} \end{aligned}$$

$$S = \frac{11\pi}{12} + \frac{7\pi}{12} + \frac{23\pi}{12} + \frac{19\pi}{12} = \frac{60\pi}{12} = \boxed{5\pi}$$

s.a.m سوال 9 و 10 ← صفحہ

$$\cos\left(n + \frac{\pi}{4}\right) = \cos\left(\frac{\pi}{4} - n\right)$$

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$$\frac{\pi}{4} - n + n + \frac{\pi}{4} = \frac{\pi}{2} \rightarrow \cos\left(\frac{\pi}{4} - n\right) = \sin\left(n + \frac{\pi}{4}\right)$$

$$\sin^2\left(n + \frac{\pi}{4}\right) = 1 \rightarrow \sin\left(n + \frac{\pi}{4}\right) = \pm 1 \rightarrow n + \frac{\pi}{4} = k\pi + \frac{\pi}{4}$$

$$n = k\pi + \frac{\pi}{4} \xrightarrow{0 \leq n \leq 2\pi} k \geq 0 \rightarrow n = \frac{\pi}{4}, \quad k < 1, \quad n = \frac{9\pi}{4}$$

معادله ۲ جواب در بازه دارد

(۵) عبارت $\frac{1}{r}$ ضرب می‌کنیم.

$$\frac{1}{r} \sin n + \frac{\sqrt{r}}{r} \cos n = \frac{\sqrt{r}}{r}$$

$$\cos 45^\circ \sin n + \sin 45^\circ \cos n = \frac{\sqrt{r}}{r} \rightarrow \sin\left(n + \frac{\pi}{4}\right) = \frac{\sqrt{r}}{r}$$

$$n + \frac{\pi}{4} = 2k\pi + \frac{\pi}{4} \rightarrow n = 2k\pi \xrightarrow{-\pi \leq n \leq \pi} k \geq 0, 1 \rightarrow n = \frac{\pi}{12}, \frac{5\pi}{12}$$

$$n + \frac{\pi}{4} = 2k\pi + \frac{3\pi}{4} \rightarrow n = 2k\pi + \frac{\pi}{2} \xrightarrow{-\pi \leq n \leq \pi} k < 0 \rightarrow n = \frac{5\pi}{12}$$

$$S = \frac{13\pi}{12} - \frac{\pi}{12} + \frac{5\pi}{12} = \frac{14\pi}{12} = \boxed{\frac{7\pi}{6}}$$

$$\cos \pi_n = \frac{1}{\cos n} = \cos n \rightarrow \cos \pi_n = \cos\left(\frac{\pi}{4} - n\right)$$

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

k	r	s	t	v
n	$\frac{9\pi}{4}$	$\frac{11\pi}{4}$	$\frac{13\pi}{4}$	$\frac{15\pi}{4}$

$$S = \left(\frac{9+11+13+15}{4}\right)\pi = \frac{52\pi}{4} = \boxed{13\pi}$$

$$1 + \cos \varphi = \cos \varphi$$

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$$\left. \begin{aligned} 1 + \cos \varphi &= \cos \varphi \\ 1 + \cos \varphi &= \cos \varphi \\ 1 + \cos \varphi &= \cos \varphi \end{aligned} \right\} \rightarrow \cos \varphi \cos \varphi \cos \varphi = \frac{1}{\lambda}$$

$$\cos \varphi \cos \varphi \cos \varphi = \frac{1}{\lambda} \xrightarrow{\sqrt{\quad}} \cos \varphi \cos \varphi \cos \varphi = \pm \frac{1}{\lambda} \xrightarrow[\sin \varphi \neq 0]{\times \sin \varphi} \star$$

$$\underbrace{(\sin \varphi \cos \varphi)}_{\sin \varphi} \cos \varphi \cos \varphi = \pm \frac{\sin \varphi}{\lambda} \rightarrow \frac{1}{\varphi} \underbrace{(\sin \varphi \cos \varphi)}_{\frac{1}{\varphi} \sin \varphi} \cos \varphi = \pm \frac{\sin \varphi}{\lambda}$$

$$\frac{1}{\varphi} \times \frac{1}{\varphi} \underbrace{(\sin \varphi \cos \varphi)}_{\sin \varphi} = \pm \frac{\sin \varphi}{\lambda} \rightarrow \frac{1}{\varphi} \sin \varphi = \pm \frac{\sin \varphi}{\lambda}$$

$$\sin \varphi = \pm \sin \varphi \rightarrow \begin{cases} \varphi = \varphi k \pi + \alpha \leq \varphi k \pi + \pi - \alpha \\ \varphi = \varphi k \pi - \alpha \leq \varphi k \pi + \pi + \alpha \end{cases}$$

$$\alpha = \frac{\varphi k \pi}{\varphi} \xrightarrow{MANA} k = 3 \rightarrow n = \frac{4\pi}{\varphi}$$

$$\alpha = \frac{\varphi k \pi}{\varphi} \xrightarrow{MANA} k = 4 \rightarrow n = \frac{1\pi}{\varphi}$$

$$\alpha = \frac{(\varphi k + 1)\pi}{\varphi} \xrightarrow{MANA} k = 2 \rightarrow n = \frac{3\pi}{\varphi}$$

$$\alpha = \frac{(\varphi k + 1)\pi}{\varphi} \xrightarrow{MANA} k = 3 \rightarrow n = \frac{5\pi}{\varphi}$$

$$\rightarrow \boxed{MANA = \frac{1\pi}{\varphi}}$$

$\star A$ نمی تواند برابر خود π باشد چون $\sin \star$ / مخالف صفر در نقطه ایم!