

$$\begin{aligned} 1 \quad \Lambda \cos x = \tan^2 x + 1 &\rightarrow \Lambda \cos x = \frac{1}{\cos^2 x} \rightarrow \cos^2 x = \frac{1}{\Lambda} \rightarrow \\ 2 \quad \cos x = \frac{1}{\sqrt{\Lambda}} &\rightarrow x = 2k\pi \pm \frac{\pi}{\sqrt{\Lambda}} \rightarrow \text{در بازه مشخص شده ۲ جواب دارد} \end{aligned}$$

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

$$4 \quad \Lambda \cos^2 x - \omega \cos^2 x - \Gamma \cos x + \Gamma = 0 \rightarrow \cos x = -1$$

$$5 \quad (\cos x + 1)(\Lambda \cos^2 x - 1^2 \cos x + \Gamma) = 0 \rightarrow \cos x = -1 \rightarrow x = 2k\pi - \pi$$

$$6 \quad \sin x (\Gamma \cos^2 x + 1) = 1 \rightarrow \sin x (\Gamma - 1 \sin^2 x + 1) = 1$$

$$7 \quad \Gamma \sin^2 x - 1 \sin x + 1 = 0 \rightarrow \sin x = -1 : (\sin x + 1)(\Gamma \sin^2 - 1 \sin x + 1) = 0$$

$$8 \quad (\sin x + 1)(\Gamma \sin x - 1)^2 = 0 \rightarrow \sin x = \left\{ -1, \frac{1}{\Gamma} \right\}$$

$$9 \quad x = \left\{ 2k\pi - \frac{\pi}{2}, 2k\pi + \frac{\pi}{2}, 2k\pi + \frac{5\pi}{2} \right\} \rightarrow \text{در بازه مشخص شده ۳ جواب دارد}$$

$$10 \quad \frac{5\pi}{2} = \text{مجموعه} \leftarrow \frac{3\pi}{2}, \frac{5\pi}{2}, \frac{\pi}{2}$$

$$11 \quad \frac{1}{\sin(x + \frac{\pi}{\Gamma})} + \frac{1}{\cos(x + \frac{\pi}{\Gamma})} = 0 \rightarrow \frac{1}{\cos x} + \frac{-1}{\sin x} = 0$$

$$12 \quad \frac{1}{\cos x} = \frac{1}{\sin x} \rightarrow \cos^2 x = \sin^2 x \rightarrow \cos^2 x = 2 \sin^2 x \cos^2 x \rightarrow \sin^2 x = \frac{1}{2}$$

$$13 \quad x = \left\{ 2k\pi + \frac{\pi}{4}, 2k\pi + \frac{5\pi}{4} \right\} \rightarrow x = \left\{ k\pi + \frac{\pi}{4}, k\pi + \frac{5\pi}{4} \right\}$$

$$14 \quad \alpha = \frac{\pi}{\sqrt{\Lambda}} \leftarrow \text{در بازه مشخص شده ۲ جواب دارد} \frac{5\pi}{12}, \frac{\pi}{12}$$

$$15 \quad \tan \frac{2\pi}{\sqrt{\Lambda}} = -\sqrt{\Lambda}$$

$$1 \quad \cos\left(x + \frac{\pi}{2}\right) = \frac{1}{\sqrt{2}} \rightarrow \frac{\sqrt{2}}{2} (\cos x - \sin x) = \frac{1}{\sqrt{2}} \rightarrow (5)$$

$$2 \quad \cos x - \sin x = \frac{\sqrt{2}}{\sqrt{2}}$$

$$3 \quad (\cos x - \sin x)^2 = 1 - \sin 2x \rightarrow \sin 2x = 1 - \frac{2}{2} = \frac{1}{2} \quad (2)$$

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

$$6 \quad \sin\left(x + \frac{\pi}{4}\right) \cos\left(x - \frac{\pi}{4}\right) = 1 \rightarrow \text{در هر ضرب سهواً...!} \quad (1, 1, 5, 5) \quad (4)$$

$$7 \quad \cancel{X} \cos\left(x - \frac{\pi}{4}\right) = 1 \rightarrow \cos\left(x - \frac{\pi}{4}\right) = \cancel{\frac{1}{2}} \rightarrow$$

$$8 \quad x = \frac{\pi}{4} = 2k\pi \pm \frac{\pi}{4} \rightarrow x = \left\{ 2k\pi + \frac{\pi}{4}, 2k\pi \right\}$$

$$9 \quad \cos\left(x - \frac{\pi}{4}\right) = \pm 1 \quad \text{ساده جواب ها در بازه مشخص شده}$$

$$10 \quad x - \frac{\pi}{4} = k\pi \rightarrow x = k\pi + \frac{\pi}{4} \rightarrow k=0, 1 \rightarrow x = \frac{\pi}{4}, \frac{5\pi}{4}$$

$$11 \quad \sin x + \frac{\sin \frac{\pi}{4}}{\cos \frac{\pi}{4}} \cos x = \sqrt{2} \rightarrow (1, 1, 2)$$

$$12 \quad \frac{\cos \frac{\pi}{4} \sin x + \sin \frac{\pi}{4} \cos x}{\cos \frac{\pi}{4}} = \sqrt{2} \rightarrow \sin\left(x + \frac{\pi}{4}\right) = \frac{\sqrt{2}}{2} \rightarrow$$

$$14 \quad x + \frac{\pi}{4} = \left\{ 2k\pi + \frac{\pi}{4}, 2k\pi + \frac{3\pi}{4} \right\} \rightarrow$$

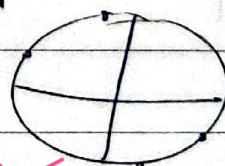
$$15 \quad x = \left\{ 2k\pi - \frac{\pi}{4}, 2k\pi + \frac{5\pi}{4} \right\} \rightarrow \text{جواب ها: } \left\{ -\frac{\pi}{4}, \frac{3\pi}{4}, \frac{5\pi}{4} \right\}$$

$$17 \quad \frac{9\pi}{4} = \text{مجموع} \leftarrow$$

$$19 \quad \cancel{X} \sin x \times \sin\left(\frac{3\pi}{4} - x\right) = 1 \rightarrow -2 \sin 2x = 1 \rightarrow (1)$$

$$20 \quad \sin 2x = -\frac{1}{2} \rightarrow 2x = \left\{ 2k\pi - \frac{\pi}{6}, 2k\pi - \frac{5\pi}{6} \right\} \rightarrow$$

$$21 \quad x = \left\{ k\pi - \frac{\pi}{12}, k\pi - \frac{5\pi}{12} \right\}$$



MRNOTE

11 مجموع جواب ها ؟
 12 جواب در بازه مشخص شده

$$(1 + \cos \varphi \alpha)(1 + \cos \varphi \alpha)(1 + \cos \Lambda \alpha) = \frac{1}{\Lambda} \rightarrow \quad (9)$$

$$(\varphi \cos \varphi \alpha)(\varphi \cos \varphi \alpha)(\varphi \cos \varphi \alpha) = \frac{1}{\Lambda} \rightarrow \quad (10)$$

$$\sin \Lambda \alpha = \Lambda \sin \alpha \cos \alpha \cos \varphi \alpha \cos \varphi \alpha \rightarrow \quad (11)$$

$$\frac{|\sin \Lambda \alpha|}{|\sin \alpha|} = 1 \rightarrow \sin \Lambda \alpha = \sin \alpha \quad \underline{\sin \Lambda \alpha = \sin -\alpha} \rightarrow \quad (12)$$

$$\alpha = \left\{ \frac{\varphi k \pi}{\Lambda}, \frac{\varphi k \pi}{\Lambda}, \frac{\varphi k \pi + \pi}{\Lambda}, \frac{\varphi k \pi + \pi}{\Lambda} \right\} \rightarrow \quad (13)$$

Soib, $\alpha = \left\{ \frac{\pi}{\Lambda}, \frac{\pi}{\Lambda}, \frac{2\pi}{\Lambda}, \frac{2\pi}{\Lambda}, \frac{3\pi}{\Lambda}, \frac{3\pi}{\Lambda}, \frac{4\pi}{\Lambda}, \frac{4\pi}{\Lambda}, \frac{5\pi}{\Lambda}, \frac{5\pi}{\Lambda}, \frac{6\pi}{\Lambda}, \frac{6\pi}{\Lambda}, \frac{7\pi}{\Lambda}, \frac{7\pi}{\Lambda}, \frac{8\pi}{\Lambda}, \frac{8\pi}{\Lambda}, \frac{9\pi}{\Lambda}, \frac{9\pi}{\Lambda} \right\}$

$$\max \alpha = \frac{\Lambda \pi}{\varphi}$$

$$\tan \varphi \alpha \times \tan \alpha = 1 \rightarrow \tan \varphi \alpha = \cot \alpha \rightarrow \quad (14)$$

$$\tan \varphi \alpha = \tan \left(\frac{\pi}{\varphi} - \alpha \right) \rightarrow \varphi \alpha = k\pi + \frac{\pi}{\varphi} - \alpha \rightarrow \quad (15)$$

$$\varphi \alpha = k\pi + \frac{\pi}{\varphi} \rightarrow \alpha = \frac{k\pi}{\varphi} + \frac{\pi}{\Lambda} \rightarrow \quad (16)$$

Soib, $\alpha = \left\{ \frac{9\pi}{\Lambda}, \frac{11\pi}{\Lambda}, \frac{13\pi}{\Lambda}, \frac{15\pi}{\Lambda} \right\} \rightarrow \text{Ex} = 4\pi$

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

(4)

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

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

$$x = k\pi + \frac{\pi}{4} \xrightarrow{0 \leq x < 2\pi} k \geq 0 \rightarrow x = \frac{\pi}{4}, \quad k < 1, \quad x = \frac{5\pi}{4}$$

مقادیر جواب در بازه $[0, 2\pi]$

$$\sin\left(\frac{5\pi}{4} - x\right) = -\cos x$$

(1)

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

$$x = 2k\pi - \frac{\pi}{4} \leq 2k\pi + \frac{\sqrt{\pi}}{4} \rightarrow x = 2k\pi - \frac{\pi}{4} \leq 2k\pi + \frac{\sqrt{\pi}}{4}$$

$$\xrightarrow{0 \leq x < 2\pi} \begin{cases} 1 \\ 2 \end{cases} \begin{cases} k=0, 1 \rightarrow x = \frac{\sqrt{\pi}}{4}, \frac{19\pi}{12} \\ k=1, 2 \rightarrow x = \frac{11\pi}{12}, \frac{25\pi}{12} \end{cases}$$

$$S = \frac{\sqrt{\pi}}{12} + \frac{19\pi}{12} + \frac{11\pi}{12} + \frac{25\pi}{12} = \frac{4 \cdot \pi}{12} = \boxed{2\pi}$$