

نام و نام خانوادگی پروردگار پاسنامه تشریحی تکلیف شماره ۱۶ کلاس دوازدهم A

$$\begin{aligned} \cos^2 x - \sin^2 x + \cos x - 2 &= 0 \\ r \cos^2 x + (\cos x - 2) &= 0 \end{aligned}$$

$\begin{cases} 1 \checkmark \\ -\frac{2}{r} \checkmark \end{cases}$

$$\Rightarrow \cos x = -\frac{2}{r} \text{ و } \frac{1}{r}$$

$$\Rightarrow x = 2k\pi \pm \frac{\pi}{r}$$

$x = 2k\pi$

(ب)

$$\begin{aligned} \cos^2 x - \sin^2 x &= r \sin x - 1 \\ \cos^2 x &= r \sin x - 1 \\ \Rightarrow r \sin^2 x + r \sin x - 2 &= 0 \\ \sin^2 x + r \sin x - \frac{2}{r} &= 0 \\ \Rightarrow \sin x &= \frac{1}{r} \text{ و } -\frac{2}{r} \end{aligned}$$

$$\Rightarrow x = 2k\pi + \frac{\pi}{r} \text{ و } 2k\pi + \frac{2\pi}{r}$$

$$\begin{aligned} \sin^2 x &= 1 - r \cos^2 x \\ \sin^2 x &= 1 - r \cos^2 x - \cos^2 x \\ \sin^2 x &= -\cos^2 x \\ \Rightarrow x &= 2k\pi + \frac{\pi}{2} \text{ و } 2k\pi + \frac{3\pi}{2} \\ x &= k\pi + \frac{\pi}{2} \text{ و } k\pi + \frac{3\pi}{2} \end{aligned}$$

(ب)

$$\begin{aligned} -\cos^2 x &= \sin^2 x \\ -\cos^2 x &= r \sin^2 x \cos^2 x \\ \sin^2 x &= -\frac{1}{r} \\ x &= 2k\pi - \frac{\pi}{2} \text{ و } 2k\pi - \frac{3\pi}{2} \\ x &= k\pi - \frac{\pi}{2} \text{ و } k\pi - \frac{3\pi}{2} \end{aligned}$$

$$\begin{aligned} \sin^2 x + \cos^2 x &= r \cos^2 x \\ \cos^2 x - \sin^2 x &= r \cos^2 x \\ \Rightarrow \sin^2 x &= \cos^2 x \\ \Rightarrow \tan x &= \pm 1 \\ x &= 2k\pi + \frac{\pi}{4} \text{ و } 2k\pi + \frac{3\pi}{4} \end{aligned}$$

(ب)

$$\begin{aligned} \frac{r \cos^2 x + \cos x}{\sin^2 x} &= \frac{1}{\sin^2 x} \\ r \cos^2 x + \cos x + 1 &= 0 \\ \Rightarrow \cos x &= -1 \text{ و } \frac{1}{r} \\ \sin x &\neq 0 \\ \Rightarrow x &= 2k\pi \pm \frac{\pi}{3} \end{aligned}$$

(ب)

$$\begin{aligned} \sin^2 x &= \cos^2 \left(x - \frac{\pi}{4} \right) \\ \cos^2 \left(x - \frac{\pi}{4} \right) &= \cos^2 \left(x - \frac{\pi}{4} \right) \\ \Rightarrow x - \frac{\pi}{4} &= k\pi - \frac{\pi}{4} \text{ و } x - \frac{\pi}{4} = k\pi + \frac{\pi}{4} \\ \Rightarrow x &= 2k\pi - \frac{\pi}{4} \text{ و } 2k\pi + \frac{\pi}{4} \\ x &= \frac{k\pi}{2} - \frac{\pi}{4} \text{ و } \frac{k\pi}{2} + \frac{\pi}{4} \end{aligned}$$

(ب)

$$\begin{aligned} \cos \left(\frac{\pi}{4} + x \right) \cos \left(\frac{\pi}{4} - x \right) &= \frac{1}{r} \\ \cos \left(\frac{\pi}{4} + x \right) \sin \left(\frac{\pi}{4} + x \right) &= \frac{1}{r} \\ \frac{\sin 2 \left(\frac{\pi}{4} + x \right)}{2} &= \frac{1}{r} \\ \Rightarrow x &= k\pi - \frac{\pi}{4} \text{ و } k\pi + \frac{\pi}{4} \\ \sin \left(\frac{\pi}{4} + x \right) &= \frac{1}{r} \rightarrow \cos x = \frac{1}{r} \rightarrow x = k\pi \pm \frac{\pi}{4} \end{aligned}$$

$$\begin{aligned} \frac{r \sin^2 x \cos^2 x + \sin^2 x}{\sin^2 x} &= \cos^2 x \\ r \cos^2 x + 1 &= 1 \\ r \cos^2 x &= 0 \\ \Rightarrow x &= 2k\pi + \pi \text{ و } 2k\pi \end{aligned}$$

(ب)

$$\begin{aligned} x &= \frac{k\pi}{2} + \frac{\pi}{4} \\ \Rightarrow x &= k\pi + \frac{\pi}{4} \text{ و } k\pi \end{aligned}$$

$$\frac{x}{r} = a \Rightarrow \frac{1 + \cos a}{\sin a} = \frac{\sin a}{1 + \cos a}$$

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

$$\Rightarrow 2\cos a (1 + \cos a) = 0 \Rightarrow \cos a = -1 \text{ X } \text{ or } 1 + \cos a = 0 \checkmark$$

$$\Rightarrow \frac{x}{r} = \frac{\pi}{r} \Rightarrow x = \pi, x = -\frac{\pi}{r} \Rightarrow x = -\pi$$

$$\Rightarrow |\pi - (-\pi)| = |2\pi| = 2\pi$$

$$\sin x - 1 = \sin^2 x + \cos^2 x$$

$$\cos^2 x - 1 = \sin^2 x \cos^2 x \Rightarrow \sin^2 x = \sin^2 x \cos^2 x$$

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

$$\Rightarrow x = 0, \pi, 2\pi \quad (\because \sin x = 0)$$

$$\text{or } x = (2k+1)\pi \Rightarrow x = \frac{(2k+1)\pi}{r} \Rightarrow x = \frac{\pi}{r} \text{ or } \frac{3\pi}{r}$$

$$\Rightarrow x = \left\{0, \frac{\pi}{r}, \pi, \frac{3\pi}{r}, 2\pi\right\} \Rightarrow \omega = \left\{\frac{\pi}{r}, \frac{3\pi}{r}\right\}$$

✓

$$\frac{1 - \tan x}{1 + \tan x} = \frac{\tan \frac{\pi}{4} - \tan x}{1 + \tan \frac{\pi}{4} \tan x} = \tan \left(\frac{\pi}{4} - x \right)$$

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

$$\pi x = k\pi + \frac{\pi}{4} - x \Rightarrow x = \frac{k\pi}{4} + \frac{\pi}{14}$$

✓

$$1 + \sin^2 x = r \cos^2 x = r - r \sin^2 x$$

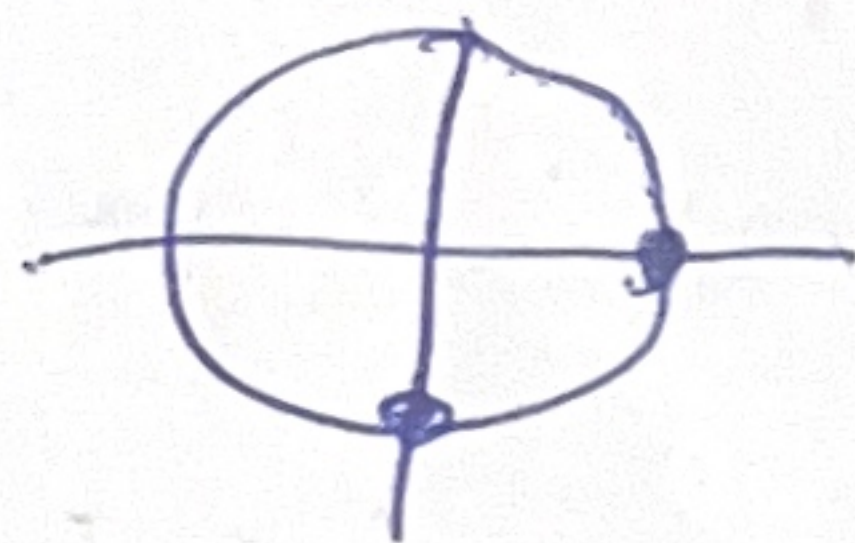
$$r \sin^2 x + \sin^2 x - 1 = 0 \Rightarrow \sin^2 x = \frac{1}{r}$$

$$\text{, } \sin^2 x = 1 \Rightarrow x = \frac{\pi}{4} \text{ or } \frac{3\pi}{4}$$

✓

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$$\sin x = \cos x \quad \text{یا} \quad \cos x = \sin x$$



$$\Rightarrow x = \frac{\pi}{4} + 2k\pi$$

$$x = \frac{5\pi}{4} + 2k\pi$$

$$x = \frac{\pi}{4}, \frac{5\pi}{4} \quad (.)$$

$$\cos 2x = 1$$

$$\cos 2x = -1$$

$$2x = 2k\pi + \pi$$

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

$$x = \frac{\pi}{2}, \frac{3\pi}{2} \quad (.)$$

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