

ضریب نهفته نوشته بودی ممنون!

$$\text{الف) } \cos^2 x + \sin^2 x = 1 \rightarrow 1 - \sin^2 x = \sin^2 x - 1$$

$$\sin^2 x = \frac{1}{2}$$

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

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

$$\sin x = \frac{1}{2} \checkmark$$

$$x = k\pi + \frac{\pi}{6} \quad , \quad x = k\pi + \pi - \frac{\pi}{6} = k\pi + \frac{5\pi}{6}$$

$$\text{ب) } \cos^2 x + \cos^2 x = 1 \quad \cos^2 x + \cos^2 x = 1 \rightarrow \cos^2 x = \frac{1}{2}$$

$$\cos x = \frac{1}{\sqrt{2}} \quad \alpha = \frac{\pi}{4} \quad \text{غیر قابل قبول}$$

$$\cos x = 1 \quad x = k\pi \quad \checkmark$$

$$\cos x = 1 \quad \checkmark$$

$$\cos x = \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2} \quad \alpha = \frac{\pi}{4}$$

$$\text{الف) } \sin^2 x - \cos^2 x = \sin^2 x - \cos^2 x$$

$$(\sin^2 x - \cos^2 x)(\sin^2 x - \cos^2 x) = -\cos^2 x$$

$$-\cos^2 x = \sin^2 x \cos^2 x \rightarrow \cos^2 x = 1 \quad x = k\pi \pm \frac{\pi}{2}$$

$$\sin^2 x = 1 \quad \sin x = \pm 1 \quad x = k\pi \pm \frac{\pi}{2}$$

$$x = k\pi \pm \frac{\pi}{2} \quad \checkmark$$

$$\text{ب) } \cos^2 x + \sin^2 x = 1 \quad \cos^2 x = 1 - \sin^2 x \rightarrow \cos^2 x = -\sin^2 x$$

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

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

$$\cos^2 x (\cos^2 x + 1) = 1$$

$$a + c = b$$

$$x = k\pi + \frac{\pi}{2} \quad , \quad \cos^2 x = 1 \rightarrow x = k\pi + \pi$$

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

$$\cos x = \pm \frac{1}{\sqrt{2}} \quad \alpha = \frac{\pi}{4}$$

$$\text{ب) } \sin^2 x - \sin^2 x + \cos^2 x = 1$$

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

$$\tan^2 x - \tan^2 x + 1 = 1 \quad \tan^2 x = 1 \quad x = k\pi \pm \frac{\pi}{4}$$

$$\cos(\frac{\pi}{2} + x) \cos(\frac{\pi}{2} - x) = \frac{1}{2} \quad \cos(\frac{\pi}{2} + x) \cos(\frac{\pi}{2} - x) = \frac{1}{2}$$

$$x = k\pi + \frac{\pi}{4} \quad x = k\pi \pm \frac{\pi}{4} \quad \checkmark$$

$$\text{ب) } \cos(x - \frac{\pi}{4}) = -\sin x = \cos(\frac{\pi}{2} + x) \rightarrow x - \frac{\pi}{4} = \frac{\pi}{2} + x + k\pi \quad x = \frac{k\pi}{2} - \frac{3\pi}{4}$$

$$\frac{\sin^2 x + \sin^2 x}{\sin^2 x} = \sin^2 x + \cos^2 x$$

$$2 = 1 \quad \text{غیر قابل قبول}$$

$$\sin^2 x + \sin^2 x = \sin^2 x$$

$$x = k\pi \quad x = \frac{k\pi}{2} \quad \checkmark$$

$$\frac{y \sin x \cos y + \sin x}{\sin x} = \sin x + \cancel{\cos y} = \sin x + \cancel{1} \cdot \cos y$$

سوال 3

$$\frac{\sin x (y \cdot \sin x + 1)}{\sin x} = 1 \xrightarrow{\sin x \neq 0} y \cdot \sin x + 1 = 1 \rightarrow y \cdot \sin x = 0$$

$$y = k\pi + \frac{\pi}{y} \rightarrow \boxed{x = k\pi + \frac{\pi}{y}}$$

$$\frac{\sin \frac{y}{2}}{1 + \cos \frac{y}{2}} = \tan \frac{y}{2}$$

سوال 4

$$\frac{1}{\sin \frac{y}{2}} + \cot \frac{y}{2} = \frac{1 + \cos \frac{y}{2}}{\sin \frac{y}{2}} = \frac{1}{\tan \frac{y}{2}} = \cot \frac{y}{2}$$

$$\tan \frac{y}{2} = \cot \frac{y}{2} \rightarrow \tan \frac{y}{2} = \tan \left(\frac{\pi}{2} - \frac{y}{2} \right)$$

$$\frac{y}{2} = k\pi + \frac{\pi}{2} - \frac{y}{2} \rightarrow \frac{y}{2} = k\pi + \frac{\pi}{2} \rightarrow y = 2k\pi + \pi$$

جوابها $\rightarrow k=0 \rightarrow y=\pi$

$\rightarrow k=-1 \rightarrow y=-\pi$ $\rightarrow$ افتاد $= |\pi - (-\pi)| = 2\pi$