

۱۶ کابل

۱۸۱/۷۵

۵۰٪، ۱۰٪، ۲۰٪، ۳۰٪، ۴۰٪، ۵۰٪، ۶۰٪، ۷۰٪، ۸۰٪، ۹۰٪، ۱۰۰٪

۱۸۱/۷۵ ازین حین خوب نوشتی

$$\cos^2 \alpha + \sin^2 \alpha = 1$$

$$(1 - \sin^2 \alpha)$$

$$r \sin \alpha + r \sin \alpha - r = 0 \rightarrow r \sin \alpha + r \sin \alpha - r = r (\sin \alpha + \sin \alpha - 1) \quad (الف - ۱)$$

$$\sin \alpha \cdot \sin \frac{\alpha}{2} \rightarrow \alpha = 2kr + \frac{\pi}{2} \rightarrow 2kr + \alpha - \frac{\pi}{2}$$

$$\frac{1}{r} \quad -r \cdot \frac{1}{r}$$

۲

$$\cos 2\alpha + \cos \alpha - r = 0 \rightarrow \cos 2\alpha - (1 - \cos^2 \alpha) + \cos \alpha - r = 0$$

$$r \cos 2\alpha + \cos \alpha + r = 0 \rightarrow \cos 2\alpha = -\frac{r}{r} \quad (۱) \quad \alpha = 2kr$$

$$\sin \alpha - \cos \alpha = \sin \alpha \rightarrow -\cos 2\alpha = \sin \alpha \rightarrow \cos 2\alpha = -\sin \alpha \rightarrow \cos (\frac{\pi}{2} + \alpha)$$

(الف - ۲)

$$\cos 2\alpha = \sin \alpha \rightarrow \frac{\pi}{2} + \alpha = 2kr + \alpha \rightarrow \alpha = 2kr - \frac{\pi}{2} \quad \frac{\pi}{2} + \alpha = 2kr - \alpha \rightarrow \alpha = \frac{2kr - \frac{\pi}{2}}{2}$$

$$r \cos 2\alpha + r \sin \alpha \cos \alpha = \sin \alpha + \cos \alpha \rightarrow \sin 2\alpha = -\cos 2\alpha \rightarrow -\tan 2\alpha = 1 \rightarrow \tan \alpha = -1$$

$$\alpha = 2kr - \frac{\pi}{2} \rightarrow \alpha = 2kr - \frac{\pi}{2}$$

$$\cos \alpha (r \cos \alpha + 1) = \sin \alpha \rightarrow r \cos 2\alpha + \cos \alpha - 1 = 0 \rightarrow \cos 2\alpha + \cos \alpha - r = 0 \rightarrow \cos 2\alpha = 1 - \cos \alpha \rightarrow \frac{1}{r} \sin \alpha = 0$$

$$\alpha = 2kr + \frac{\pi}{2} \rightarrow 2kr - \frac{\pi}{2}$$

$$r \sin \alpha - \sin \alpha \cos \alpha + \cos \alpha = r \rightarrow r \sin \alpha + r \cos \alpha - \sin \alpha \cos \alpha = r \rightarrow \cos \alpha = \sin \alpha \rightarrow \cos \alpha = \cos (\frac{\pi}{2} + \alpha)$$

$$\frac{\pi}{2} + \alpha = 2kr - \alpha \rightarrow 2\alpha = 2kr - \frac{\pi}{2} \rightarrow \alpha = kr - \frac{\pi}{4}$$

$$\cos (\frac{\pi}{2} + \alpha) \cos (\alpha - \frac{\pi}{2}) = \frac{1}{r} \rightarrow \cos (\frac{\pi}{2} + \alpha) / \sin (\frac{\pi}{2} + \alpha) = \frac{1}{r} \rightarrow \tan (\frac{\pi}{2} + \alpha) = \frac{1}{r}$$

$$\cos 2\alpha = \frac{1}{r} \quad 2\alpha = 2kr \pm \frac{\pi}{2} \rightarrow \alpha = kr \pm \frac{\pi}{4}$$

$$\cos (2\alpha - \frac{\pi}{2}) = \sin 2\alpha \rightarrow \cos (2\alpha - \frac{\pi}{2}) = \cos (\frac{\pi}{2} + 2\alpha) \rightarrow 2\alpha - \frac{\pi}{2} = 2kr + \frac{\pi}{2} + 2\alpha$$

$$2\alpha = 2kr + \frac{\pi}{2} \rightarrow \alpha = kr + \frac{\pi}{4}$$

۲

$$\frac{\sin^2 \alpha + \sin^2 \alpha}{\sin^2 \alpha} = \frac{\sin^2 \alpha + \cos^2 \alpha}{\sin^2 \alpha} \rightarrow \frac{\sin^2 \alpha (\sec^2 \alpha + 1)}{\sin^2 \alpha} = 1 \rightarrow \sec^2 \alpha = 0$$

حل المسألة

- 5

$$\rightarrow \alpha = \arccos \pm \frac{1}{\sqrt{2}} \rightarrow \alpha = \frac{\pi}{4} \pm \frac{\pi}{4}$$

2

$$\frac{1}{\sin \alpha} + \cot \alpha = \frac{\sin \alpha}{1 + \cos \alpha} \rightarrow \frac{1 + \cos \alpha}{\sin \alpha} = \frac{1}{\sin \alpha} \rightarrow \cot \alpha = \frac{1}{\sin \alpha} \rightarrow \cot \alpha = \pm 1$$

- 6

$$\frac{\alpha}{\sqrt{2}} = \frac{\pi}{4} \pm \frac{\pi}{4} \rightarrow \alpha = \frac{\pi}{2}, \alpha, \alpha = \frac{\pi}{2} - \alpha \rightarrow \alpha = \frac{\pi}{4}$$

2

$$\cos^2 \alpha - \sin^2 \alpha = 1 \rightarrow \cos^2 \alpha = 1 \rightarrow \alpha = \frac{\pi}{2} + \pi$$

- 11

$$(\cos^2 \alpha + \sin^2 \alpha) \sin^2 \alpha = 0 \rightarrow \alpha = \frac{\pi}{2}$$

$$\alpha = \frac{\pi}{2} \pm \frac{\pi}{2}$$

2 جواب

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

- 1

$$\alpha = \frac{\pi}{4} + \frac{\pi}{4} \rightarrow \alpha = \frac{\pi}{2} + \frac{\pi}{4} \rightarrow \ln \left(\frac{1}{1 + \tan \alpha} \right) = \ln \tan \alpha \rightarrow \alpha \neq \frac{\pi}{2} \pm \frac{\pi}{4}$$

2

$$\cos^2 \alpha \neq 0 \rightarrow \alpha \neq \frac{\pi}{2} \pm \frac{\pi}{4} \rightarrow \tan \alpha \neq -1 \rightarrow \alpha \neq \frac{3\pi}{4}$$

✓

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

- 9

$$\rightarrow \cos^2 \left(\alpha - \frac{\pi}{4} \right) = \cos^2 \alpha \rightarrow \alpha - \frac{\pi}{4} = \frac{\pi}{4} + \alpha \rightarrow \alpha = \frac{\pi}{4} - \frac{\pi}{4} = 0$$

1, 7, 8

$$\alpha - \frac{\pi}{4} = \frac{\pi}{4} - \alpha \rightarrow \alpha = \frac{\pi}{4} + \frac{\pi}{4} \rightarrow \alpha = \frac{\pi}{2}$$

جواب

بازی $\cos x = \frac{1}{2}$ تمام مرتبه جواب را بنویسید

$$\sin^2 \alpha - \cos^2 \alpha = 1$$



$$\frac{\pi}{2}, \frac{3\pi}{2}$$

✓

2

$$\sin^2 \alpha - \cos^2 \alpha = -1$$



$$\frac{\pi}{2}, \frac{3\pi}{2}$$

✓

(ب)

$$\sqrt{1 + \sin 2x} = \sqrt{2} \cos x \xrightarrow{\text{توان ۲}} 1 + \sin 2x = 2 \cos^2 x$$

سوال ۹

$$1 + \sin 2x = 2 - 2 \sin^2 x \rightarrow 2 \sin^2 x + \sin 2x - 1 = 0 \rightarrow \sin 2x = -1$$

$$\sin 2x = -1 \rightarrow 2x = 2k\pi - \frac{\pi}{2} \xrightarrow[\substack{0 \leq x \leq \pi \\ k \in \mathbb{Z}}]{\substack{\cdot \\ k \in \mathbb{Z}}} x = \frac{3\pi}{4} \quad \hookrightarrow \sin 2x = +\frac{1}{2}$$

$$\sin 2x = \frac{1}{2} \rightarrow 2x \in \left\{ k\pi + \frac{\pi}{6}, k\pi + \frac{5\pi}{6} \right\} \xrightarrow[\substack{0 \leq x \leq \pi \\ k \in \mathbb{Z}}]{\substack{\cdot \\ k \in \mathbb{Z}}} x = \frac{\pi}{12} \cup \frac{5\pi}{12}$$

چون عبارت به توان ۲ رسیده است جواب زاویه تولید می‌کنند
به ازای $x = \frac{5\pi}{12}$ $\cos 2x$ منفی می‌شود پس چون جواب را ایجاب است می‌دزاست

* معادله ۲ جواب دارد