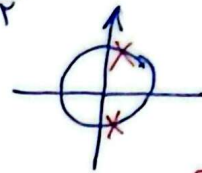


$$\textcircled{1} \wedge \cos n - \tan^2 n = 1 \Rightarrow \wedge \cos n = 1 + \tan^2 n \Rightarrow \wedge \cos n = \frac{1}{\cos^2 n}$$

$$\textcircled{2} \wedge \cos^2 n = 1 \Rightarrow \cos^2 n = \frac{1}{\wedge} \Rightarrow \cos n = \frac{1}{\sqrt{\wedge}}$$



(جواب)

$$\textcircled{1} \omega(1 - \cos^2 n) + 2(4\cos^2 n - 3\cos n) + 1 = 0$$

$$\textcircled{2} \wedge \cos^2 n - \omega \cos^2 n - 9\cos n + 4 = 0 \quad \cos n = -1 \quad \textcircled{3}$$

$$\textcircled{3}: (\cos n + 1)(\wedge \cos^2 n - 12\cos n + 4) \Rightarrow \cos n = -1$$

$\Delta < 0 \Rightarrow$ ریشه ندارد

(جواب)

$$\textcircled{1} 2\sin n \times (1 - 2\sin^2 n) + \sin n = 1 \rightarrow -4\sin^2 n + 3\sin n - 1 = 0$$

$$\textcircled{2} (\sin n + 1)(-4\sin^2 n + 3\sin n - 1) = 0 \Rightarrow \begin{cases} \sin n = -1 \Rightarrow n = \frac{3\pi}{2} \\ \sin n = \frac{1}{4} \Rightarrow n = \frac{\pi}{6}, \frac{5\pi}{6} \end{cases}$$

$$\textcircled{3} \frac{\pi}{6} + \frac{5\pi}{6} + \frac{3\pi}{2} = \frac{6\pi}{2}$$

$$\textcircled{1} \frac{1}{\sin(\frac{\pi}{4} + 2n)} + \frac{1}{\cos(\frac{\pi}{4} + 2n)} = 0 \Rightarrow \frac{1}{\cos 2n} - \frac{1}{\sin 2n} = 0$$

$$2n = 90^\circ \Rightarrow n = 45^\circ$$

$$\textcircled{2} \cos 2n = \sin 2n \Rightarrow \begin{cases} 2n = 45^\circ \Rightarrow n = 22.5^\circ \\ 2n = 135^\circ \Rightarrow n = 67.5^\circ \end{cases}$$

$$\textcircled{3} \alpha = 45^\circ \Rightarrow \tan 2\alpha = \sqrt{3}$$

$$\textcircled{1} \cos(\frac{\pi}{4} + n) = \frac{\sqrt{2}}{2} \cos n - \frac{\sqrt{2}}{2} \sin n = \frac{\sqrt{2}}{2} (\cos n - \sin n) = \frac{1}{\sqrt{2}} \Rightarrow \cos n - \sin n = \frac{1}{\sqrt{2}}$$

$$\textcircled{2} \cos(n + \frac{\pi}{4}) = \sin(\frac{\pi}{4} - n) \xrightarrow{t} \sin t = \frac{1}{\sqrt{2}} \Rightarrow \cos t = \sqrt{\frac{1}{2}}$$

$$\textcircled{3} \sin^2 n = \cos^2(\frac{\pi}{4} - n) \xrightarrow{t} \cos 2t = \cos^2 t - \sin^2 t = \frac{1}{2} - \frac{1}{2} = 0$$

جواب

$$\textcircled{4} m(\frac{\pi}{\sqrt{2}}) - \sqrt{2} \times \frac{1}{\sqrt{2}} = \sqrt{2} \Rightarrow m \frac{\pi}{\sqrt{2}} = \sqrt{2} \Rightarrow m = 2$$

$$① \sin\left(n + \frac{\pi}{9}\right) \cos\left(n - \frac{\pi}{9}\right) = 1 \xrightarrow{\cos n = \cos(-n)} \sin\left(n + \frac{\pi}{9}\right) \cos\left(\frac{\pi}{9} - n\right) = 1$$

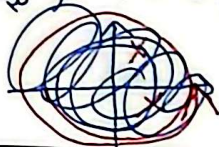
$$② \sin\left(n + \frac{\pi}{9}\right) \cos\left(\frac{\pi}{9} - n\right) \xrightarrow{\text{متقارن}} \sin^2\left(n + \frac{\pi}{9}\right) = 1 \begin{cases} \sin\left(n + \frac{\pi}{9}\right) = 1 \Rightarrow n = \frac{\pi}{9} \\ \sin\left(n + \frac{\pi}{9}\right) = -1 \Rightarrow n = \frac{4\pi}{9} \end{cases}$$

جواب ۲

$$\tan \alpha = \frac{b}{a} = \sqrt{3} \Rightarrow \alpha = \frac{\pi}{3}$$

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

$$② \sin\left(n + \frac{\pi}{3}\right) = \sin\left(\frac{\pi}{6}\right) \begin{cases} n + \frac{\pi}{3} = 2k\pi + \frac{\pi}{6} \Rightarrow n = 2k\pi - \frac{\pi}{2} \\ n + \frac{\pi}{3} = 2k\pi + \pi - \frac{\pi}{6} \Rightarrow n = 2k\pi + \frac{5\pi}{6} \end{cases}$$



جواب ۳



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

$$② \sin^2 n = -\frac{1}{2} \xrightarrow{\sin^2 n = \sin^2\left(\frac{\pi}{6}\right)} \begin{cases} 2n = 2k\pi + \frac{\pi}{6} \Rightarrow n = k\pi + \frac{\pi}{12} \\ 2n = 2k\pi + \pi - \frac{\pi}{6} \Rightarrow n = k\pi + \frac{5\pi}{12} \end{cases}$$

$$③ n = \frac{\pi}{12}, \frac{5\pi}{12}, \frac{7\pi}{12}, \frac{11\pi}{12} \rightarrow \text{مجموع} = \frac{4\pi}{3} = \frac{4}{3}\pi$$

$$① 1 + \cos n \cos n \xrightarrow{\cos n = \cos(-n)} (2 \cos^2 \alpha)(2 \cos^2 \alpha)(2 \cos^2 \alpha) = \frac{1}{8}$$

$$② \cos \alpha \times \cos \alpha \times \cos \alpha = \pm \frac{1}{8} \xrightarrow{\frac{\sin \alpha}{\alpha} = \pm \frac{1}{8} \sin \alpha} \frac{\sin \alpha}{\alpha} = \pm \frac{1}{8} \sin \alpha$$

$$③ \begin{cases} \sin \alpha = \sin \alpha \rightarrow \alpha = \frac{\pi}{8} k\pi \rightarrow \max = \frac{\pi}{8} \\ \sin \alpha = \sin(-\alpha) \rightarrow \alpha = \frac{\pi}{8} k\pi + \frac{\pi}{4} \rightarrow \max = \frac{\pi}{4} \end{cases} \Rightarrow \max = \frac{\pi}{4}$$

$$① \tan^2 n = \cot n \rightarrow \tan^2 n = \tan\left(\frac{\pi}{2} - n\right)$$

$$② 2n = k\pi + \frac{\pi}{2} - n \rightarrow n = \frac{k\pi}{3} + \frac{\pi}{6}$$

جواب ۴

