

الف) $\cos 2m = 2 \sin m - 1 \rightarrow \cos^2 - \sin^2 = 2 \sin m - 1 = 1 - 2 \sin^2 m \rightarrow 2 \sin^2 m + \cos^2 \sin m - 2 = 0$ (1)
 ب) $\cos 2m + \cos m - 2 = 0$
 $\cos^2 - \sin^2 + \cos - 2 = 0$

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

$n = 5K\pi$

۲. افزون ضيق نوشتی ب

الف) $\sin^2 m - \cos^2 m = \sin^2 m$

$-\cos^2 m = \sin^2 m \cos^2 m$

$(\cos^2 m + \sin^2 m \cos^2 m = 0 \rightarrow \cos^2 m (1 + \sin^2 m) = 0$

$\sin 2m = -\frac{1}{2} \rightarrow 2K\pi + \frac{11\pi}{6}, 2K\pi + \frac{5\pi}{6} = 2m$ (1)
 $K\pi + \frac{11\pi}{12}, K\pi + \frac{5\pi}{12} = m$

ب) $2\cos^2 m + 2\sin m \cos m = 2\sin^2 m + \cos^2 m$
 $\cos^2 m = -\sin^2 m \rightarrow 2m = K\pi - \frac{\pi}{2} \rightarrow m = \frac{K\pi}{2} - \frac{\pi}{4}$

$K\pi + \frac{11\pi}{12}, K\pi + \frac{5\pi}{12}, \frac{K\pi}{2} + \frac{\pi}{4}$
 $= \cos^2 m + \sin^2 m = 0$

$n = \frac{K\pi}{2} - \frac{\pi}{4}$

الف) $\cot^2 m (2\cos m + 1) = \frac{1}{\sin m} \rightarrow 2\cos^2 m + \cos m - 1 = 0$ ($\frac{1}{\sin} \neq 0$) $\frac{1}{\sin} = \sin \frac{1}{2}$
 $\frac{\cos}{\sin}$ $(\cos + \frac{1}{2})(\cos - 1) \rightarrow \cos = \frac{1}{2}, -1$

$\cos m = \frac{1}{2} \rightarrow m = 2K\pi \pm \frac{\pi}{3}$

$n = 2K\pi \pm \frac{\pi}{3}$

ب) $2\sin^2 m - \sin m \cos m + \cos^2 m = 2 \div \cos^2 m \rightarrow \tan^2 m - \tan m + 1 = \frac{2}{\cos^2 m} \cdot \frac{1}{1 + \tan^2 m}$

$\tan m = -1 \rightarrow m = K\pi - \frac{\pi}{4}$

$n = K\pi - \frac{\pi}{4}$

الف) $\cos(\frac{\pi}{6} + m) \cos(m - \frac{\pi}{6}) = \frac{1}{2} = \frac{1}{2} \sin(\frac{\pi}{6} + m) \rightarrow \sin(\frac{\pi}{6} + m) = \frac{1}{2}$ (1)
 $\sin(\frac{\pi}{6} + m)$

$\cos m = \frac{1}{2} \rightarrow m = 2K\pi \pm \frac{\pi}{3} \rightarrow n = K\pi \pm \frac{\pi}{3}$

$n = K\pi \pm \frac{\pi}{3}$

ب) $\cos(m - \frac{\pi}{4}) = -\sin^2 m = \cos(\frac{\pi}{2} + m) \Rightarrow m - \frac{\pi}{4} = 2K\pi \pm (\frac{\pi}{2} + m)$

$m = 2K\pi - \frac{\sqrt{2}\pi}{4} \rightarrow n = \frac{K\pi}{2} - \frac{\sqrt{2}\pi}{4}$

$n = \frac{K\pi}{2} - \frac{\sqrt{2}\pi}{4}$

$\frac{\sin^2 m + \sin^2 m}{\sin^2 m} - \sin^2 m = \cos^2 m \rightarrow$

$\frac{\sin^2 m (2\cos^2 m + 1)}{\sin^2 m} - \sin^2 m$ (2)

$= 2\cos^2 m - 1 - \sin^2 m = \cos^2 m \rightarrow 2\cos^2 m = 1 \rightarrow \cos m = \pm \frac{1}{\sqrt{2}} \rightarrow n = K\pi \pm \frac{\pi}{4}$

$n = K\pi \pm \frac{\pi}{4}$

$$\frac{\sin \frac{n}{\epsilon}}{1 + \cos \frac{n}{\epsilon}} = \frac{1}{\frac{\sin \frac{n}{\epsilon}}{\epsilon}} + \cot \frac{n}{\epsilon} \frac{\cos \frac{n}{\epsilon}}{\sin \frac{n}{\epsilon}} \left[-\pi, \frac{\pi}{\epsilon} \right] \text{ ok } \tan \frac{n}{\epsilon} = \cot \frac{n}{\epsilon} \quad (7\pi) \quad (9)$$

$$\tan \frac{n}{\epsilon} = \cot \frac{n}{\epsilon} \quad \frac{n}{\epsilon} = K\pi + \frac{\pi}{\epsilon} - \frac{n}{\epsilon} \quad (10)$$

$$\rightarrow \frac{n}{\epsilon} = K\pi + \frac{\pi}{\epsilon} \rightarrow n = \epsilon K\pi + \pi \rightarrow n = -\pi, \pi \quad |\pi - (-\pi)| = 2\pi$$

$$\cos \epsilon m - \sin \epsilon m \cos \epsilon m = 1 \quad [0, 2\pi]$$

$$\cos \epsilon m - 1 = \sin \epsilon m \cos \epsilon m \rightarrow \cos \epsilon m = 1 \rightarrow \epsilon m = 2K\pi \rightarrow m = \frac{2K\pi}{\epsilon}$$

$$\sin \epsilon m = 0 \rightarrow m = K\pi \rightarrow \pi, 3\pi, 5\pi, \dots$$

$$0, \pi, 2\pi, \frac{\pi}{\epsilon}, \frac{2\pi}{\epsilon}$$

$$\frac{1 - \tan \epsilon m}{1 + \tan \epsilon m} = \tan \epsilon m \rightarrow \epsilon m = K\pi + \frac{\pi}{\epsilon} - m \rightarrow \epsilon m = K\pi + \frac{\pi}{\epsilon}$$

$$\tan \left(\frac{\pi}{\epsilon} - m \right) \quad m = \frac{K\pi}{\epsilon} + \frac{\pi}{1\epsilon}$$

$$m = \frac{K\pi}{\epsilon} + \frac{\pi}{1\epsilon}$$

$$\sqrt{1 + \sin \epsilon m} = \sqrt{2} \cos \epsilon m \quad [0, \pi]$$

$$1 + \sin \epsilon m = 2 \cos^2 \epsilon m \rightarrow \sin \epsilon m = 2 \cos^2 \epsilon m - 1 = \cos 2\epsilon m \Rightarrow \cos \epsilon m = \cos \left(\frac{\pi}{\epsilon} - \epsilon m \right)$$

$$\epsilon m = 2K\pi \pm \left(\frac{\pi}{\epsilon} - \epsilon m \right) \quad m = \frac{K\pi}{\epsilon} + \frac{\pi}{1\epsilon} \rightarrow m = \frac{\pi}{1\epsilon}, \frac{9\pi}{1\epsilon}$$

$$m = \frac{\pi}{1\epsilon}, \frac{9\pi}{1\epsilon}$$

الف) $\sin \epsilon m - \cos \epsilon m = 1$

$$\sin \epsilon m - \cos \epsilon m = -\cos \epsilon m$$

$$\rightarrow \cos 2\epsilon m = -1 \rightarrow \epsilon m = 2K\pi + \pi$$

$$m = K\pi + \frac{\pi}{\epsilon} \rightarrow m = \frac{\pi}{\epsilon}, \frac{3\pi}{\epsilon}$$

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

$$\rightarrow \sin \epsilon m - \cos \epsilon m = 1 \rightarrow \begin{cases} \cos = +1, \sin = 0 \rightarrow 2K\pi \rightarrow 0, 2\pi \\ \sin = -1, \cos = 0 \rightarrow 2K\pi - \frac{\pi}{2} \rightarrow \frac{3\pi}{2} \end{cases}$$

$$0, \frac{3\pi}{2}, 2\pi$$

برای جانتن

روز دهم