

$$\Lambda \cos x = 1 + \tan^2 x$$

$$\Lambda \cos x = \frac{1}{\cos^2 x}$$

$$\Lambda \cos^3 x = 1$$

$$\cos x = \frac{1}{\sqrt{3}}$$

$$x = 2k\pi \pm \frac{\pi}{\sqrt{3}} \rightarrow x = \frac{\pi}{\sqrt{3}}, \frac{8\pi}{\sqrt{3}}$$

در جواب دارد.

$$8 \sin^2 x + 2 \cos(2x) = -2 \rightarrow 8(1 - \cos^2 x) + 2(2\cos^2 x - 1) = -2$$

$$\Lambda \cos^3 x - 8 \cos^2 x - 4 \cos x + 7 = 0$$

یعنی از ریشه ها $\cos x = -1$ است

$$(\cos x + 1) (\underbrace{\Lambda \cos^3 x - 12 \cos x + 7}_{\Delta < 0}) = 0$$

$$\cos x = -1$$

$$x \in [-\pi, \pi] \rightarrow x = \pm \pi$$

در بیشتر دارد.

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

یعنی از ریشه ها $\sin x = -1$ است.

$$-4 \sin^3(x) + 3 \sin(x) - 1 = 0 \rightarrow$$

$$(\sin x + 1) (-4 \sin^2 x + 5 \sin x - 1) = 0$$

$$\sin x = -1$$

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

مجموع جواب ها

$$\sin x = -1 \rightarrow x = \frac{3\pi}{2}$$

$$\sin x = \frac{1}{2} \rightarrow x = \frac{\pi}{6}, \frac{5\pi}{6}$$

$$= \frac{\pi}{2} + \frac{8\pi}{6} + \frac{9\pi}{6} = \frac{8\pi}{2}$$

$$\frac{1}{\sin\left(\frac{\pi}{\sqrt{3}} + 2x\right)} + \frac{1}{\cos\left(\frac{\pi}{\sqrt{3}} + 4x\right)} = 0 \rightarrow \frac{1}{\cos(2x)} = \frac{1}{\sin(4x)}$$

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

$$2 \sin(x) \cos(x) = 1 \rightarrow \sin(x) = \frac{1}{2} \rightarrow x = \begin{cases} 2k\pi + \frac{\pi}{6} \\ 2k\pi + \frac{5\pi}{6} \end{cases}$$

$$x_1 = \frac{\pi}{6}, x_2 = \frac{5\pi}{6} \rightarrow x_2 - x_1 = \frac{4\pi}{6} = \frac{2\pi}{3} \rightarrow \tan \frac{2\pi}{3} = -\sqrt{3}$$

$$\cos\left(x + \frac{\pi}{\sqrt{3}}\right) = \frac{\sqrt{3}}{2} \rightarrow \cos x \times \frac{\sqrt{3}}{2} - \sin x \frac{\sqrt{3}}{2} = \frac{\sqrt{3}}{2}$$

$$\frac{\sqrt{3}}{2} (\cos x - \sin x) = \frac{\sqrt{3}}{2} \rightarrow (\cos x - \sin x) = \frac{\sqrt{3}}{2} \rightarrow 1 - \sin^2 x = \frac{3}{4} \rightarrow \sin^2 x = \frac{1}{4} \rightarrow \sin 2x = \frac{1}{\sqrt{3}}$$

$$m \times \frac{\sqrt{3}}{2} - 3 \sqrt{3} (\sin 2x) = \sqrt{3} \rightarrow \frac{m}{2} - 3 \left(\frac{1}{\sqrt{3}}\right) = 1$$

$$\frac{m}{2} - 1 = 1 \rightarrow \frac{m}{2} = 2 \rightarrow m = 4$$

$$\sin\left(x + \frac{\pi}{r}\right) \cos\left(x - \frac{\pi}{r}\right) = 1 \rightarrow \underbrace{\sin\left(x + \frac{\pi}{r}\right)}_A \underbrace{\cos\left(\frac{\pi}{r} - x\right)}_B = 1$$

$$A+B = \frac{\pi}{r} \rightarrow \sin^r\left(x + \frac{\pi}{r}\right) = 1 \rightarrow \sin\left(x + \frac{\pi}{r}\right) = \pm 1$$

$$x + \frac{\pi}{r} = K\pi \pm \frac{\pi}{r} \rightarrow x = K\pi - \frac{\pi}{r} \pm \frac{\pi}{r} \rightarrow x = \begin{cases} K\pi - \frac{\pi}{r} \\ K\pi + \frac{\pi}{r} \end{cases}$$

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

والبعض

$$\sin x + \sqrt{r} \cos x = \sqrt{r} \rightarrow r \sin\left(x + \frac{\pi}{r}\right) = \sqrt{r}$$

$$\sin\left(x + \frac{\pi}{r}\right) = \frac{\sqrt{r}}{r} \rightarrow x + \frac{\pi}{r} = \begin{cases} rK\pi + \frac{\pi}{r} \\ rK\pi + \frac{r\pi}{r} \end{cases}$$

$$x = \begin{cases} rK\pi - \frac{\pi}{r} \\ rK\pi + \frac{r\pi}{r} \end{cases}$$

$$x = -\frac{\pi}{12}, 2\pi - \frac{\pi}{12}, \frac{8\pi}{12}$$

$$\text{والبعض} = r\pi + \frac{r\pi}{r} = \frac{9\pi}{r}$$

$$r \sin x \sin\left(\frac{r\pi}{r} - x\right) = 1 \rightarrow r \sin(rx) = -1$$

$$\sin(rx) = -\frac{1}{r}$$

$$rx = \begin{cases} rK\pi - \frac{\pi}{r} \\ rK\pi + \frac{r\pi}{r} \end{cases} \rightarrow x = \begin{cases} K\pi - \frac{\pi}{r} \\ K\pi + \frac{r\pi}{r} \end{cases}$$

$$x = \pi - \frac{\pi}{r}, 2\pi - \frac{\pi}{r}, \frac{r\pi}{r}, \pi + \frac{r\pi}{r} \Rightarrow \text{والبعض} = 8\pi$$

$$\frac{(1 + \cos(\frac{a}{r}))}{(r \cos a)} \frac{(1 + \cos(\frac{a}{r}))}{(r \cos r a)} \frac{(1 + \cos(\frac{a}{r}))}{(r \cos \frac{a}{r})} = \frac{1}{\Lambda}$$

$$\sin \Lambda a = \pm \sin a$$

$$\Lambda a = \begin{cases} rK\pi + a \\ rK\pi + \pi - a \end{cases}$$

$$\Lambda a = \begin{cases} rK\pi - a \\ rK\pi + \pi + a \end{cases}$$

$$\times \Lambda \sin a$$

$$\Lambda \sin a \cos(\frac{a}{r}) \cos(r a) \cos(K a)$$

$$= \pm \frac{1}{\Lambda}$$

$$a = \frac{\Lambda \pi}{9} \text{ "والبعض"}$$

$$9$$

$$\frac{r \sin(r a)}{r \sin(\frac{a}{r})}$$

$$\sin \Lambda a = \pm \frac{1}{\Lambda} \times \Lambda \sin a$$

است

$$\tan(rx) \tan(x) = 1$$

$$\rightarrow \tan(x) = \cot(rx)$$

$$\cot(rx) = \cot\left(x + \frac{\pi}{r}\right)$$

$$\rightarrow rx = K\pi + \frac{\pi}{r} - x$$

$$rx = K\pi + \frac{\pi}{r}$$

$$\rightarrow x = \frac{K\pi}{r} + \frac{\pi}{\Lambda}$$

$$x = \frac{9\pi}{\Lambda}, \frac{11\pi}{\Lambda}, \frac{13\pi}{\Lambda}, \frac{15\pi}{\Lambda} = \frac{8\pi}{\Lambda} = 8\pi$$

$$10$$