

الف) $\cos 2n = 2\sin - 1 = 1 - 2\sin^2 \Rightarrow 2\sin^2 + 2\sin - 2 = 0 = (\sin - 1)(\sin + 2) = 0$ 7

$\Rightarrow \sin \begin{cases} -\frac{2}{1} \\ \frac{1}{2} \end{cases} \Rightarrow x = \begin{cases} 2k\pi + \pi/4 \\ 2k\pi + 5\pi/4 \end{cases}$ 8

ب) $\cos 2n + \cos n - 1 = 2\cos^2 n + \cos n - 2 = (2\cos + 1)(\cos - 1) = 0 \Rightarrow$ 9

$\cos n \begin{cases} -\frac{1}{2} \\ 1 \end{cases} \Rightarrow n = 2k\pi$

$\sin^2 - \cos^2 = (\sin + \cos)(\sin - \cos) = -\cos 2n = \sin 2n = 2\sin \cos \Rightarrow$ 10

الف) $\sin n = -\frac{1}{2} \Rightarrow n = \begin{cases} 2k\pi + 7\pi/6 \\ 2k\pi + 11\pi/6 \end{cases} \Rightarrow x = \begin{cases} k\pi + \frac{7\pi}{6} \\ k\pi + \frac{11\pi}{6} \end{cases}$ 11

$\cos 2k (\sin k + 1) = 0$
 $\cos 2k = 0 \Rightarrow x = \frac{k\pi}{2} + \frac{\pi}{4}$
 $\sin 2k = \frac{1}{2} \Rightarrow 2k\pi + \frac{\pi}{6}, 2k\pi - \frac{\pi}{6}$ 12

ب) $2\cos^2 n - 1 + 2\sin \cos n = 0 = \cos 2n + \sin 2n = 0 \Rightarrow \cos 2n = \sin 2n \Rightarrow$ 13

$\cos 2n = \cos (\pi/2 - 2n) \Rightarrow n = \begin{cases} 2k\pi + \pi/4 \\ 2k\pi - \pi/4 \end{cases} \Rightarrow n = \frac{k\pi}{2} + \frac{\pi}{4}$ 14

$1 + \tan u = 0 \Rightarrow u = \frac{k\pi}{2} - \frac{\pi}{4}$

$\frac{\cos n (1 + \cos n)}{\sin n} = \frac{1}{\sin n} \xrightarrow{\sin n \neq 0} 2\cos^2 n + \cos n - 1 = 0 \Rightarrow$ 15

الف) $\Rightarrow (2\cos - 1)(\cos + 1) = 0 \Rightarrow \cos n \begin{cases} \frac{1}{2} \\ -1 \end{cases}$ 16

$\cos n = \frac{1}{2} \Rightarrow n = 2k\pi \pm \pi/3$

زیرا اگر $\sin n = 0 \Rightarrow \cos n = -1$
 نه چنین شیب اول است.

ب) $2\sin^2 - 2\sin \cos + \cos^2 = 2 \xrightarrow{\div \cos^2} 2\tan^2 - 2\tan + 1 = \frac{2}{\cos^2} = 2(1 + \tan^2) \Rightarrow$ 18

$\Rightarrow 2\tan^2 - 2\tan + 1 = 2\tan^2 + 2 \Rightarrow 2\tan + 1 = 0 \Rightarrow \tan n = -1/2 \Rightarrow n = k\pi - \pi/2$

سه شنبه

شهر ربيع

$$\frac{1 - \tan \theta_n}{1 + \tan \theta_n} = \tan(\pi/2 - \theta_n) = \tan \theta_n \Rightarrow \theta_n = k\pi + \pi/2 - \theta_n \Rightarrow -1$$

$$\Rightarrow \theta_n = k\pi/2 + \pi/4$$

.7

$$1 + \sin \theta_n = 1 \Rightarrow \sin \theta_n = 0 \Rightarrow \theta_n = k\pi \Rightarrow \cos \theta_n = 1 \Rightarrow \cos \theta_n = \cos(\pi/2 - \theta_n)$$

.8

$$\Rightarrow \theta_n = 2k\pi + (\pi/2 - \theta_n) \Rightarrow \theta_n = \frac{k\pi}{2} + \frac{\pi}{4}$$

$$\left\{ \begin{array}{l} \frac{k\pi}{2} + \frac{\pi}{4} \\ k\pi - \pi/2 \end{array} \right\} \Rightarrow \theta_n = \frac{\pi}{4}, \frac{3\pi}{4}, \frac{5\pi}{4}, \frac{7\pi}{4}$$

بیان

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$$(1 + \sin \theta_n)(1 - \sin \theta_n) = 1 - \sin^2 \theta_n = 1 - \cos^2 \theta_n = 0 \Rightarrow \cos \theta_n = 0 \Rightarrow \theta_n = \pi/2, 3\pi/2$$

.11

$$\Rightarrow \theta_n = 2k\pi + \pi \Rightarrow \theta_n = k\pi + \pi/2 \Rightarrow \theta_n = \pi/2, 3\pi/2$$

.12

$$\sin \theta_n = -1 \Rightarrow \theta_n = 2k\pi - \pi/2$$

$$\cos \theta_n = -1 \Rightarrow \theta_n = 2k\pi + \pi$$

.13

.14

$$\theta_n = \pi/2, 3\pi/2$$

.15

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