

نام و نام خانوادگی پاسنامه تشریحی تکلیف شماره کلاس

الف) $\frac{2\sin 2x + 3\sin 2x - 1}{\sin 2x} = 0 \Rightarrow \sin 2x = \frac{1}{5} \Rightarrow x = \frac{1}{10}\pi + \frac{1}{2}\pi$
 $\sin 2x = \frac{1}{5} \Rightarrow 2x = \frac{1}{10}\pi + \frac{1}{2}\pi$

$\Rightarrow \frac{2\cos 2x + 3\cos 2x - 1}{\cos 2x} = 0 \Rightarrow \cos 2x = \frac{1}{5} \Rightarrow 2x = \frac{1}{10}\pi + \frac{1}{2}\pi$
 $\Rightarrow x = \frac{1}{10}\pi + \frac{1}{2}\pi$

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$\sin 2x = -\cos 2x \Rightarrow \sin 2x = \cos(\pi - 2x)$

$\sin 2x = \sin(\frac{\pi}{2} - 2x) \Rightarrow 2x = \frac{\pi}{2} - 2x \Rightarrow 4x = \frac{\pi}{2} \Rightarrow x = \frac{\pi}{8}$

الف) $\cos(\frac{\pi}{4} + x) \sin(\frac{\pi}{4} + x) = \frac{1}{2}$
 $\Rightarrow \sin(\frac{\pi}{2} + 2x) = 1 \Rightarrow \frac{\pi}{2} + 2x = \frac{\pi}{2} \Rightarrow 2x = 0 \Rightarrow x = 0$

$\Rightarrow \cos(2x - \frac{\pi}{4}) = \sin -2x = \cos(\pi - 2x) = \cos(\frac{\pi}{4} - 2x)$
 $2x - \frac{\pi}{4} = \frac{\pi}{4} - 2x \Rightarrow 4x = \frac{\pi}{2} \Rightarrow x = \frac{\pi}{8}$

$\frac{2\sin 2x \cos 2x + \sin 2x}{\sin 2x} = 1 \Rightarrow \cos 2x + 1 = 1 \Rightarrow \cos 2x = 0 \Rightarrow \sin 2x \neq 0$

$\cos 2x = 0 \Rightarrow 2x = \frac{\pi}{2} \Rightarrow x = \frac{\pi}{4}$
 $\sin 2x = 1 \Rightarrow 2x = \frac{\pi}{2} \Rightarrow x = \frac{\pi}{4}$

$$\sin \frac{\pi}{2} = \cos \frac{\pi}{2} \Rightarrow \sin \frac{\pi}{2} = \sin \frac{\pi}{2} - \frac{\pi}{2}$$

$$\Rightarrow \frac{\pi}{2} = \frac{\pi}{2} + \frac{\pi}{2} - \frac{\pi}{2} = \frac{\pi}{2} \Rightarrow \frac{\pi}{2} = \frac{\pi}{2} + \frac{\pi}{2} \Rightarrow \frac{\pi}{2} = \frac{\pi}{2} + \frac{\pi}{2}$$

($\frac{\pi}{2} + \frac{\pi}{2}$) $\Rightarrow \frac{\pi}{2}$

راه حل در بنویس!

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

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

no $\frac{\pi}{2} = \frac{\pi}{2}$

$$\cos \frac{\pi}{2} = -1 \Rightarrow \frac{\pi}{2} = \frac{\pi}{2} + \frac{\pi}{2} \Rightarrow \frac{\pi}{2} = \frac{\pi}{2} + \frac{\pi}{2}$$

($\frac{\pi}{2} + \frac{\pi}{2}$)

$$\sin \frac{\pi}{2} = \frac{\pi}{2}$$

$$\frac{\pi}{2} = \frac{\pi}{2} + \frac{\pi}{2} - \frac{\pi}{2} \Rightarrow \frac{\pi}{2} = \frac{\pi}{2} + \frac{\pi}{2} \Rightarrow \frac{\pi}{2} = \frac{\pi}{2} + \frac{\pi}{2}$$

$$1 + \sin \frac{\pi}{2} = \cos \frac{\pi}{2}$$

$$\sin \frac{\pi}{2} + \cos \frac{\pi}{2} + \sin \frac{\pi}{2} = \cos \frac{\pi}{2} \Rightarrow \sin \frac{\pi}{2} \cos \frac{\pi}{2} - \cos \frac{\pi}{2} = \cos \frac{\pi}{2}$$

$$\sin \frac{\pi}{2} \cos \frac{\pi}{2} - \cos \frac{\pi}{2} = \cos \frac{\pi}{2} \Rightarrow \frac{\pi}{2} = \frac{\pi}{2} + \frac{\pi}{2} - \frac{\pi}{2}$$

$$\frac{\pi}{2} = \frac{\pi}{2} + \frac{\pi}{2}$$

$$\frac{\pi}{2} = \frac{\pi}{2} + \frac{\pi}{2} \Rightarrow \frac{\pi}{2} = \frac{\pi}{2} + \frac{\pi}{2}$$

$$(\sin \frac{\pi}{2} + \cos \frac{\pi}{2}) (\sin \frac{\pi}{2} - \cos \frac{\pi}{2}) = 0$$

$$\cos \frac{\pi}{2} = -1 \Rightarrow \frac{\pi}{2} = \frac{\pi}{2} + \frac{\pi}{2} \Rightarrow \frac{\pi}{2} = \frac{\pi}{2} + \frac{\pi}{2}$$

$$\frac{\pi}{2} = \frac{\pi}{2} + \frac{\pi}{2}$$

$\frac{\pi}{2} \propto \frac{\pi}{2}$

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سوال 4

$$\frac{\sin \frac{\pi}{r}}{1 + \cos \frac{\pi}{r}} = \tan \frac{\pi}{r}$$

$$\frac{1}{\sin \frac{\pi}{r}} + \cot \frac{\pi}{r} = \frac{1 + \cos \frac{\pi}{r}}{\sin \frac{\pi}{r}} = \frac{1}{\tan \frac{\pi}{r}} = \cot \frac{\pi}{r}$$

$$\tan \frac{\pi}{r} = \cot \frac{\pi}{r} \rightarrow \tan \frac{\pi}{r} = \tan \left(\frac{\pi}{r} - \frac{\pi}{r} \right)$$

$$\frac{\pi}{r} = K\pi + \frac{\pi}{r} - \frac{\pi}{r} \rightarrow \frac{\pi}{r} = K\pi + \frac{\pi}{r} \rightarrow n = 2K\pi + \pi$$

$$\text{جواب ها} \rightarrow K=0 \rightarrow n=\pi$$

$$\rightarrow K=-1 \rightarrow n=-\pi \rightarrow \text{فاصله} = |\pi - (-\pi)| = 2\pi$$

سوال 5

$$\cos^2 n - \sin^2 n \cos^2 n = 1 \xrightarrow{\cos^2 n = 1 - \sin^2 n}$$

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

$$\sin n = 0 \rightarrow n = K\pi \rightarrow n = 0, \pi, 2\pi$$

$$\rightarrow \cos^2 n = 1$$

$$\cos^2 n = 1 \rightarrow n = 2K\pi + \pi \rightarrow n = \frac{2K\pi + \pi}{2} \rightarrow n = \frac{\pi}{2}, \frac{3\pi}{2}, \frac{5\pi}{2}, \frac{7\pi}{2}$$

مصادم 5 جواب دارد

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

سوال ۹

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

$$\sin 2x = -1 \rightarrow 2x \in 2k\pi - \frac{\pi}{2} \quad \begin{matrix} 0 \leq x \leq \pi \\ k \in \mathbb{Z} \end{matrix} \rightarrow x = \frac{3\pi}{4}$$

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

$$\sin 2x = \frac{1}{2} \rightarrow 2x \in 2k\pi + \frac{\pi}{6} \cup 2k\pi + \frac{5\pi}{6} \quad \begin{matrix} 0 \leq x \leq \pi \\ k \in \mathbb{Z} \end{matrix} \rightarrow x = \frac{\pi}{12} \cup \frac{5\pi}{12}$$

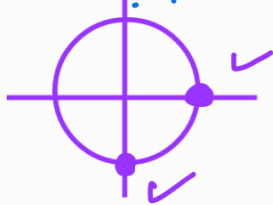
چون عبارت به توان ۲ رسیده است جواب زائد تولید می‌کند
به ازای $x = \frac{5\pi}{12}$ $\cos 2x$ منفی می‌شود پس این جواب را بیایم نپذیریم

* معادله ۲ جواب دارد

در سوالات به فرم $\pm \sin^n x \pm \cos^n x$ برابر ۱ یا -۱ فقط کافی است نگاه داشته باشیم!

سوال ۱۰

$$\sin^4 x - \cos^4 x = 1$$



$$x = 2\pi \cup 0$$

$$x = \frac{3\pi}{2}$$

ب ۱ چک کنی!

$$\sin^4 x - \cos^4 x = 1$$



الف ۱

$$x = \frac{\pi}{2}$$

$$x = \frac{3\pi}{2}$$