نام و نام خانوادگی ......فریبا غازی...... پاسخنامه تشریحی تکلیف شماره .... کلاس ....

$\cos 2x = 3\sin x - 1 \Rightarrow 1 - 2\sin^2 x = 3\sin x - 1$ $2\sin^2 x + 3\sin x - 2 \Rightarrow \sin^2 x + 3\sin x - 4$ $(\sin x + 4)(\sin x - 1)$ $\quad \sin x = \frac{1}{2}$ $\frac{-4}{2} = -2 \times \quad \frac{1}{2} \checkmark$ $x = 2k\pi \pm \frac{\pi}{6}$	$\cos 2x + \cos x - 2 = 0$ $2\cos^2 x - 1 + \cos x - 2 = 2\cos^2 x + \cos x - 3$ $\cos^2 x + \cos x - 6 = (\cos x + 3)(\cos x - 2)$ $-\frac{3}{2} \times \quad \frac{1}{2}$ $\cos x = \frac{1}{2} \Rightarrow 2k\pi \pm \frac{\pi}{3}$	۱
$\sin^4 x - \cos^4 x = -\cos 2x$ $-\cos 2x = \sin 4x$	$2\cos^2 x + 2\sin x \cos x = 1 \quad 2\cos^2 x = 1 + \cos 2x$ $1 + \cos 2x + \sin 2x = 1$ $\cos 2x + \sin 2x = 0$ $\cos 2x = -\sin 2x$	۲
$\frac{\cos x}{\sin x} \times (2\cos x + 1) = \frac{1}{\sin x}$ $\frac{2\cos^2 x + \cos x}{\sin x} = \frac{1}{\sin x} \Rightarrow 2\cos^2 x + \cos x = 1$ $2\cos^2 x + \cos x - 1 = 0 \Rightarrow \cos^2 x + \cos x - 2 = 0$ $(\cos x + 2)(\cos x - 1)$ $-\frac{2}{2} = -1 \quad \frac{1}{2}$ $\boxed{2k\pi \pm \frac{\pi}{3} \quad 2k\pi \pm \pi}$	$2\sin^2 x - \underbrace{\cancel{\sin x \cos x}}_{-\frac{1}{2}\sin 2x} + \cos^2 x = 2$ $\sin^2 x - \frac{1}{2}\sin 2x + 1 = 2 \Rightarrow \sin^2 x - \frac{1}{2}\sin 2x - 1 = 0$ $\Delta = (-\frac{1}{2})^2 - 4(-\frac{1}{2})(-1) = \frac{1}{4} - 2 = -\frac{7}{4}$ تعریف نشده جواب ندارد	۳
		۴
$\frac{\sin 4x + \sin 2x}{\sin 2x} - \sin^2 x = \cos^2 x \Rightarrow \frac{\sin 4x}{\sin 2x} + 1 - \sin^2 x = \cos^2 x$ $\frac{\sin 4x}{\sin 2x} + \cos^2 x = \cos^2 x \Rightarrow \frac{\sin 4x}{\sin 2x} = 0$ $\sin 4x = 0$		۵

فرید غفاری

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

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

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

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$$\frac{1+\tan x}{1-\tan x}\cdot\frac{(1+\tan x)}{(1+\tan x)} = \tan^2 x \Rightarrow \frac{(1+\tan^2 x)}{(1-\tan^2 x)} = \tan^2 x$$

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$$\sqrt{1+\sin 2x} = \sqrt{2}\cos 2x \Rightarrow 1+\sin 2x = 2\cos^2 2x$$

$$\sin^2 2x + \cos^2 2x + \sin 2x = 2\cos^2 2x \Rightarrow \sin 2x = 2\cos^2 2x - \cos^2 2x - \sin^2 2x$$

$$\sin 2x = \cos^2 2x - \sin^2 2x \Rightarrow \sin 2x = \cos 4x$$

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$$\sin^4 x - \cos^4 x = \underbrace{(\sin^2 x + \cos^2 x)}_{1}\underbrace{(\sin^2 x - \cos^2 x)}_{-\cos 2x}$$

$$-\cos 2x = 1 \Rightarrow \cos 2x = -1$$

$$\sin^3 x - \cos^3 x = -1$$

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

$$(\sin x - \cos x)\left(1 + \tfrac{1}{2}\sin 2x\right) = -1$$

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