نام و نام خانوادگی ......سبا فرجی...... پاسخنامه تشریحی تکلیف شماره ۲۱... کلاس یازدهم دختران گروه B

۱

1) $\frac{1}{\sqrt{\cos^2\alpha}} - \frac{1}{\cot\alpha} = \frac{1-\sin\alpha}{|\cos\alpha|}$ ، 2) $\cot\alpha = \frac{\cos\alpha}{\sqrt{1-\cos^2\alpha}} = \frac{\cos\alpha}{|\sin\alpha|}$

$\sqrt{\cos^2\alpha} \to |\cos\alpha|$ ، $\frac{1}{\cot\alpha} \to \tan\alpha$

1) $\sin\alpha = 0 \xrightarrow{\text{معادله (2)}}$ غ ق ق

2) $\sin\alpha \neq 0 \xrightarrow{\text{معادله (1)}} \cos\alpha > 0$

ناحیه ۱ یا ۴

$\left(\frac{1}{|\cos\alpha|} - \frac{\sin\alpha}{\cos\alpha} = \frac{1-\sin\alpha}{|\cos\alpha|}\right) \times |\cos\alpha| \Rightarrow 1 - \frac{|\cos\alpha|}{\cos\alpha} \times \sin\alpha = 1 - \sin\alpha$

1) $\Rightarrow \cos\alpha > 0 \Rightarrow |\cos\alpha| = \cos\alpha$ با $\sin\alpha$

2) $\Rightarrow \cos\alpha < 0 \Rightarrow |\cos\alpha| = -\cos\alpha$ با $-\sin\alpha$

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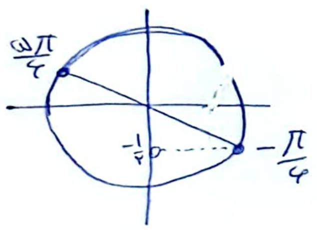
$\sin 2x = \frac{m-1}{4}$ ، $-\frac{\pi}{12} < x < \frac{5\pi}{12}$

مجموعه مقادیر m ؟

$\to -\frac{\pi}{6} < \underset{\alpha}{2x} < \frac{5\pi}{6}$



$-\frac{1}{2} < \sin\alpha \leq 1$

$\sin\alpha = \frac{m-1}{4} \Rightarrow \left(-\frac{1}{2} < \frac{m-1}{4} \leq 1\right) \times 4$

$-2 < m-1 \leq 4 \xrightarrow{+1} -1 < m \leq 5$

$m \in (-1, 5]$

۳

$\frac{1}{\sin^3 x + \cos^3 x} = ?$ ، $3\pi < 4x < 4\pi$ ، $\tan x + \cot x = -3$

$\sin^3 x + \cos^3 x \to (\sin x + \cos x)(\sin^2 x + \cos^2 x - \sin x \cos x)$ ، $(-\frac{1}{3})$

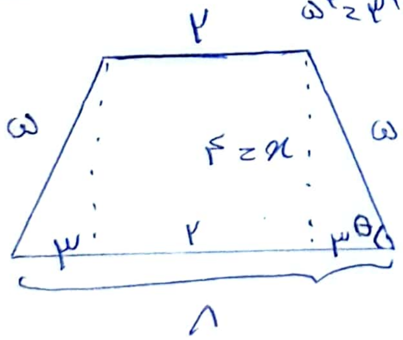
$\to (\sin x + \cos x) \times \frac{4}{3}$

$\frac{\sin x}{\cos x} + \frac{\cos x}{\sin x} = \frac{\sin^2 x + \cos^2 x}{\sin x \cos x} = \frac{1}{\sin x \cos x} = -3$

$\frac{3\pi}{4} < x < \pi$ ، $(\sin x + \cos x)^2 = \sin^2 x + \cos^2 x + 2(-\frac{1}{3}) = \frac{1}{3}$

$\sin x + \cos x < 0 \xrightarrow{\text{چرا}} -\frac{1}{\sqrt{3}} \Rightarrow -\frac{1}{\sqrt{3}} \times \frac{4}{3} = -\frac{4}{3\sqrt{3}} \xrightarrow{\text{معکوس}} -\frac{3}{4}\sqrt{3}$

۴



$5^2 = 3^2 + x^2$

$\cos\theta = 0.6$

$\sin\theta = 0.8 \Rightarrow 5 \times 0.6 = 3$

قاعده بزرگ $= 2 + 2 \times 3 = 8$

$S = \frac{(2+8) \times 4}{2} = 20$

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$\tan(285)\tan(-165) - \sin(1095)\cos(255) = k\cos^2 15$ ، $k = ?$ ، -1

$\tan(270 + 15) = -\cot 15^\circ$

$\tan(-180 + 15) = \tan 15^\circ$

$\sin(\underset{6 \times 180}{1080} + 15) = \sin 15^\circ$

$\sin(270 - 15) = -\sin 15^\circ$

$\Rightarrow (-\cot 15)(\tan 15) - (\sin 15)(-\sin 15)$

$-1 + \sin^2 15 = \underset{-1}{k}\cos^2 15$

$A=\sqrt{3}\cos(210^\circ)\sin(243^\circ)-\sqrt{2}\sin(135^\circ)\cos(153^\circ)=k\cos(27^\circ)$ ، $k=?$ ۶

$-\cos(180-210)=-\cos 30=-\frac{\sqrt{3}}{2}$ $A=\frac{5}{2}\cos 27^\circ$ ($\frac{5}{2}$)

$\sin(180-135)=\sin 45=\frac{\sqrt{2}}{2}$

$\sin(243-180)=-\sin 63 \Rightarrow \cos(90-63)=\cos 27$

$-\cos(180-153)=-\cos 27$

$f(x)=16\cos^2(3x)\cos^2(6x)\cos^2(12x)\cos^2(24x) \Rightarrow f(\frac{\pi}{36})=?$ ۷

$3\times\frac{\pi}{36}=\frac{\pi}{12}$ ، $6\times\frac{\pi}{36}=\frac{\pi}{6}$ ، $12\times\frac{\pi}{36}=\frac{\pi}{3}$ ، $24\times\frac{\pi}{36}=\frac{2\pi}{3}$

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

$\cos^2(\frac{\pi}{12})=\frac{1+\cos\frac{\pi}{6}}{2}=(\frac{2+\sqrt{3}}{4})(\frac{\sqrt{3}}{2})^2(\frac{1}{2})^2(-\frac{1}{2})^2 \Rightarrow \frac{6+3\sqrt{3}}{16}$

ادامه بدهید — در نهایت — بعد از ساده سازی

$\tan\frac{x}{2}=?$ ، $\frac{1-\sin x}{1+\sin x}=4$ و x ← ربع سوم ، $\frac{\pi}{2}<\frac{x}{2}<\frac{3\pi}{4}$ ۸

$\frac{1-\cos x}{\sin x}=\tan\frac{x}{2}$

$1-\sin x=4+4\sin x \Rightarrow -3=5\sin x$ ، $\sin x=-\frac{3}{5}$

$\sin^2 x+\cos^2 x=1 \Rightarrow \frac{9}{25}+\cos^2 x=1 \Rightarrow \cos x=\pm\frac{4}{5}$ (منفی) ربع سوم

$\frac{-\frac{3}{5}}{1+(-\frac{4}{5})}=-3$

$\frac{\sin\theta}{1-\cos\theta}+\frac{1+\cos\theta}{\sin\theta}=k\cot\frac{\theta}{2}$ ، $k=?$ (۲) ۹

$\frac{\sin\theta}{1-\cos\theta}=\frac{1-\cos\theta}{\sin\theta}=\tan\frac{\theta}{2}$ ← عکس

$\cot\frac{\theta}{2}+\cot\frac{\theta}{2}=2\cot\frac{\theta}{2}$

$\cos(\frac{11\pi}{4}+\alpha)=?$ ، $\sin\alpha=\frac{\sqrt{2}}{10}$ و $\alpha \Rightarrow$ در ربع دوم دایره ۱۰

$\sin^2\alpha+\cos^2\alpha=1 \Rightarrow \frac{2}{100}+\cos^2\alpha=1 \Rightarrow \cos\alpha=\sqrt{\frac{98}{100}}=\pm\frac{7\sqrt{2}}{10}$ (منفی) ناحیه ۲ $\cos<0$

$\cos(2\pi+\frac{3\pi}{4}+\alpha)=\cos(\frac{3\pi}{4})\cos\alpha-\sin(\frac{3\pi}{4})\sin\alpha$

$\Rightarrow(-\frac{\sqrt{2}}{2})(-\frac{7\sqrt{2}}{10})-(\frac{\sqrt{2}}{10})(\frac{\sqrt{2}}{2})=\frac{13}{10}=$ ۱/۳