نام و نام خانوادگی ....[illegible].......... پاسخنامه تشریحی تکلیف شماره ۲۸.... کلاس یازدهم ریاضی B..............

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

$\cos\alpha > 0 \to \frac{1-\sin\alpha}{\cos\alpha} = \frac{1-\sin\alpha}{\cos\alpha}$ ق ق

$\cos\alpha < 0 \to \frac{-1-\sin\alpha}{\cos\alpha} = \frac{\sin\alpha - 1}{\cos\alpha}$ غ ق ق

$\to \cos\alpha > 0$

$\cot\alpha = \frac{\cos\alpha}{\sin\alpha} = \frac{\cos\alpha}{\sqrt{\sin^2\alpha}} = \frac{\cos\alpha}{|\sin\alpha|} \Rightarrow \sin\alpha = |\sin\alpha| \Rightarrow \sin\alpha > 0$

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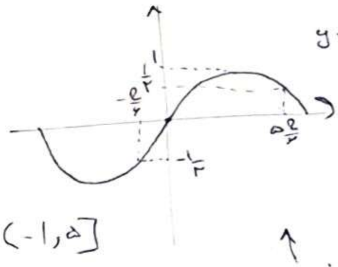
$-\frac{\pi}{12} < x < \frac{5\pi}{12} \Rightarrow -\frac{\pi}{6} < 2x < \frac{5\pi}{6}$

$t = 2x \Rightarrow -\frac{\pi}{6} < t < \frac{5\pi}{6} \Rightarrow -\frac{1}{2} < \sin t \leq 1$



$-\frac{1}{2} < \frac{m-1}{4} \leq 1 \Rightarrow -2 < m-1 \leq 4 \Rightarrow -1 < m \leq 5 \Rightarrow m \in (-1, 5]$

نمودار

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$\frac{\sin x}{\cos x} + \frac{\cos x}{\sin x} = -3 \Rightarrow \sin x \times \cos x = -\frac{1}{3}$

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

$\frac{3\pi}{4} < x < \pi \rightarrow \sin x + \cos x = \frac{-1}{\sqrt{3}}$

$\frac{1}{\sin^3 x + \cos^3 x} = \frac{1}{(\sin x + \cos x)(1 - \sin x\cos x)} = \frac{-\sqrt{3}}{\frac{4}{3}} = -0/75\sqrt{3}$

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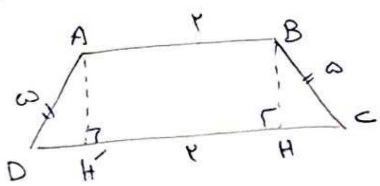

$\overset{\triangle}{BCH} : \cos\theta = \frac{CH}{BC} = \frac{CH}{5} = \frac{6}{10} \to CH = 3$

$\overset{\triangle}{BCH} \cong \overset{\triangle}{ADH'} \Rightarrow DH' = CH = 3$

$ABHH' \to$ مستطیل $\to HH' = 2 \to CD = 2+3+3 = 8$

$\overset{\triangle}{BCH} ; BH^2 = BC^2 - CH^2 = 25 - 9 = 16 \to BH = 4$

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

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$\tan 285 \times \tan(-165) - \sin 1095 \times \cos 255$

$\tan(270+15)$, $(-180+15)$, $(1080+15)$ 6×180 , $\cos(270-15)$

$-\cot 15 \times \tan 15 - \sin 15 \times -\sin(15) = -1 + \sin^2 15 = -\cos^2 15$

$k = -1$

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

$A = \sqrt{3}(\cos(180^\circ+30^\circ)\sin(270^\circ-27) - \sqrt{2}\sin(180^\circ-45)\cos(180^\circ-27)$

$A = \sqrt{3}\left(-\frac{\sqrt{3}}{2}\right)(-\cos 27^\circ) - \sqrt{2}\left(\frac{\sqrt{2}}{2}\right)(-\cos 27) \Rightarrow$

$A = \sqrt{3}\left(-\frac{\sqrt{3}}{2}\right) \to \frac{3}{2}\cos 27^\circ + \cos 27^\circ = \frac{5}{2}\cos 27^\circ = 2.5\cos 27^\circ$ ۶

$f\left(\frac{\pi}{24}\right) = 16\cos^2\left(\frac{2\pi}{24}\right)\cos^2\left(\frac{4\pi}{24}\right)\cos^2\left(\frac{12\pi}{24}\right)\cos^2\left(\frac{16\pi}{24}\right) =$

$16\cos^2\left(\frac{\pi}{12}\right)\cos^2\left(\frac{\pi}{6}\right)\cos^2\left(\frac{2\pi}{3}\right)$

$\cos^2\left(\frac{\pi}{12}\right) = \frac{1+\cos\left(\frac{\pi}{6}\right)}{2} = \frac{1+\frac{\sqrt{3}}{2}}{2} = \frac{2+\sqrt{3}}{4}$ ۷

$\cos^2\alpha = \frac{1+\cos 2\alpha}{2}$

$16\left(\frac{2+\sqrt{3}}{4}\right)\left(\frac{\sqrt{3}}{2}\right)^2\left(\frac{1}{2}\right)^2\left(-\frac{1}{2}\right)^2 = 16\left(\frac{2+\sqrt{3}}{4}\right)\left(\frac{3}{4}\right)\left(\frac{1}{4}\right)\left(\frac{1}{4}\right) = \frac{3(2+\sqrt{3})}{16} = \frac{6+3\sqrt{3}}{16}$

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

$\sin^2 x + \cos^2 x = 1 \Rightarrow \cos^2 x = 1-\sin^2 x = 1-\frac{9}{25} = \frac{16}{25}$ $\xrightarrow{\cos x<0}$ $\cos x = -\frac{4}{5}$

$\tan x = \frac{-\frac{3}{5}}{-\frac{4}{5}} = \frac{3}{4}$ $\quad \tan x = \frac{2\tan\frac{x}{2}}{1-\tan^2\frac{x}{2}} \to \frac{2\tan\frac{x}{2}}{1-\tan^2\frac{x}{2}} = \frac{3}{4} \to 3-3\tan^2\frac{x}{2} = 8\tan\frac{x}{2} \Rightarrow 3\tan^2\frac{x}{2} + 8\tan\frac{x}{2} - 3 = 0$ ۸

$\xrightarrow{\Delta = 100}$ $\tan\frac{x}{2} = \frac{-8+10}{6} = \frac{1}{3}$

$\tan\frac{x}{2} = \frac{-8-10}{6} = \frac{-18}{6} = \boxed{-3} \to \tan\frac{x}{2} = -3$

$\frac{\sin\theta}{1-\cos\theta} + \frac{1+\cos\theta}{\sin\theta} = \frac{\sin^2\theta + \sin^2\theta}{\sin\theta(1-\cos\theta)} = \frac{2\sin\theta}{1-\cos\theta} = \frac{4\sin\left(\frac{\theta}{2}\right)\cos\left(\frac{\theta}{2}\right)}{2\sin^2\left(\frac{\theta}{2}\right)} = \frac{\cos\left(\frac{\theta}{2}\right)}{\sin\left(\frac{\theta}{2}\right)}$

$\frac{\cos\left(\frac{\theta}{2}\right)}{\sin\left(\frac{\theta}{2}\right)} = 1 < \cot\left(\frac{\theta}{2}\right) \Rightarrow K = 1$ ۹

$\cos\left(\frac{11\pi}{4}+\alpha\right) = \underbrace{\cos\frac{11\pi}{4}}_{-\frac{\sqrt{2}}{2}} \times \underbrace{\cos\alpha}_{-\frac{\sqrt{98}}{10}} - \underbrace{\sin\frac{11\pi}{4}}_{-\frac{\sqrt{2}}{2}} \times \underbrace{\sin\alpha}_{\frac{\sqrt{2}}{10}} = \frac{14}{20} + \frac{2}{20} = \frac{16}{20} = 0/8$

$\sin^2\alpha + \cos^2\alpha = 1 \to \frac{2}{100} + \frac{98}{100} = 1 \to \cos\alpha = \sqrt{\frac{98}{100}} = -\frac{\sqrt{98}}{10}$ ۱۰