19,75

نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ۲۸ کلاس .....

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

$\frac{1}{\cot\alpha} = \frac{\sin\alpha}{\cos\alpha}$

1,75

$\cos\alpha > 0$: $\frac{1-\sin\alpha}{\cos\alpha} = \frac{1-\sin\alpha}{\cos\alpha}$ ✓

$\cos\alpha < 0$: $\frac{-1-\sin\alpha}{\cos\alpha} = \frac{\sin\alpha - 1}{\cos\alpha}$ ✗

ناحیه اول

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

$-\frac{\pi}{2} < 2n < \frac{5\pi}{2} \Rightarrow -\frac{1}{2} < \sin 2n \leq 1 \Rightarrow -\frac{1}{2} < \frac{m-1}{2} \leq 1$

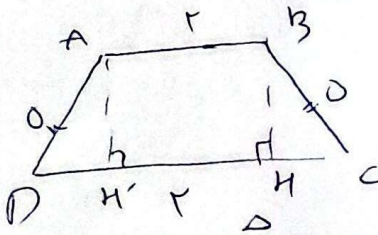
$\Rightarrow -2 < m-1 \leq 2 \Rightarrow -1 < m \leq 5 \Rightarrow m \in (-1, 5]$ ۳

$\frac{\sin n}{\cos n} + \frac{\cos n}{\sin n} = 2 \Rightarrow \sin n \cdot \cos n = \frac{-1}{2}$

$\Rightarrow 2\sin n \times \cos n = \frac{-2}{2} \Rightarrow (\sin n + \cos n)^2 = 1 + 2\sin n \cdot \cos n = \frac{1}{2}$

$\frac{3\pi}{4} < n < \pi \rightarrow \sin n + \cos n = \frac{-1}{\sqrt{2}}$

$\frac{1}{\sin^3 n + \cos^3 n} = \frac{1}{(\sin n + \cos n)(1 - \sin n \cos n)} = \frac{-\sqrt{2}}{\frac{3}{2}} = -0/75\sqrt{2}$



$\triangle BCH$: $\cos\theta = \frac{CH}{BC} = \frac{CH}{5} = \frac{4}{10}$ $\Rightarrow CH = 2$

$\triangle BCH \cong \triangle AOH \Rightarrow DH' = CH = 2$ ۴

$ABHH' \rightarrow$ مستطیل $\rightarrow HH' = 2 \rightarrow CD = 2 + 2 + 2 = 8$

$\triangle BCH$: $BH^2 = BC^2 - CH^2 = 25 - 9 = 16 \Rightarrow BH = 4$

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

$\tan 280^\circ = \tan(270^\circ + 10^\circ) = -\cot 10^\circ$

$\tan(-160^\circ) = \tan(-180^\circ + 10^\circ) = \tan 10^\circ$

$\sin 190^\circ = \sin(180^\circ + 10^\circ) = \sin(2\times 180^\circ + 10^\circ) = \sin 10^\circ$

$\cos 260^\circ = \cos(270^\circ - 10^\circ) = -\sin 10^\circ$ ۵

$\tan 280^\circ \tan(-160^\circ) - \sin 190^\circ \cos 260^\circ$

$= (-\cot 10^\circ)(\tan 10^\circ) - (\sin 10^\circ)(-\sin 10^\circ)$

$= -1 + \sin^2 10^\circ = -\cos^2 10^\circ \Rightarrow K = -1$

ادامه ⑧

$\Delta = 100 \longrightarrow \tan\frac{x}{2} = \frac{-8+10}{4} = \frac{1}{2}$, $\tan\frac{x}{2} = \frac{-8-10}{4} = -\frac{18}{4} = -\frac{9}{2}$

عادی: فصل اول $\left(\tan\frac{x}{2} = -\frac{9}{2}\right)$ $\Rightarrow 2\tan^2\frac{x}{2} + 8\tan\frac{x}{2} - 2 = 0$

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$A = \sqrt{2}\cos(210^\circ)\sin(225^\circ) - \sqrt{2}\sin(150^\circ)\cos(135^\circ)$

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

$A = \sqrt{2}\left(-\frac{\sqrt{3}}{2}\right)(-\cos 45^\circ) - \sqrt{2}\left(\frac{1}{2}\right)(-\cos 45^\circ)$

$A = \frac{3}{2}\cos 45^\circ + \cos 45^\circ = \frac{5}{2}\cos 45^\circ = 1/5\cos 45^\circ$

$f\left(\frac{\pi}{12}\right) = 16\cos^2\left(\frac{\pi}{24}\right)\cos^2\left(\frac{3\pi}{24}\right)\cos^2\left(\frac{5\pi}{24}\right)\cos^2\left(\frac{7\pi}{24}\right)$

$= 16\cos^2\left(\frac{\pi}{8}\right)\cos^2\left(\frac{3\pi}{8}\right)\cos^2\left(\frac{5\pi}{8}\right)\cos^2\left(\frac{7\pi}{8}\right)$

$\cos^2\alpha = \frac{1+\cos 2\alpha}{2}$ $\cos^2\left(\frac{\pi}{8}\right) = \frac{1+\cos\frac{\pi}{4}}{2} = \frac{1+\frac{\sqrt{2}}{2}}{2} = \frac{2+\sqrt{2}}{4}$

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

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$\frac{1-\sin\alpha}{1+\sin\alpha} = 9 \Rightarrow 1-\sin\alpha = 9+9\sin\alpha \Rightarrow 10\sin\alpha = -8$

$\Rightarrow \sin\alpha = -\frac{4}{5}$

$\sin^2\alpha + \cos^2\alpha = 1 \Rightarrow \cos^2\alpha = 1-\sin^2\alpha = 1-\frac{16}{25} = \frac{9}{25}$

$\xrightarrow{\alpha \text{ در ربع } 3} \cos\alpha < 0 \Rightarrow \cos\alpha = -\frac{3}{5}$ $\tan\alpha = \frac{-\frac{4}{5}}{-\frac{3}{5}} = \frac{4}{3}$ $\tan\alpha = \frac{2\tan\frac{\alpha}{2}}{1-\tan^2\frac{\alpha}{2}}$

$\frac{2\tan\frac{\alpha}{2}}{1-\tan^2\frac{\alpha}{2}} = \frac{4}{3} \Rightarrow 4-4\tan^2\frac{\alpha}{2} = 6\tan\frac{\alpha}{2}$ (طرفین وسطین)

$\frac{\sin\theta}{1-\cos\theta} + \frac{1+\cos\theta}{\sin\theta} = k\cot\frac{\theta}{2}$

① $\frac{\sin\theta}{1+\cos\theta} = \tan\frac{\theta}{2}$ معکوس $\longrightarrow \frac{1+\cos\theta}{\sin\theta} = \cot\frac{\theta}{2}$

② $\frac{1-\cos\theta}{\sin\theta} = \tan\frac{\theta}{2}$ معکوس $\longrightarrow \frac{\sin\theta}{1-\cos\theta} = \cot\frac{\theta}{2}$

① و ② $\Rightarrow \cot\frac{\theta}{2} + \cot\frac{\theta}{2} = 2\cot\frac{\theta}{2}$

$k = 2$

$\cos\left(\frac{11\pi}{4} + \alpha\right)$

$\cos^2\alpha + \sin^2\alpha = 1$ $\cos\alpha = \sqrt{1-\sin^2\alpha} = -\sqrt{\frac{9}{25}}$

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

$\Rightarrow \left(-\frac{3}{5} \times -\frac{\sqrt{2}}{2}\right) - \left(\frac{4}{5} \times \frac{\sqrt{2}}{2}\right) = \frac{3}{10} - \frac{4}{10} = \frac{-1}{10}$