نام و نام خانوادگی ...حسین پاکرتن‌خواه... پاسخنامه تشریحی تکلیف شماره .... کلاس ...یازدهم (A)...

$\cot \alpha = \frac{\cos\alpha}{|\sin\alpha|}$ ، $\frac{1}{|\cos\alpha|} - \frac{|\sin\alpha|}{\cos\alpha} = 1 - \sin\alpha \Rightarrow \sin\alpha \cdot \cos\alpha > 0$

(یا هیچ (−) در عبارت ضرب نشده یا دو علامت (−) ضرب شده)

$\cot = \frac{\cos}{\sin} \to \sin\alpha > 0$

$\cot a = \frac{\cos\alpha}{\sin\alpha} \to \sin a > 0 \to \cos a > 0 \to$ a در ناحیه اول 1

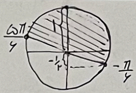
$\sin 2x = \frac{m-1}{4}$ $\qquad \frac{-\pi}{12} < x < \frac{5\pi}{12} \to \frac{-\pi}{6} < 2x < \frac{5\pi}{6}$

$\to \frac{-1}{2} < \sin 2x \leqslant 1$

$-\frac{1}{2} < \frac{m-1}{4} \leqslant 1$

$-2 < m-1 \leqslant 4$

$-1 < m \leqslant 5 \quad / \quad m \in (-1, 5]$ 2

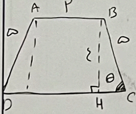


$3\pi < 4x < 4\pi \to \frac{3\pi}{4} < x < \pi \Rightarrow$ ~~tan>0 , cot>0~~ $-1 < \tan x < 0$

$\tan x + \frac{1}{\tan x} = -3 \begin{cases} \frac{-3+\sqrt{5}}{2} \checkmark \\ \frac{-3-\sqrt{5}}{2} \end{cases} \to \sin x =$

$\tan x + \cot x = -3 \to \frac{1}{\sin x \cos x} = -3 \to \sin x \cos x = \frac{-1}{3}$

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



$\cos\theta = \frac{6}{10} \to \frac{CH}{\underset{5}{BC}} = \frac{6}{10} \to CH = 3 \xrightarrow{\text{فیثاغورس}} BH = 4 \to \sin\theta = \frac{8}{10}$

$S_{\text{ذوزنقه}} = S_{\text{مستطیل}} + S_{\text{دو مثلث}} = 2 \times 4 + 2\left(\frac{3 \times 5 \times \overset{\sin\theta}{0.8}}{2}\right) = 8 + 12 = 20$ 4

$\tan(285^\circ)\tan(-165^\circ) - \sin(1095^\circ)\cos(255^\circ) =$

$\tan(\frac{3\pi}{2} + 15)\tan(\pi + 15) - \sin(6\pi + 15)\cos(\frac{3\pi}{2} - 15) =$

$-\cot(15^\circ) \times \tan(15^\circ) - (\sin 15^\circ)(-\sin 15^\circ) =$

$-1 - (-\sin^2 15^\circ) = -(1 - \sin^2 15) = -\cos^2 15^\circ \Rightarrow \boxed{k = -1}$ 5

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

$\sqrt{3} \times \frac{-\sqrt{3}}{2} \times \sin\left(\frac{3\pi}{2} - 27\right) - \sqrt{2} \times \frac{\sqrt{2}}{2} \times \cos(\pi - 27^\circ) =$

$\frac{-3}{2} \times \cos 27 - \cos 27 =$

$\frac{3}{2}\cos 27^\circ - \frac{2}{2}\cos 27^\circ = \frac{1}{2}\cos 27^\circ \rightarrow A = \frac{1}{2}\cos 27^\circ \rightarrow \frac{A}{\cos 27^\circ} = \boxed{\frac{1}{2}}$ ۶

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

$16\cos^2\left(\frac{\pi}{12}\right) \times \left(\frac{\sqrt{3}}{2} \times \frac{\sqrt{3}}{2}\right) \times \left(\frac{1}{2} \times \frac{1}{2}\right) \times \left(\frac{-1}{2} \times \frac{-1}{2}\right) =$ $\quad \frac{6 + 3\sqrt{3}}{16}$

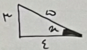
$16\cos^2\left(\frac{\pi}{12}\right) \times \frac{3}{16 \times 4} = \frac{3}{4} \times \cos^2\left(\frac{\pi}{12}\right) = \frac{3}{4} \times \cos^2\left(\frac{\pi}{3} - \frac{\pi}{4}\right)$ ۷

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

$\frac{3}{4} \times \left(\frac{1}{8} + \frac{3}{8} + \frac{\sqrt{3}}{4}\right) = \frac{3}{4}\left(\frac{1}{2} + \frac{\sqrt{3}}{4}\right) = \frac{3}{8} + \frac{3\sqrt{3}}{16} = \frac{6 + 3\sqrt{3}}{16}$

ربع سوم $\Rightarrow$ $\sin x < 0$, $\cos x < 0$, $\tan x > 0$, $\cot x > 0$

$\frac{1 - \sin x}{1 + \sin x} = 4 \quad 1 - \sin x = 4 + 4\sin x \longrightarrow \sin x = \frac{-3}{5}$ $\quad \cos x = \frac{-4}{5}$ (در ناحیه سوم $\cos < 0$)



$\tan\frac{x}{2} = \frac{\sin\alpha}{1 + \cos\alpha} = \frac{\frac{-3}{5}}{1 + \frac{-4}{5}} = \boxed{-3}$ ۸

$\frac{1 - \cos\theta}{\sin\theta} = \frac{\sin\theta}{1 + \cos\theta} = \tan\frac{\theta}{2} \rightarrow \frac{\sin\theta}{1 - \cos\theta} = \cot\frac{\theta}{2}, \quad \frac{1 + \cos\theta}{\sin\theta} = \cot\frac{\theta}{2}$

$\frac{\sin\theta}{1 - \cos\theta} + \frac{1 + \cos\theta}{\sin\theta} = \cot\frac{\theta}{2} + \cot\frac{\theta}{2} = 2\cot\frac{\theta}{2} \Rightarrow k = 2$ ۹

$\cos\left(\frac{11\pi}{4} + \alpha\right) = \cos\left(\frac{8\pi}{4} + \frac{3\pi}{4} + \alpha\right) = \cos\left(\frac{3\pi}{4} + \alpha\right) =$

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

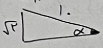
$\cos\left(\frac{3\pi}{4} + \alpha\right) = \frac{-\sqrt{2}}{2} \times \frac{-\sqrt{98}}{10} - \frac{\sqrt{2}}{2} \times \frac{\sqrt{2}}{10}$ ۱۰

$\cos\left(\frac{3\pi}{4} + \alpha\right) = \frac{+14}{20} - \frac{2}{20} = \frac{12}{20} = \boxed{\frac{3}{5}}$

$\sin\alpha = \frac{\sqrt{2}}{10}$

$\cancel{1 + \sin^2 + \cos^2}$

$\cancel{1 - \left(\frac{\sqrt{2}}{10}\right)^2}$



$(\sqrt{2})^2 + x^2 = 100$

$\cos x = \frac{-\sqrt{98}}{10} \xleftarrow{\text{ناحیه دوم}} \cos\alpha = x = \sqrt{100 - 2} = \sqrt{98}$