نام و نام خانوادگی ...سها مهدی... پاسخنامه تشریحی تکلیف شماره ...۲۸... کلاس ...یازدهم تجربی...

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

$\frac{1-1+\sin\alpha}{|\cos\alpha|} = \frac{\sin\alpha}{\cos\alpha} \to |\cos\alpha| = \cos\alpha$ $\quad \cos\ \sin\alpha > 0$ ↓ ناحیه اول

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

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$-\frac{\pi}{12} < x < \frac{5\pi}{12} \to -\frac{\pi}{6} < 2x < \frac{5\pi}{6} \to -\frac{1}{2} < \sin 2x \le 1$

$-\frac{1}{2} < \frac{m-1}{4} \le 1 \to -2 < m-1 \le 4 \to -1 < m \le 5$

مجموعه مقادیر m $\to (-1, 5]$

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

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

$= -\frac{1}{\sqrt{3}} \times \frac{4}{3} = \frac{-4}{3\sqrt{3}} \to (\sin x + \cos x)^2 = \sin^2 x + \cos^2 x + 2\sin x\cos x$

$= 1 - \frac{2}{3} = \frac{1}{3} \to \sin x + \cos x = \pm \frac{1}{\sqrt{3}}$ (غ ق ق) $\quad 3\pi < 4x < 4\pi \to \frac{3\pi}{4} < x < \pi$

$\to -1 < \cos x < -\frac{\sqrt{2}}{2}$ و $0 < \sin x < \frac{\sqrt{2}}{2} \to \sin x + \cos x < 0 \to \frac{1}{\sin^3 x + \cos^3 x} = -\frac{3\sqrt{3}}{4}$

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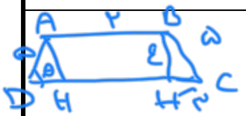

$\cos\theta = \frac{DH}{AD} = \frac{DH}{5} = \frac{6}{10} \to DH = 3 \to CH' = 3$

$AB = HH' = 2$

$\to CD = 3 + 3 + 2 = 8 \quad , \quad AD^2 = DH^2 + AH^2 \to AH = 4$

$S_{\text{ذوزنقه}} = \frac{(AB + CD) \times AH}{2} = \frac{(2+8)\times 4}{2} = 20$

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

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

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

$= -\cos^2 15 = k\cos^2 15 \to k = -1$

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$A=\sqrt{3}\cos(210)\times\sin(243)-\sqrt{2}\sin(135)\cos(153)$ $=\sqrt{3}\times-\frac{\sqrt{3}}{2}\times\sin(\frac{3\pi}{2}-27)-\sqrt{2}\times\frac{\sqrt{2}}{2}\times\cos(\pi-27)$ $=-\frac{3}{2}\times-\cos 27-1\times-\cos 27=\frac{3}{2}\cos 27+\cos 27=\frac{5}{2}\cos 27$ ۱ $\frac{A}{\cos 27}=\frac{\frac{5}{2}\cos 27}{\cos 27}=\frac{5}{2}$	۶
$f(\frac{\pi}{24})=16\cos^2(\frac{\pi}{12})\times\underbrace{\cos^2(\frac{\pi}{6})}_{\frac{1}{4}}\times\underbrace{\cos^2(\frac{\pi}{3})}_{\frac{3}{4}}\times\underbrace{\cos^2(\frac{5\pi}{12})}_{\frac{1}{4}}$ $=16\times\frac{2+\sqrt{3}}{4}\times\frac{1}{4}\times\frac{3}{4}\times\frac{1}{4}=\frac{6+3\sqrt{3}}{16}$ ۱ $\cos^2(\frac{\pi}{12})=\frac{1+\cos\frac{\pi}{6}}{2}=\frac{1+\frac{\sqrt{3}}{2}}{2}=\frac{\frac{2+\sqrt{3}}{2}}{2}=\frac{2+\sqrt{3}}{4}$	۷
$\frac{1-\sin x}{1+\sin x}=4\rightarrow 1-\sin x=4+4\sin x\rightarrow 5\sin x=-3$ $\rightarrow\sin x=\frac{-3}{5}$ $\sin^2 x+\cos^2 x=1\rightarrow\frac{9}{25}+\cos^2=1$ $\begin{cases}\cos x=\frac{-4}{5}\\ \cos x=\frac{4}{5}\end{cases}$ غ ق ق ۱ $\tan\frac{x}{2}=\frac{\sin x}{1+\cos x}=\frac{\frac{-3}{5}}{1+\frac{-4}{5}}=\frac{\frac{-3}{5}}{\frac{1}{5}}=-3$	۸
$\frac{\sin\theta}{1-\cos\theta}+\frac{1+\cos\theta}{\sin\theta}$ $\quad\frac{\sin\theta}{1+\cos\theta}=\frac{1-\cos\theta}{\sin\theta}=\tan\frac{\theta}{2}\rightarrow$ $\cot\frac{\theta}{2}+\cot\frac{\theta}{2}$ $=2\cot\frac{\theta}{2}=k\cot\frac{\theta}{2}\rightarrow k=2$ ۱	۹
$\cos(\frac{n\pi}{4}+\alpha)=\underbrace{\cos\frac{n\pi}{4}}_{-\frac{\sqrt{2}}{2}}\cos\alpha-\underbrace{\sin\frac{n\pi}{4}}_{\frac{\sqrt{2}}{2}}\sin\alpha$ $=\frac{-\sqrt{2}}{2}\times\frac{-7\sqrt{2}}{10}-\frac{\sqrt{2}}{2}\times\frac{\sqrt{2}}{10}=\frac{7}{10}-\frac{1}{10}=\frac{6}{10}=\frac{3}{5}$ ۱ $\sin^2\alpha+\cos^2\alpha=1\rightarrow\frac{2}{100}+\cos^2\alpha=1$ $\begin{cases}\cos\alpha=+\frac{7\sqrt{2}}{10}\text{ غ ق ق}\\ \cos\alpha=\frac{-7\sqrt{2}}{10}\ \checkmark\end{cases}$	۱۰