۲۰

نام و نام خانوادگی ......دلارا فروزش...... پاسخنامه تشریحی تکلیف شماره ..۲۸.. کلاس ......یازدهم تجربی B......

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

$\frac{1}{|\cos\alpha|} - \tan\alpha = \frac{1}{|\cos\alpha|} - \frac{\sin\alpha}{|\cos\alpha|} \Rightarrow \frac{\sin\alpha}{\cos\alpha} = \frac{\sin\alpha}{\cos\alpha} \to \cos\alpha > 0$ ① (۴)

$\cot\alpha = \frac{\cos\alpha}{\sqrt{1-\cos^2\alpha}} = \frac{\cos\alpha}{|\sin\alpha|} \Rightarrow \frac{\cos\alpha}{|\sin\alpha|} = \frac{\cos\alpha}{\sin\alpha} \to \sin\alpha > 0$ ② $\quad$ ①∩② ⇒

α در ربع اول قرار دارد

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$-\frac{\pi}{12} < \alpha < \frac{5\pi}{12} \to -\frac{\pi}{6} < 2\alpha < \frac{5\pi}{6} \to -\frac{1}{2} < \sin 2\alpha \le 1 \to -\frac{1}{2} < \frac{m-1}{4} \le 1$

$-2 < m-1 \le 4 \to -1 < m \le 5 \longrightarrow \boxed{-1 < m \le 5}$ جواب (۴)

۳

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

$\sin^2\alpha + \cos^2\alpha + 2\sin\alpha\cos\alpha = \frac{1}{3} \Rightarrow (\sin\alpha + \cos\alpha)^2 = \frac{1}{3} \to \sqrt{\sin\alpha + \cos\alpha} = \frac{1}{\sqrt{3}}$

$\sin^3\alpha + \cos^3\alpha = (\sin\alpha + \cos\alpha)^3 - 3\sin\alpha\cos\alpha(\sin\alpha + \cos\alpha) = \frac{-1}{3} \times \frac{1}{\sqrt{3}} - 3\left(\frac{-1}{3}\right)\left(-\frac{1}{\sqrt{3}}\right)$ (۴)

$= -\frac{4}{3\sqrt{3}} \to \frac{1}{\sin^3\alpha + \cos^3\alpha} = \frac{1}{-\frac{4}{3\sqrt{3}}} = \boxed{\frac{-3\sqrt{3}}{4}}$

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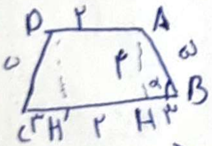

$\cos\alpha = \frac{BH}{AB} = \frac{6}{10} \to BH = 3$ $\quad AH^2 + BH^2 = AB^2 \Rightarrow$

$AH^2 + 9 = 25 \to AH = 4$

$A\hat{B}H \cong D\hat{C}H' \to$ ز $\begin{cases} AB = DC \\ \hat{H}_1 = \hat{H}'_1 = 90 \\ \hat{C} = \hat{B} = \alpha \end{cases} \Rightarrow CH' = BH = 3$

$S_{\text{کل}} = S_{\text{مستطیل}} + 2S_{\text{مثلث}} =$ (۴)

$2 \times 4 + \frac{3 \times 4}{2} \times 2 = \boxed{20}$

۵

$\tan(285^\circ)\tan(-165^\circ) - \sin(735^\circ)\cos(255^\circ) =$

$\underbrace{\tan\left(\frac{3\pi}{2} + 15^\circ\right)}_{-\cot 15^\circ} \times \underbrace{\tan(15^\circ - \pi)}_{\tan 15^\circ} - \underbrace{\sin(4\pi + 15^\circ)}_{\sin 15^\circ} \times \underbrace{\cos\left(\frac{3\pi}{2} - 15^\circ\right)}_{-\sin 15^\circ} =$ (۴)

$-1 + \sin^2 15^\circ = -(1 - \sin^2 15^\circ) = -\cos^2 15^\circ \to k\cos^2 15^\circ = -\cos^2 15^\circ \Rightarrow$

$\boxed{k = -1}$

$A = \sqrt{3}\cos(210^\circ)\underbrace{\sin(243^\circ)}_{-\cos(27^\circ)} - \sqrt{2}\sin(135^\circ)\underbrace{\cos(153^\circ)}_{-\cos(27^\circ)} = \sqrt{3}\left(-\frac{\sqrt{3}}{2}\right)\left(-\cos(27^\circ)\right) -$ ۶

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

$\dfrac{\frac{5}{2}\cos(27^\circ)}{\cos(27^\circ)} = \boxed{\frac{5}{2}}$

$f(x) = 16\cos^2(\pi x)\cos^2(3\pi x)\cos^2(4\pi x)\cos^2(8\pi x) = 16\cos^2\left(\frac{\pi}{12}\right)\cos^2\left(\frac{\pi}{4}\right)\cos^2\left(\frac{\pi}{3}\right)\times$

$\cos^2\left(\frac{2\pi}{3}\right) = \cancel{16}\cos^2\left(\frac{\pi}{12}\right)\times\frac{3}{4}\times\cancel{\frac{1}{4}}\times\cancel{\frac{1}{4}} = \frac{3}{4}\times\cos^2\left(\frac{\pi}{12}\right)$ ۷

$\cos^2\left(\frac{\pi}{12}\right) = \dfrac{1+\cos\frac{\pi}{6}}{2} = \dfrac{1+\frac{\sqrt{3}}{2}}{2} = \dfrac{2+\sqrt{3}}{4} \qquad \dfrac{2+\sqrt{3}}{4}\times\dfrac{3}{4} = \boxed{\dfrac{6+3\sqrt{3}}{16}}$

$\dfrac{1-\sin\alpha}{1+\sin\alpha} = 4 \Rightarrow 1-\sin\alpha = 4+4\sin\alpha \Rightarrow \sin\alpha = -\frac{3}{5} \to \cos^2\alpha = 1-\sin^2\alpha = \frac{16}{25}$

$\cos\alpha = \frac{-4}{5} \Rightarrow$ ربع سوم $\to \tan\frac{\alpha}{2} = \dfrac{\sin\alpha}{1+\cos\alpha} = \dfrac{\frac{-3}{5}}{1-\frac{4}{5}} = \boxed{-3}$ ۸

$\dfrac{\sin\alpha}{1-\cos\alpha} + \dfrac{1+\cos\alpha}{\sin\alpha} \longrightarrow \dfrac{\sin\alpha}{1-\cos\alpha} = \dfrac{2\cos\frac{\alpha}{2}\sin\frac{\alpha}{2}}{2\sin^2\frac{\alpha}{2}} = \dfrac{\cos\frac{\alpha}{2}}{\sin\frac{\alpha}{2}} = \cot\frac{\alpha}{2}$

$\dfrac{\sin\alpha}{1-\cos\alpha}\times\dfrac{1+\cos\alpha}{1+\cos\alpha} = \dfrac{\sin\alpha(1+\cos\alpha)}{1-\cos^2\alpha} = \dfrac{\sin\alpha(1+\cos\alpha)}{\sin^2\alpha} = \dfrac{1+\cos\alpha}{\sin\alpha} \Rightarrow$ ۹

$\dfrac{1+\cos\alpha}{\sin\alpha} = \cot\frac{\alpha}{2}$ حاصل عبارت $= \cot\frac{\alpha}{2} + \cot\frac{\alpha}{2} = 2\cot\frac{\alpha}{2} = k\cot\frac{\alpha}{2}$ عبارت دوم $\boxed{k=2}$

$\sin\alpha = \frac{\sqrt{2}}{10} \to \cos^2\alpha = 1-\sin^2\alpha \Rightarrow \cos\alpha = \pm\frac{7\sqrt{2}}{10} \to$ ربع دوم $-\frac{7\sqrt{2}}{10}$

$\cos\left(\frac{11\pi}{4}+\alpha\right) = \underbrace{\left(\cos\left(\frac{11\pi}{4}\right)\right)}_{\cos\left(\frac{3\pi}{4}\right)}(\cos(\alpha)) - \underbrace{\left(\sin\left(\frac{11\pi}{4}\right)\right)}_{\sin\left(\frac{3\pi}{4}\right)}(\sin(\alpha)) =$ ۱۰

$\left(-\frac{\sqrt{2}}{2}\right)\left(\frac{-7\sqrt{2}}{10}\right) - \left(\frac{\sqrt{2}}{2}\right)\left(\frac{\sqrt{2}}{10}\right) = \frac{14}{20} - \frac{2}{20} = \frac{12}{20} = \boxed{\frac{6}{10} = \frac{3}{5}}$