نام و نام خانوادگی ....امیرحسین مرعشی.... پاسخنامه تشریحی تکلیف شماره ..۲۸... کلاس ....یازدهم.........

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

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

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

$\frac{\cos\alpha}{\sin\alpha} = \frac{\cos\alpha}{|\sin\alpha|} \Rightarrow \boxed{\sin\alpha>0}$

$\Rightarrow$ انتهای کمان α در ناحیه‌ی اول مثلثاتی قرار دارد.

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

$-\frac{1}{2}<\frac{m-1}{4}\le 1 \rightarrow -2<m-1\le 4 \longrightarrow \boxed{-1<m\le 5}$

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$\tan+\cot=-3 \longrightarrow \frac{1}{\sin\alpha\cos\alpha}=-3 \Rightarrow \sin\alpha\cos\alpha=-\frac{1}{3}$

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

$\longrightarrow |\sin+\cos|=\frac{1}{\sqrt{3}}$

$\frac{\sin}{\cos}+\frac{\cos}{\sin}=\frac{\sin^2+\cos^2}{\sin\cos}$

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

$\frac{1}{\sin^3+\cos^3}=\frac{1}{(\underbrace{\sin+\cos}_{-\frac{1}{\sqrt{3}}})(\underbrace{\sin^2+\cos^2}_{1}\underbrace{-\sin\cos}_{+\frac{1}{3}})}=\frac{1}{(-\frac{1}{\sqrt{3}})\times(\frac{4}{3})}=\boxed{-\frac{3\sqrt{3}}{4}}$ پاسخ

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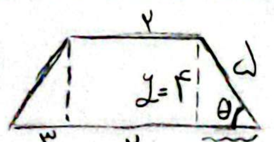

$\longrightarrow S=\frac{(2+8)(\cancel{4}^{2})}{\cancel{2}_{1}}=20$

$\cos\theta=\frac{x}{5}=\frac{6}{10}\rightarrow x=3$

$\sin\theta=\frac{y}{5}=\frac{8}{10}\longrightarrow\boxed{y=4}$

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$\tan(285^\circ)\tan(-165^\circ)=\tan(\frac{3\pi}{2}+15^\circ)\times\tan(\pi+15^\circ)=-\cot 15^\circ\times+\tan 15^\circ=-1$

$\sin(105^\circ)\times\cos(255^\circ)=\sin 15^\circ\times\cos(\frac{3\pi}{2}-15^\circ)=\sin 15^\circ\times-\sin 15^\circ=-\sin^2 15^\circ$

$\longrightarrow\tan(285^\circ)\times\tan(-165^\circ)-\sin(105^\circ)\cos(255^\circ)=-1+\sin^2 15^\circ=-(1-\sin^2 15^\circ)$

$=-\cos^2 15^\circ\Rightarrow\boxed{k=-1}$

$\sqrt{3}\times(-\frac{\sqrt{3}}{2})\times\sin(\frac{3\pi}{2}-27^\circ)-\sqrt{2}\times(-\frac{\sqrt{2}}{2})\times\cos(\pi-27^\circ)=$ ۶

$$\to \underbrace{-\frac{3}{2}\times -\cos 27^\circ}_{\frac{3}{2}\cos 27^\circ}-\underbrace{(\frac{2}{2})\times -\cos 27^\circ}_{-(-1\cos 27^\circ)}=\frac{3}{2}\cos 27^\circ+\cos 27^\circ=\frac{5}{2}\cos 27^\circ$$

$\frac{5}{2}$ برابر $\cos 27^\circ$ است.

$$f(\frac{\pi}{36})=\cancel{16}\underbrace{\cos^2(\frac{\pi}{12})}_{\frac{2+\sqrt{3}}{\cancel{4}}}\underbrace{\cos^2(\frac{\pi}{6})}_{\frac{3}{\cancel{4}}}\times\underbrace{\cos^2(\frac{\pi}{3})}_{\frac{1}{4}}\times\underbrace{\cos^2(\frac{2\pi}{3})}_{\frac{1}{4}}=\frac{3(2+\sqrt{3})}{16}=\boxed{\frac{6+3\sqrt{3}}{16}}$$ ۷

$$\cos^2\frac{\pi}{12}=\frac{1+\cos\frac{\pi}{6}}{2}=\frac{1+\frac{\sqrt{3}}{2}}{2}=\frac{2+\sqrt{3}}{4}$$

$\cos x<0$

$\sin x<0$

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

$\to\cos x=-\frac{4}{5}$

$$\sin^2(\frac{x}{2})=\frac{1-\cos x}{2}=\frac{1+\frac{4}{5}}{2}=\frac{9}{10}\to\sin(\frac{x}{2})=-\frac{3}{\sqrt{10}}\Rightarrow\cos(\frac{x}{2})=-\frac{1}{\sqrt{10}}$$ ۸

$$\to\tan(\frac{x}{2})=\frac{\sin(\frac{x}{2})}{\cos(\frac{x}{2})}=\frac{-\frac{3}{\sqrt{10}}}{-\frac{1}{\sqrt{10}}}=\boxed{3}$$

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

$$\to\frac{\cancel{2}\sin\theta}{\cancel{2}\sin^2(\frac{\theta}{2})}=\frac{\frac{\sin\theta}{\sin\theta}}{\frac{\sin^2(\frac{\theta}{2})}{\sin\theta}}=\frac{1}{\frac{\sin^2(\frac{\theta}{2})}{\sin(\theta)}}=\frac{2}{\frac{\sin^{\cancel{2}}(\frac{\theta}{2})}{\cancel{\sin(\frac{\theta}{2})}\cos(\frac{\theta}{2})}}=\frac{2\cos(\frac{\theta}{2})}{\sin(\frac{\theta}{2})}=2\cot(\frac{\theta}{2})$$ ۹

$\boxed{k=2}$

$\sin^2(\frac{\theta}{2})=\frac{1-\cos\theta}{2}\to 1-\cos\theta=2\sin^2(\frac{\theta}{2})$ | $\sin\theta$

$\cos\alpha<0$

$\sin\alpha>0\to\sin\alpha=\frac{\sqrt{2}}{10}\Rightarrow\cos\alpha=-\frac{\sqrt{98}}{10}=-\frac{7\sqrt{2}}{10}$

$$\cos(\frac{11\pi}{4}+\alpha)=\cos(\frac{3\pi}{4}+\alpha)=\underbrace{\cos(\frac{3\pi}{4})}_{-\frac{\sqrt{2}}{2}}\cos\alpha-\underbrace{\sin(\frac{3\pi}{4})}_{\frac{\sqrt{2}}{2}}\sin\alpha=-\frac{\sqrt{2}}{2}\times-\frac{7\sqrt{2}}{10}-\frac{\sqrt{2}}{2}\times\frac{\sqrt{2}}{10}$$ ۱۰

$\frac{3\pi}{4}-\frac{\pi}{4}=\pi-\frac{\pi}{4}=\frac{3\pi}{4}$

حذف 2π

$\frac{7}{10}-\frac{1}{10}=\boxed{\frac{6}{10}}\to$ پاسخ