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پیک پنجم

$$\frac{1}{|\cos\alpha|}-\frac{\sin\alpha}{\cos\alpha}=\frac{1}{|\cos\alpha|}-\frac{\sin\alpha}{|\cos\alpha|}\rightarrow\frac{\sin\alpha}{\cos\alpha}=\frac{\sin\alpha}{|\cos\alpha|}$$ (۱)

$\cos\alpha>0$

$$\frac{\cos\alpha}{\sin\alpha}=\frac{\cos\alpha}{|\sin\alpha|}\rightarrow\sin\alpha>0\Rightarrow$$ ربع اول

$$-\frac{\pi}{4}<2x<\frac{5\pi}{4}\rightarrow-\frac{1}{2}<\frac{m-1}{4}\leq 1\rightarrow -1<m\leq 5$$ (۲)

$$\frac{3\pi}{4}<x<\pi \quad \frac{1}{\sin x\cos x}=-2$$

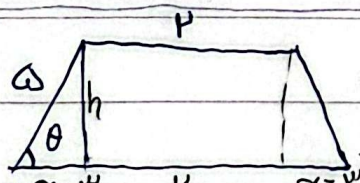
$$(\sin x+\cos x)^2=\sin^2x+\cos^2x+2\sin x\cos x$$ (۳)

$$\rightarrow 1-\frac{2}{3}=\frac{1}{3}\rightarrow \sin x+\cos x=\pm\sqrt{\frac{1}{3}}$$

$$\Rightarrow \sin x+\cos x=-\frac{\sqrt{3}}{3}$$

$$\sin^3x+\cos^3x=(\sin x+\cos x)(\sin^2x+\cos^2x-\sin x\cos x)$$

$$=\left(-\frac{\sqrt{3}}{3}\right)\left(1+\frac{1}{3}\right)=-\frac{4\sqrt{3}}{9}$$



$$\cos\theta=\frac{x}{5}=\frac{4}{10}\rightarrow x=3\rightarrow h=\sqrt{25-x^2}=4$$ (۴)

$$S_{\square}=\frac{(3+8)\times 4}{2}=20$$

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

$$(-\cot\theta)(\tan\theta)-(\sin\theta)(-\sin\theta)=-1+\sin^2\theta=-\cos^2\theta$$ (۵)

$K=-1$

$$-\frac{3}{2}\left(\sin\left(\frac{3\pi}{2}-2\nu\right)-\cos(\pi-2\nu)\right)+\frac{3}{2}\cos 2\nu+\cos 2\nu=$$ (۶)

$$\frac{\cos 2\nu\left(\frac{3+2}{2}\right)}{\cos 2\nu}=\frac{5}{2}=2/5$$

Senobar

$\frac{1+\cos\frac{\pi}{4}}{2}$

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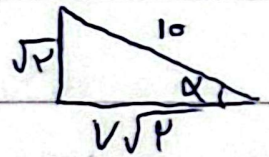
$$16\cos^2\left(\frac{\pi}{12}\right)\cos^2\left(\frac{\pi}{4}\right)\cos^2\left(\frac{\pi}{3}\right)\cos^2\left(\frac{2\pi}{3}\right) = \frac{3}{4}\times\frac{2+\sqrt{3}}{2} = \boxed{\frac{4+3\sqrt{3}}{16}} \quad (7)$$

$$1-\sin x = 2+2\sin x \rightarrow 3\sin x = -3 \rightarrow \sin x = -\frac{3}{5} \rightarrow \cos = -\frac{4}{5} \quad (8)$$

$$\tan\frac{x}{3} = \frac{\sin x}{1+\cos x} = \frac{-\frac{3}{5}}{1+\left(-\frac{4}{5}\right)} = \boxed{-3}$$

$$\frac{1}{\tan\frac{\theta}{2}} + \frac{1}{\tan\frac{\theta}{2}} = 2\cot\frac{\theta}{2} \rightarrow \boxed{K=2} \quad (9)$$



$$\cos\left(\frac{3\pi}{4}+\alpha\right) = \cos\frac{3\pi}{4}\cos\alpha - \sin\frac{3\pi}{4}\sin\alpha = \quad (10)$$

$$\left(-\frac{\sqrt{2}}{2}\right)\left(-\frac{7\sqrt{2}}{10}\right) - \left(\frac{\sqrt{2}}{2}\right)\left(\frac{\sqrt{2}}{10}\right) = \frac{7}{10} - \frac{1}{10} = \boxed{0.6}$$