نام و نام خانوادگی .امیرعلی تنهایی راد............ پاسخنامه تشریحی تکلیف شماره ...۱۵... کلاس دوازدهم تجربی B..........

$B: x=0 \longrightarrow y=\tan\left(\frac{\pi}{4}\right)=1 \Longrightarrow B\begin{vmatrix}0\\1\end{vmatrix}$ $\cos\left(\frac{\pi}{4}-2x\right)=0 \longrightarrow \frac{\pi}{4}-2x=\frac{\pi}{2} \longrightarrow 2x=-\frac{\pi}{4} \longrightarrow x=-\frac{\pi}{8}$ مجانب های قائم تابع $\frac{\pi}{4}-2x=-\frac{\pi}{2} \longrightarrow 2x=\frac{3\pi}{4} \longrightarrow x=\frac{3\pi}{8} \Longrightarrow AC=\frac{\pi}{2} \quad h=1$ $S_{ABC}=\frac{1}{2}\times 1\times\frac{\pi}{2}=\frac{\pi}{4}$	۱
$\Delta=\sin^2\alpha-4(1)\left(-\frac{1}{4}\cos^2\alpha\right)=\sin^2\alpha+\cos^2\alpha=1$ $x_1,x_2=\frac{\sin\alpha\pm 1}{2} \quad \frac{\sin\alpha+1}{2}=\frac{2}{3} \longrightarrow 3\sin\alpha+3=4 \longrightarrow \sin\alpha=\frac{1}{3}$ ✓ $\frac{\sin\alpha-1}{2}=\frac{2}{3} \longrightarrow 3\sin\alpha-3=4 \longrightarrow \sin\alpha=\frac{7}{3}$ ✗ $\sin^2\alpha+\cos^2\alpha=1 \longrightarrow \frac{1}{9}+\cos^2\alpha=\frac{9}{9} \longrightarrow \cos^2\alpha=\frac{8}{9} \quad 1+\tan^2\alpha=\frac{1}{\cos^2\alpha}=\frac{9}{8}$	۲
$\sin\alpha>0 \quad -\cos\alpha>0 \longrightarrow \cos\alpha<0$ $\log\frac{\sin\alpha}{-\cos\alpha}=\log 3 \longrightarrow \frac{\sin\alpha}{-\cos\alpha}=3 \longrightarrow \sin\alpha=-3\cos\alpha \quad \sin^2\alpha+\cos^2\alpha=1 \longrightarrow$ $9\cos^2\alpha+\cos^2\alpha=1 \longrightarrow 10\cos^2\alpha=1 \longrightarrow \cos^2\alpha=\frac{1}{10} \longrightarrow \cos\alpha=\pm\frac{1}{\sqrt{10}} \xrightarrow{\cos\alpha<0} \cos\alpha=\frac{-1}{\sqrt{10}}$ $\sin^2\alpha=\frac{9}{10} \longrightarrow \sin\alpha=\pm\frac{3}{\sqrt{10}} \xrightarrow{\sin\alpha>0} \sin\alpha=\frac{3}{\sqrt{10}} \quad \sin\alpha-\cos\alpha=\frac{4}{\sqrt{10}}\times\frac{\sqrt{10}}{\sqrt{10}}=\frac{4\sqrt{10}}{10}=\frac{2\sqrt{10}}{5}$	۳
$\sin^4\theta+\cos^2\theta=\frac{4}{5}$ $\cos^4\theta+\sin^2\theta=a$ $\sin^4\theta-\cos^4\theta+\cos^2\theta-\sin^2\theta=\frac{4}{5}-a \longrightarrow (\sin^2\theta-\cos^2\theta)\cancelto{1}{(\sin^2\theta+\cos^2\theta)}+\cos^2\theta-\sin^2\theta=\frac{4}{5}-a$ $\sin^2\theta-\cos^2\theta+\cos^2\theta-\sin^2\theta=\frac{4}{5}-a=0 \longrightarrow a=\frac{4}{5}$	۴
$\frac{\sin x(3+\cos x)}{2(1-\cos^2 x)}=\frac{\sin x\overbrace{(3+\cos x)}^{+}}{\underbrace{2\sin^2 x}_{+}}<0 \longrightarrow \sin x<0 \ \mathrm{I}$ $\frac{\sin^2 x-1}{\cos x}>0 \xrightarrow{\sin^2 x-1<0} \cos x<0 \ \mathrm{II} \qquad \mathrm{I}, \mathrm{II} \Longrightarrow$ ناحیه سوم $0\leq\sin^2 x\leq 1 \longrightarrow -1\leq\sin^2 x-1\leq 0$	

$$\frac{2\cos x+3\sin x}{\sin x\cos x}=0 \Rightarrow 2\cos x+3\sin x=0 \longrightarrow 2\cos x=-3\sin x \longrightarrow \frac{\sin x}{\cos x}=\frac{-2}{3}=\tan x$$ 6

$$\cot x=\frac{-3}{2} \qquad \tan x+\cot x=\frac{-2}{3}+\frac{-3}{2}=\frac{-4-9}{6}=\frac{-13}{6}$$

$$1+\sin 50^\circ=1+\cos 40^\circ$$

$$\cos^2\alpha=\frac{1+\cos 2\alpha}{2} \longrightarrow \cos^2 20=\frac{1+\cos 40}{2} \to 1+\cos 40^\circ=2\cos^2 20^\circ \qquad \frac{\cos 20\sqrt{2}}{\sin(30+20)+\sin(30-20)}=$$ 7

$$\frac{\cos 20\cdot\sqrt{2}}{\sin 30\cos 20+\cancel{\cos 30\sin 20}+\sin 30\cos 20-\cancel{\cos 30\sin 20}}=\frac{\cos 20\sqrt{2}}{2\sin 30\cdot\cos 20}=\frac{\sqrt{2}}{2\times\frac{1}{2}}=\sqrt{2}$$

$$\boxed{\cos 2\alpha=\frac{1-\tan^2\alpha}{1+\tan^2\alpha}}$$

$$(\cos 10)(\cos 20)(\cos 40)\xrightarrow{\times\frac{2\sin 10}{2\sin 10}}\frac{2\sin 10\cos 10\cdot\cos 20\cdot\cos 40}{2\sin 10}=$$

$$\frac{\sin 20\cdot\cos 20\cdot\cos 40}{2\sin 10}=\frac{\frac{1}{2}\sin 40\cdot\cos 40}{2\sin 10}=\frac{\frac{1}{2}\times\frac{1}{2}\sin 80}{2\sin 10}=\frac{\frac{1}{4}\cos 10}{2\sin 10}=\frac{1}{8}\cot 10^\circ$$ 8

$$\sin\alpha=2-3\cos\alpha$$

$$\sin^2\alpha+\cos^2\alpha=1\longrightarrow 4+9\cos^2\alpha-12\cos\alpha+\cos^2\alpha=1\longrightarrow 10\cos^2\alpha-12\cos\alpha+4=1\Rightarrow A=10\cos^2\alpha-12\cos\alpha+3=0$$

$$5(\cos^2\alpha-\sin^2\alpha)-12\cos\alpha=5\cos^2-5(9\cos^2\alpha-12\cos\alpha+4)-12\cos\alpha=5\cos^2\alpha-45\cos^2\alpha+60\cos-20-12\cos\alpha$$ 9

$$\left.\begin{aligned}&=-40\cos^2\alpha+48\cos\alpha-20=t\\&-4A=-40\cos^2\alpha+48\cos\alpha-12\end{aligned}\right\}\Rightarrow t=-4A-8\xrightarrow{A=0}t=-8$$

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