نام و نام خانوادگی ......صبا امیری...... پاسخنامه تشریحی تکلیف شماره ......۱۵...... کلاس ......دوازدهم تجربی......

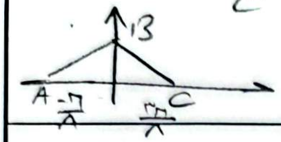
۱

$y=\tan(-2x+\frac{\pi}{4}) \longrightarrow B \Rightarrow x=0 \longrightarrow \tan(\frac{\pi}{4})=1 \longrightarrow B=(0,1)$

$\hookrightarrow A, C \longrightarrow \tan(-2x+\frac{\pi}{4}) \Rightarrow$ ت.ن

$\tan(-2x+\frac{\pi}{4})=\tan(\frac{\pi}{2}) \longrightarrow -2x=\frac{\pi}{2}-\frac{\pi}{4} \longrightarrow x=\frac{-\pi}{8}$ / $\tan(-2x+\frac{\pi}{4})=\tan(-\frac{\pi}{2})$

$\hookrightarrow -2x=-\frac{\pi}{2}-\frac{\pi}{4} \to x=\frac{3\pi}{8}\ C$



$\frac{1\times(\frac{3\pi}{8}-(-\frac{\pi}{8}))}{2}=\frac{\pi}{4}$ $\quad C-A=T \to \frac{\pi}{2}$

۲

$x^2-(\sin\alpha)x-\frac{1}{4}\cos^2\alpha=0 \xrightarrow[x=\frac{2}{3}]{} \frac{4}{9}-\frac{2}{3}\sin\alpha-\frac{1}{4}(1-\sin^2\alpha)=0$

$\xrightarrow{\times 36} 16-24\sin\alpha-9(1-\sin^2\alpha)=0$

$\sin\alpha=\frac{24\pm\sqrt{576-252}}{18}$ $\nearrow \frac{42}{18}$ غ ق ق $\quad \searrow \frac{6}{18}=\frac{1}{3} \longrightarrow \cos\alpha=\sqrt{1-\sin^2\alpha}=\sqrt{1-\frac{1}{9}}=\frac{\sqrt{8}}{3}$

$1+\tan^2\alpha=\frac{1}{\cos^2\alpha} \longrightarrow \frac{1}{\frac{8}{9}}=\frac{9}{8}$

۳

$\log(\sin\alpha)-\log(-\cos\alpha)=\log 3 \xrightarrow[\cos\alpha<0]{\sin\alpha>0} \log\frac{\sin}{-\cos}=\log 3$

$\sin\alpha=-3\cos\alpha \longrightarrow 9\cos^2\alpha+\cos^2\alpha=1 \longrightarrow \cos^2\alpha=\frac{1}{10} \longrightarrow \cos\alpha=\frac{-\sqrt{10}}{10}$

$\sin\alpha=\frac{3\sqrt{10}}{10}$

$\sin\alpha-\cos\alpha=\frac{3\sqrt{10}}{10}-(\frac{-\sqrt{10}}{10})=\frac{2\sqrt{10}}{5}$

۴

$\sin^4\theta+\cos^2\theta=\frac{4}{5} \longrightarrow \sin^4\theta+1-\sin^2\theta=\sin^2\theta(\sin^2\theta-1)=\frac{-1}{5}$

$\sin^2\theta\cos^2\theta=\frac{1}{5}$

$\cos^4\theta+\sin^2\theta=\cos^4\theta+1-\cos^2\theta=\cos^2\theta(\cos^2\theta-1)+1=-\sin^2\theta\cos^2\theta+1$

$\longrightarrow \frac{-1}{5}+1=\frac{4}{5}$

۵

$\sin x\neq 0$ $\quad$ + دائم

$\frac{3\sin x+\sin x\cos x}{2-2\cos^2 x}<0 \longrightarrow \frac{\sin x(3+\cos x)}{2(\underbrace{1-\cos^2 x}_{\sin^2 x})}=\frac{3+\cos x}{2\sin x}<0$

ناحیه سوم

$\longrightarrow 2\sin x<0$, $\sin x<0$ $\qquad \sin x\tan x-\frac{1}{\cos x}>0 \xrightarrow[\cos x\neq 0]{} -\cos x>0$, $\cos x<0$

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$\frac{2}{\sin x} + \frac{3}{\cos x} = 0 \longrightarrow \frac{2\cos x + 3\sin x}{\sin x \cos x} = 0 \longrightarrow 2\cos x + 3\sin x = 0$ $\cos x = \frac{-3}{2}\sin x$ $\sin^2 x + \cos^2 x = 1 \longrightarrow \sin^2 x + \frac{9}{4}\sin^2 x = 1 \longrightarrow \sin^2 x = \frac{4}{13} \longrightarrow \sin x = \pm\frac{2\sqrt{13}}{13}$ $\cos x = \frac{\pm 3\sqrt{13}}{13}$ $\tan x + \cot x = \frac{\sin x}{\cos x} + \frac{\cos x}{\sin x} = \frac{\sin^2 x + \cos^2 x}{\sin x \cos x} = \frac{1}{\sin x \cos x} = \frac{1}{\frac{-2\sqrt{13}}{13} \times \frac{3\sqrt{13}}{13}} = \frac{-13}{6}$ $\sin x \cos x < 0$	۶
$\frac{\sqrt{1+\sin 50}}{\sin 50 + \sin 10} = ?$ $1+\sin 50 \Rightarrow \sin^2 25 + 2\sin 25 \cos 25$ $\longrightarrow (\sin 25 + \cos 25)^2 \xrightarrow{\text{جذر}}$ صورت $= \sin 25 + \cos 25$ $\sin\alpha + \cos\alpha = \sqrt{2}\sin\left(\alpha + \frac{\pi}{4}\right) \longrightarrow \sin 25 + \cos 25 = \sqrt{2}\sin 70 = \sqrt{2}\cos 20$ $\sin 50 + \sin 10 \longrightarrow \sin(30+20) + \sin(30-20) \longrightarrow \sin 30 \cos 20 + \sin 20 \cos 30 + \sin 30 \cos 20 - \sin 20 \cos 30$ $\Rightarrow \cos 20 \quad \frac{\sqrt{2}\cos 20}{\cos 20} = \sqrt{2}$	۷
$\sin^2\alpha = \frac{1-\cos 2\alpha}{2} \longrightarrow \cos 2\alpha = 1 - 2\sin^2\alpha \longrightarrow 1 - \sin^2 5 = \cos 10$ $\cos^2\alpha = \frac{1+\cos 2\alpha}{2} \longrightarrow \cos 2\alpha = 2\cos^2\alpha - 1 \longrightarrow 2\cos^2 10 - 1 = \cos 20$ $\cos 2\alpha = \frac{1-\tan^2\alpha}{1+\tan^2\alpha} \longrightarrow \frac{1-\tan^2 20}{1+\tan^2 20} = \cos 40$ $(1 - 2\sin^2 5)(2\cos^2 10 - 1)\left(\frac{1-\tan^2 20}{1+\tan^2 20}\right)$ $\rightarrow \frac{\sin 10}{\sin 10} \times \cos 10 \times \cos 20 \times \cos 40 = \frac{1}{8}\frac{\sin 80}{\sin 10}$ $\longrightarrow \frac{1}{8}\frac{\sin(\frac{\pi}{2} - 10)}{\sin 10} \longrightarrow \frac{1}{8} \times \frac{\cos 10}{\sin 10} = \frac{1}{8}\cot 10$	۸
$\cos 2\alpha = 2\cos^2\alpha - 1 \longrightarrow 5\cos 2\alpha - 12\cos\alpha = 10\cos^2\alpha - 12\cos\alpha - 5$ $\sin\alpha + 3\cos\alpha = 2 \longrightarrow \sin\alpha = 2 - 3\cos\alpha \longrightarrow \sin^2\alpha + \cos^2\alpha = 1$ $(2 - 3\cos\alpha)^2 + \cos^2\alpha = 9\cos^2\alpha + 4 - 12\cos\alpha + \cos^2\alpha = 10\cos^2\alpha - 12\cos\alpha + 4 = 1$ $10\cos^2\alpha - 12\cos\alpha = -3$ $10\cos^2\alpha - 12\cos\alpha - 5 = -3 - 5 = -8$	۹
$\cos^2\frac{A}{2} = \frac{1+\cos A}{2} \quad \cos A = \cos(\pi - (B+C)) = -\cos(B+C)$ $\longrightarrow 1 - \cos(B+C) = 2\sin B \sin C \;/\; 1 - (\cos B \cos C - \sin B \sin C) = 2\sin B \sin C$ $1 - \cos B \cos C + \sin B \sin C = 2\sin B \sin C \quad 1 - (\cos B \cos C + \sin B \sin C) = 0$ $1 - \cos B - C = 0 \longrightarrow \cos B - C = 1 \longrightarrow B - C = 0 \rightarrow B = C = 72^\circ$	۱۰

$\hat{A} = 180 - 144 = 36^\circ$