نام و نام خانوادگی ...بشارت دهقان ... پاسخنامه تشریحی تکلیف شماره ۱ ... کلاس ...دهم تجربی A...

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

$\tan(-2x + \frac{\pi}{4}) = \frac{\sin(-2x + \frac{\pi}{4})}{\cos(-2x + \frac{\pi}{4})} \rightarrow \cos(-2x + \frac{\pi}{4}) = 0 \Rightarrow$

$-2x + \frac{\pi}{4} = \frac{\pi}{2} \Rightarrow x = -\frac{\pi}{8} \rightarrow A$

$-2x + \frac{\pi}{4} = -\frac{\pi}{2} \Rightarrow x = \frac{3\pi}{8} \rightarrow C$

$\overline{AC} = \frac{\pi}{2} \Rightarrow S_{ABC} = \frac{\pi}{2} \times 1 \times \frac{1}{2} = \boxed{\frac{\pi}{4}}$

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$x^2 - (\sin\alpha)x - \frac{1}{4}\cos^2\alpha = 0 \xrightarrow{x = \frac{2}{3}} \frac{4}{9} - \frac{2}{3}\sin\alpha - \frac{1}{4}\cos^2\alpha = 0 \xrightarrow[\text{کل عبارت} \times 36]{\cos^2\alpha = 1 - \sin^2\alpha} 9\sin^2\alpha - 24\sin\alpha + 7 = 0$

$\Rightarrow \begin{cases} \sin\alpha = \frac{7}{3} \rightarrow \text{غ ق ق} \\ \sin\alpha = \frac{1}{3} \end{cases} \longrightarrow$

$\Rightarrow \cos\alpha = \frac{\sqrt{8}}{3}$ / $\tan^2\alpha + 1 = \frac{1}{\cos^2\alpha} = \frac{1}{\frac{8}{9}} = \boxed{\frac{9}{8}}$

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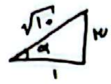
$\underbrace{\log \sin\alpha}_{\sin\alpha > 0} - \underbrace{\log(-\cos\alpha)}_{-\cos\alpha > 0 \Rightarrow \cos\alpha < 0} = \log 3 \Rightarrow \log(-\tan\alpha) = \log 3 \Rightarrow \tan\alpha = -3$



$\Rightarrow \sin\alpha = \frac{3}{\sqrt{10}} = \frac{3\sqrt{10}}{10}, \quad \cos\alpha = -\frac{\sqrt{10}}{10}$ / $\sin\alpha - \cos\alpha = \frac{3\sqrt{10}}{10} + \frac{\sqrt{10}}{10} = \frac{4\sqrt{10}}{10} = \boxed{\frac{2\sqrt{10}}{5}}$

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$\sin^4\theta + \cos^2\theta - \frac{4}{5} = 0 \xrightarrow{\cos^2\theta = 1 - \sin^2\theta} \sin^4\theta - \sin^2\theta + \frac{1}{5} = 0 \Rightarrow \begin{cases} \sin^2\theta = \frac{5+\sqrt{5}}{10} \Rightarrow \cos^2\theta = \frac{5-\sqrt{5}}{10} \\ \sin^2\theta = \frac{5-\sqrt{5}}{10} \Rightarrow \cos^2\theta = \frac{5+\sqrt{5}}{10} \end{cases}$

$\begin{cases} \cos^4\theta + \sin^2\theta = \frac{25 + 5 - 10\sqrt{5}}{100} + \frac{5+\sqrt{5}}{10} = 0/8 \\ \cos^4\theta + \sin^2\theta = \frac{25 + 5 + 10\sqrt{5}}{100} + \frac{5-\sqrt{5}}{10} = 0/8 \end{cases} \Rightarrow \cos^4\theta + \sin^2\theta = \boxed{0/8}$

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$\frac{3\sin\alpha + \sin\alpha\cos\alpha}{2 - 2\cos^2\alpha} < 0 \rightarrow \frac{\sin\alpha \overbrace{(3 + \cos\alpha)}^{\text{همواره } (+)}}{\underbrace{2(1 - \cos^2\alpha)}_{\sin^2\alpha}} < 0 \Rightarrow \sin\alpha < 0 \quad (1)$

مخرج همواره مثبت

$\sin\alpha\tan\alpha - \frac{1}{\cos\alpha} > 0 \Rightarrow -\cos\alpha > 0 \Rightarrow \cos\alpha < 0 \quad (2)$

$\underline{(1), (2)} \Rightarrow$ ناحیه سوم

$\frac{۲}{\sin\alpha} = \frac{-۳}{\cos\alpha} \Rightarrow ۲\cos\alpha = -۳\sin\alpha \Rightarrow \cos\alpha = -\frac{۳}{۲}\sin\alpha$ (۴)

$\sin^۲\alpha + \cos^۲\alpha = ۱ \xrightarrow{(۴)} \frac{۱۳}{۴}\sin^۲\alpha = ۱ \Rightarrow \sin^۲\alpha = \frac{۴}{۱۳}$, $\cos^۲\alpha = \frac{۹}{۱۳} \Rightarrow \sin\alpha = \frac{۲}{\sqrt{۱۳}}$ ۶

$\cos\alpha = \frac{-۳}{\sqrt{۱۳}}$

$\tan\alpha + \cot\alpha = \frac{۱}{\sin\alpha\cos\alpha} = \frac{۱}{\frac{۲}{\sqrt{۱۳}} \times \frac{-۳}{\sqrt{۱۳}}} = \frac{۱۳}{-۶}$

$\frac{\sqrt{۱+\sin\alpha.}}{\sin\alpha. + \sin۱.} = \frac{\sqrt{(\sin۲\alpha + \cos۲\alpha)^۲}}{\sin\alpha. + \sin۱.} = \frac{|\sin۲\alpha + \cos۲\alpha|}{\sin\alpha. + \sin۱.} = \frac{\sqrt{۲}\cos۲.}{\cos۲.} = \sqrt{۲}$

$-\sin\alpha. = \sin(۳. + ۲.) = \sin۳.\cos۲. + \cos۳.\sin۲.$

$-\sin۱. = \sin(۳. - ۲.) = \sin۳.\cos۲. - \cos۳.\sin۲.$ ۷

$\Rightarrow \sin\alpha. + \sin۱. = ۲\sin۳.\cos۲. = \cos۲.$ ($\sin۳. = \frac{۱}{۲}$)

$-\sin۲\theta + \cos۲\theta = \sqrt{۲}\sin(۲\theta + ۴۵) = \sqrt{۲}\sin۷. = \sqrt{۲}\cos۲.$

$(۱-۲\sin^۲\alpha)(۲\cos^۲۱.)\left(\frac{۱+\tan^۲۲.}{۱+\tan^۲۲.}\right) \times \frac{\sin۱.}{\sin۱.}$ ($\cos۱.$, $\cos۲.$, $\cos۴.$)

$= \frac{۱}{۲}\sin۲.\cos۲.\cos۴. = \frac{۱}{۸}\sin۸.$ ($\frac{۱}{۲}\sin۴.$, $\frac{۱}{۲}\sin۸.$) ۸

$\Rightarrow \frac{\sin۸.}{۸\sin۱.} = \frac{\cos۱.}{۸\sin۱.} = \frac{۱}{۸}\cot۱.^\circ$

$\sin\alpha + ۳\cos\alpha = ۲ \Rightarrow \sin\alpha = ۲ - ۳\cos\alpha$

$\cos^۲\alpha + \sin^۲\alpha = ۱ \Rightarrow \cos^۲\alpha + ۹\cos^۲\alpha - ۱۲\cos\alpha + ۴ = ۱ \Rightarrow ۱۰\cos^۲\alpha - ۱۲\cos\alpha + ۳ = ۰$

$\Rightarrow \cos\alpha = \frac{۱۲ \pm \sqrt{۴}}{۲۰} = \frac{۳ \pm ۱}{۵}$ ۹

$۱۰\cos^۲\alpha - ۱۲\cos\alpha = -۳$

$۵\cos^۲\alpha - ۱۲\cos\alpha = ۳$

$۱۰\cos^۲\alpha - ۲۴\cos\alpha - ۵ = -۱$ (-۲۴)

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