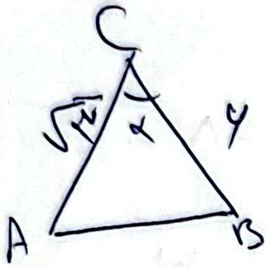
امیرحسین یزدخواستی   یازدهم ریA قدس

①



$S = ۲,۵ \to \frac{1}{\cancel{2}} \times \sqrt{۳} \times \cancel{۶}^{۳} \times \sin\alpha = \cancel{۲,۵}^{۱,۵}$

$\sin\alpha = \frac{\sqrt{۳}}{۲} \to \alpha \begin{cases} \alpha = ۶۰ \\ \alpha = ۱۲۰ \end{cases} \to \frac{۱۲۰}{۶۰} = ②$

جواب

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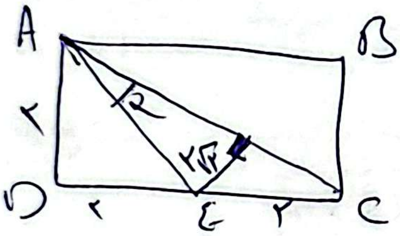
②



$AC = \sqrt{۴^2 + ۲^2} = \sqrt{۲۰} = ۲\sqrt{۵} \to S_{ADE} = S_{AEC}$

$\Rightarrow \frac{۲\sqrt{۵} \times EH}{۲} = \frac{۲ \times ۲}{۲} \to EH = \frac{۲\sqrt{۵}}{۵}$

$\Rightarrow (EH)^2 + (AH)^2 = (AE)^2 \to AH = \frac{۴\sqrt{۵}}{۵}$

$\Rightarrow \cot\alpha = \frac{AH}{EH} = \frac{\frac{۴\sqrt{۵}}{۵}}{\frac{۲\sqrt{۵}}{۵}} = ③$

جواب

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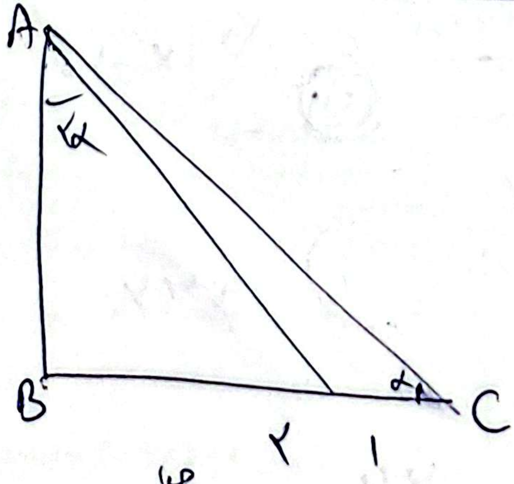
③



$\tan\alpha = \frac{AB}{۳} \to \tan۲\alpha = \frac{۲}{AB}$

$\Rightarrow \tan۲\alpha = \frac{۲\tan\alpha}{1-\tan^2\alpha} \Rightarrow \frac{۲}{AB} = \frac{\frac{۲}{\cancel{۳}}AB}{\frac{AB-\cancel{۹}}{AB}}$

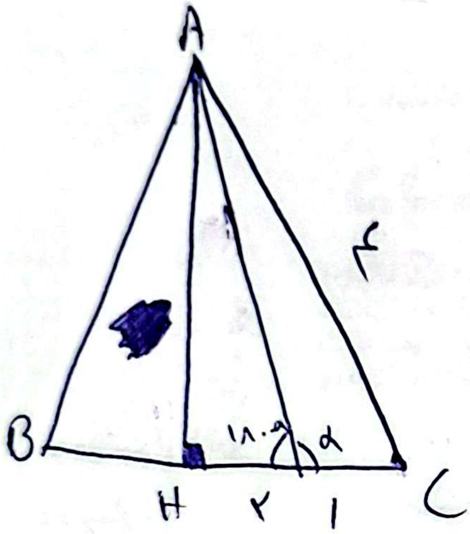
$\Rightarrow \frac{۲AB(AB)}{۳AB-۶} = \frac{۲}{AB}$

جواب

$\cot\alpha = ② \Leftarrow \tan\alpha = \frac{1}{۲} \Leftarrow AB = \frac{۳}{۲} \Leftarrow ۴AB^2 = ۹$ [illegible]

۲ [illegible] یازدهم A تجربی

④



$AH = \sqrt{16 - 9} = \sqrt{7}$

$\Rightarrow \tan\alpha = -\tan(180 - \alpha)$

$\Rightarrow \tan(180 - \alpha) = \frac{\sqrt{7}}{2} \rightarrow \boxed{\tan\alpha = \frac{-\sqrt{7}}{2}}$ ← جواب

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⑤

$2\sin^2\alpha + \cos^2\alpha = \frac{4}{3} \rightarrow \sin^2\alpha + 1 = \frac{4}{3} \rightarrow \sin^2\alpha = \frac{1}{3}$

$\Rightarrow \cos^2\alpha = \frac{2}{3} \Rightarrow \tan^2\alpha = \frac{\frac{1}{3}}{\frac{2}{3}} = \boxed{\frac{1}{2}}$ ← جواب

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⑥

$\frac{\sin^4\alpha + 4\overset{(1-\sin^2\alpha)}{\cancel{\cos^2\alpha}}}{1 + \underset{(1-\sin^2\alpha)}{\cancel{\cos^2\alpha}}} = \frac{\cos^4\alpha + 4(1-\cos^2\alpha)}{1 + 1 - \cos^2\alpha} = \frac{(2 - 2\sin^2\alpha)^2}{2 - \sin^2\alpha} - \frac{(2-\cos^2}{2 - \cos^2\alpha}$

$\Rightarrow 2 - \sin^2\alpha - 2 + \cos^2\alpha = \cos^2\alpha - \sin^2\alpha = \boxed{\cos 2\alpha}$

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⑦

$\sin(\frac{9\pi}{2} + \alpha)\cos(\frac{7\pi}{2} - \alpha) - \tan(\alpha - \frac{3\pi}{2}) = -\sin\alpha\cos\alpha + \cot\alpha$

$\Rightarrow -(-\frac{4}{5})(-\frac{3}{5}) + \frac{3}{4} = \frac{48 + 75}{100} = \frac{123}{100} = \boxed{1{,}23}$ ← جواب

امیرحسین [illegible] یازدهم ریاضی ۸ [illegible]

①

$$۳\cos\left(\frac{\pi}{۳}\right) + \sqrt{۲}\left(-\sin x - \cos x\right) = ۳\cos\frac{\pi}{۳} + \sqrt{۲}\left(\sqrt{۲}\sin\left(\frac{\pi}{۱۲} - \frac{\pi}{۴}\right)\right.$$

$$\Rightarrow \left(۳\times\frac{۱}{۲}\right) + ۲\left(\frac{-۱}{۲}\right) = \frac{۳}{۲} - ۱ = \boxed{\frac{۱}{۲}} \leftarrow \text{جواب}$$

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④

$$\tan ۲\alpha = \frac{۲\tan\alpha}{۱-\tan^۲\alpha} \Rightarrow \tan\alpha = \frac{\frac{۱}{۲}}{\frac{۱۵}{۱۶}} = \frac{۱۶}{۳۰}$$

$$\Rightarrow \tan = \frac{۸}{۱۵} \Rightarrow \begin{cases} \sin\alpha = \frac{۸}{۱۷} \\ \cos\alpha = \frac{۱۵}{۱۷} \end{cases} \Rightarrow \frac{\overset{\frac{۱۶}{۲۵۵}}{\cancel{\frac{۸}{۱۵}\quad\frac{۸}{۱۷}}}}{\underset{\frac{-۷}{۱۷}}{\cancel{\frac{۸}{۱۷}\quad\frac{۵}{۱۷}}}} = \boxed{\frac{-۱۶}{۱۰۵}}$$

۱۵

جواب

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⑩

$$۲\sin\alpha < ۲\sin\alpha\cos\alpha \Rightarrow ۲\sin\alpha - ۲\sin\alpha\cdot\cos\alpha < ۰$$

$$\Rightarrow ۲\sin\alpha(۱-\cos\alpha) < ۰ \Rightarrow \underbrace{۲\sin\alpha}_{\ominus}\underbrace{(\cos\alpha - ۱)}_{\ominus} > ۰$$

$$\Rightarrow \frac{\cot\alpha}{\sin\alpha} = \boxed{\cos\alpha > ۰ \Rightarrow \sin\alpha < ۰} \Rightarrow \underline{۴}\ \underline{\text{ناحیه}}$$