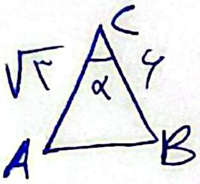
نام و نام خانوادگی ...علی سلامیان... پاسخنامه تشریحی تکلیف شماره ..۲۷.. کلاس ...یازدهم ر ۸...

۱۹,۷۵

۱ (۲)

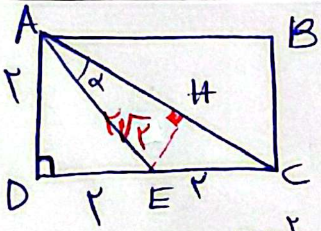


$S=4.5$

$s=\frac12 ab\sin\alpha = 4.5 \to \frac{\cancel{6}^{3}}{\cancel{2}}\times\sqrt3\times\sin\alpha = 4.5 \xrightarrow{1.5} \sin\alpha=\frac{\sqrt3}{2}$

$\Rightarrow \sin\alpha=\frac{\sqrt3}{2}\begin{cases}\theta=60\\ \theta=120\end{cases} \to \frac{120}{60}=2$

۲ (۲)



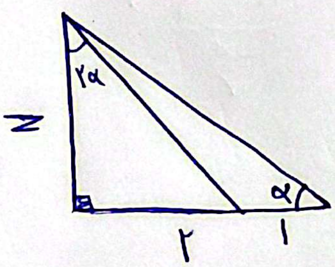
$AC=\sqrt{4^2+2^2}=2\sqrt5$

$\to S_{A\hat{D}E}$ (دو ارتفاع) $= S_{AEC} \to \frac{2\sqrt5\times EH}{\cancel{2}} = \frac{2\times2}{\cancel{2}} \to EH=\frac{2}{\sqrt5}$

$EH^2+AH^2=AE^2 \to \frac45+AH^2=8 \to AH=\frac{6}{\sqrt5} \to \cot\alpha=\frac{AH}{EH}$

$=\frac{\frac{6}{\sqrt5}}{\frac{2}{\sqrt5}}=3$

۳ (۲)



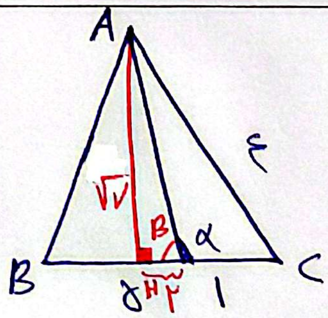
$\tan\alpha=\frac{z}{3}$ و $\tan2\alpha=\frac{2}{z}$

$\to \tan2\alpha=\frac{2\tan\alpha}{1-\tan^2\alpha} \Rightarrow \frac{2}{z}=\frac{\frac{2z}{3}}{1-\frac{z^2}{9}} \to \frac{\cancel{2}^{1}}{z}=\frac{\frac{\cancel{2}z}{\cancel{3}}^{1}}{\frac{9-z^2}{\cancel{9}_{3}}}$

$\to \frac1z=\frac{3z}{9-z^2} \to 3z^2=9-z^2 \to 4z^2=9 \to z=\frac32$

$\to \tan\alpha=\frac12 \to \cot\alpha=2$

۴ (۲)



$AH=\sqrt{16-9}=\sqrt7$

$\tan\alpha=-\tan\beta \Rightarrow \tan\beta=\frac{\sqrt7}{2} \to \tan\alpha=\frac{-\sqrt7}{2}$

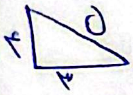
۵ (۲)

$2\sin^2x+\cos^2x=\frac43 \longrightarrow \underbrace{\sin^2x+\cos^2x}_{1}+\sin^2x=\frac43 \to \sin^2x=\frac13 \to \cos^2x=\frac23$

$\Rightarrow \tan^2x=\frac{\sin^2x}{\cos^2x}=\frac{\frac13}{\frac23}=\frac12$

$\sin(\frac{9\pi}{2}+\alpha)\cos(\frac{7\pi}{2}-\alpha)-\tan(\alpha-\frac{3\pi}{2})=\cos\alpha(-\sin\alpha)+\tan(\frac{3\pi}{2}-\alpha)$ ۱,۷۵

$=-\sin\alpha\cos\alpha+\cot\alpha = -(-\frac{4}{5})(-\frac{3}{5})+\frac{3}{4}=\frac{-48+75}{100}=\frac{123}{100}=\cancel{1/23}$ $\boxed{0,27}$ ۷



$\tan x=\frac{4}{3}$

$\sin x=-\frac{4}{5}$

$\cos x=-\frac{3}{5}$

$\frac{\sin^4\alpha+4(1-\sin^2\alpha)}{1+1-\sin^2\alpha}-\frac{\cos^4\alpha+4(1-\cos^2\alpha)}{1+1-\cos^2\alpha}=\frac{\sin^4\alpha-4\sin^2\alpha+4}{2-\sin^2\alpha}-\frac{\cos^4\alpha-4\cos^2\alpha+4}{2-\cos^2\alpha}$ ۲

$=\frac{(2-\sin^2\alpha)^{\cancel{2}}}{\cancel{2-\sin^2\alpha}}-\frac{(2-\cos^2\alpha)^{\cancel{2}}}{\cancel{2-\cos^2\alpha}}=\cancel{2}-\sin^2\alpha\cancel{-2}+\cos^2\alpha=\cos^2\alpha-\sin^2\alpha$ ۶

$=\cos2\alpha$

$3\cos\frac{\pi}{3}+\sqrt{2}(\sin x-\cos x)=3\cos\frac{\pi}{3}+\sqrt{2}\left(\sqrt{2}\sin(\underbrace{\frac{\pi}{12}-\frac{\pi}{4}}_{-\frac{\pi}{6}})\right)$ ۲

$=(3\times\frac{1}{2})+2(-\frac{1}{2})=\frac{3}{2}-1=\frac{1}{2}$ ۸

$\tan2x=\frac{2\tan x}{1-\tan^2x}\xRightarrow{x=\frac{\alpha}{2}}\tan\alpha=\frac{\frac{1}{2}}{\frac{15}{16}}=\frac{8}{15}$ ۲

$\left.\begin{array}{l}\tan\alpha=\frac{8}{15}\\ \sin\alpha=\frac{8}{17}\\ \cos\alpha=\frac{15}{17}\end{array}\right\}\Rightarrow\frac{\frac{8}{15}-\frac{8}{17}}{\frac{8}{17}-\frac{15}{17}}=\frac{\frac{+16}{255}}{\frac{-7}{\cancel{17}}}=\frac{-16}{105}$ ۹

$\cancel{2\sin\alpha}<\cancel{2\sin\alpha\cos\alpha}\Rightarrow2\sin\alpha\cos\alpha-2\sin\alpha>0\to\underbrace{2\sin\alpha}_{\ominus}(\underbrace{\cos\alpha-1}_{\ominus})>0$ ۲

$\frac{\cot\alpha}{\sin\alpha}>0\to\frac{\cos\alpha}{\sin^2\alpha}>0\to\cos\alpha>0\ ,\ \sin\alpha<0$ ۱۰

$\Rightarrow$ ربع ۴