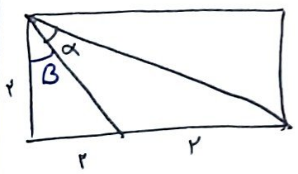
نام و نام خانوادگی ...فراز شیرانی... پاسخنامه تشریحی تکلیف شماره ...۲۷... کلاس یازدهم ر A

۱

$S=\frac{1}{2}ab\sin\alpha \longrightarrow 4.5 = 6\times\sqrt{3}\times\frac{1}{2}\times\sin\alpha \longrightarrow \sin\alpha=\frac{\sqrt{3}}{2}$

$\xrightarrow{\alpha<180^\circ} \alpha=60^\circ$ یا $120^\circ \longrightarrow \frac{\max\alpha}{\min\alpha}=\frac{120^\circ}{60^\circ}=2$

۲



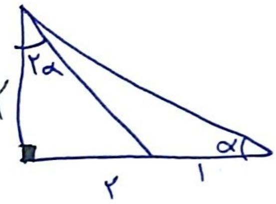
$\cot\alpha=?$

$\tan(\alpha+\beta)=\frac{\tan\alpha+\tan\beta}{1-\tan\alpha\tan\beta} \longrightarrow \tan(\alpha+\beta)=\frac{4}{2}=2$

$\tan(\beta)=\frac{2}{2}=1$

$\longrightarrow 2=\frac{\tan\alpha+1}{1-\tan\alpha} \longrightarrow \tan\alpha=\frac{1}{3} \longrightarrow \cot\alpha=3$

۳

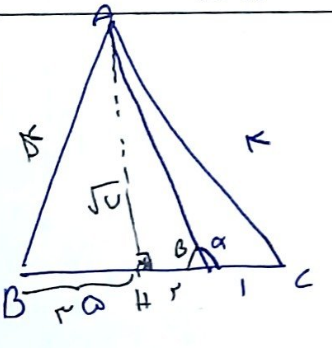


$\tan 2\alpha=\frac{2}{x} \qquad \tan\alpha=\frac{x}{3}$

$\tan 2\alpha=\frac{2\tan\alpha}{1-\tan^2\alpha} \Rightarrow \frac{2}{x}=\frac{\frac{2x}{3}}{1-\frac{x^2}{9}} \Rightarrow \frac{2}{x}=\frac{\frac{2x}{3}}{\frac{9-x^2}{9}}$

$\longrightarrow \frac{2}{x}=\frac{6x}{9-x^2} \Rightarrow 6x^2=18-2x^2 \longrightarrow 8x^2=18 \rightarrow x^2=2.25 \longrightarrow x=1.5 \longrightarrow \cot\alpha=\frac{3}{1.5}=2$

۴



$\alpha+\beta=\pi \longrightarrow \tan\alpha=-\tan\beta$

$AH^2+3^2=4^2 \longrightarrow AH=\sqrt{7}$

$\longrightarrow \tan\beta=\frac{\sqrt{7}}{2} \longrightarrow \tan\alpha=-\frac{\sqrt{7}}{2}$

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$2\sin^2x+\cos^2x=\frac{4}{3} \longrightarrow \sin^2x+1=\frac{4}{3} \longrightarrow \sin^2x=\frac{1}{3} \longrightarrow \cos^2x=\frac{2}{3}$

$\tan^2x=\frac{\sin^2x}{\cos^2x}=\frac{1/3}{2/3}=\frac{1}{2}$

$\dfrac{(\sin^۴-\cos^۴)((\sin^۲+\cos^۲)^۲-\sin^۲\cos^۲-۳)}{۲+\sin^۲\cos^۲}=(\sin^۲-\cos^۲)\dfrac{(-\sin^۲\cos^۲-۲)}{۲+\sin^۲\cos^۲}$, $\cos^۲x-\sin^۲x=\cos ۲x$

$(\sin^۴\alpha+۴\cos^۲\alpha)(۱+\sin^۲\alpha)-(\cos^۴+۴\sin^۲\alpha)(۱+\cos^۲)$, $\sin^۴\alpha+۴\cos^۲\alpha+\sin^۴\alpha\cos^۲\alpha+۴\cos^۲\sin^۲-\cos^۴\alpha-۴\sin^۲\alpha-\cos^۴\alpha-۴\cos^۲\sin^۲$ $(\sin^۲+\cos^۲)(\sin^۲-\cos^۲)+\sin^۲+\cos^۲+\sin^۲\cos^۲$ $\rightarrow\dfrac{\sin^۴-\cos^۴\alpha+۴\cos^۲\alpha-۴\sin^۲\alpha+\sin^۴-\cos^۴\alpha}{۲+\sin^۲\cos^۲}$, $\dfrac{۳\cos^۲-۳\sin^۲+\sin^۴\cos^۲}{۲+\sin^۲\cos^۲}$ $\dfrac{-۳(\sin^۲-\cos^۲)+(\sin^۲-\cos^۲)(\sin^۴+\sin^۲\cos^۲+\cos^۴)}{۲+\sin^۲\cos^۲}\rightarrow\dfrac{(\sin^۲-\cos^۲)(\sin^۴+\cos^۴+\sin^۲\cos^۲-۳)}{۲+\sin^۲\cos^۲}$	۶
$\tan\alpha=\frac{۴}{۳}\rightarrow\sin\alpha=-\frac{۴}{۵}$, $\cos\alpha=-\frac{۳}{۵}$, $\cot\alpha=\frac{۳}{۴}$ $\sin(\frac{۹\pi}{۲}+\alpha)\cos(\frac{۷\pi}{۲}-\alpha)-\tan(\alpha-\frac{۳\pi}{۲})$; $\frac{\pi}{۲}$, $\frac{۳\pi}{۲}$ $\cos\alpha(-\sin\alpha)+\cot\alpha\rightarrow-\sin\alpha\cos\alpha+\cot\alpha\rightarrow-\frac{۴}{۵}\times\frac{۳}{۵}+\frac{۳}{۴}$ $\rightarrow-\frac{۱۲}{۲۵}+\frac{۳}{۴}\rightarrow\frac{-۴۸+۷۵}{۱۰۰}=\frac{۲۷}{۱۰۰}=/۲۷$	۷
$\sin x\pm\cos x=\sqrt{۲}\sin(x\pm\frac{\pi}{۴})\rightarrow\sqrt{۲}\sin x-\sqrt{۲}\cos x=\sqrt{۲}(\sqrt{۲}\sin(x-\frac{\pi}{۴}))$ ۱۵° ، ۴۵° $\rightarrow\sqrt{۲}\sin x-\sqrt{۲}\cos x=۲\sin(\frac{\pi}{۱۲}-\frac{\pi}{۴})=-۲\sin(۳۰^\circ)=-۲(\frac{۱}{۲})=-۱$ $۳\cos ۴x=۳\cos ۴(\frac{\pi}{۱۲})=۳\cos\frac{\pi}{۳}=۳\cos ۶۰^\circ=۳(+\frac{۱}{۲})=+\frac{۳}{۲}$ $\rightarrow ۳\cos ۴x+\sqrt{۲}\sin x-\sqrt{۲}\cos x=+\frac{۳}{۲}-۱=+\frac{۱}{۲}$	۸
$\tan ۲\alpha=\dfrac{۲\tan\alpha}{۱-\tan^۲\alpha}\rightarrow\tan\alpha=\dfrac{۲\tan\frac{\alpha}{۲}}{۱-(\tan\frac{\alpha}{۲})^۲}=\dfrac{۲(\frac{۱}{۴})}{۱-\frac{۱}{۱۶}}$ $=\dfrac{\frac{۱}{۲}}{\frac{۱۵}{۱۶}}=\frac{۸}{۱۵}=\tan\alpha\rightarrow\sin\alpha=\frac{۸}{۱۷}$, $\cos\alpha=\frac{۱۵}{۱۷}$ $\dfrac{\tan\alpha-\sin\alpha}{\sin\alpha-\cos\alpha}=\dfrac{\frac{۸}{۱۵}-\frac{۸}{۱۷}}{\frac{۸}{۱۷}-\frac{۱۵}{۱۷}}=\dfrac{\frac{۱۳۶-۱۲۰}{۱۷\times۱۵}}{\frac{-۷}{۱۷}}=\dfrac{\frac{۱۶}{۱۷\times۱۵}}{\frac{-۷}{۱۷}}=-\dfrac{۱۷\times۱۶}{۱۷\times۷\times۱۵}=\frac{-۱۶}{۱۰۵}$	۹
$۲\sin\alpha<\sin۲\alpha\rightarrow ۲\sin\alpha<۲\sin\alpha\cos\alpha$; $\sin>۰\rightarrow ۱<\cos\alpha$ غ ; $\sin<۰$, $\cos\alpha<۱\rightarrow\sin\alpha<۰$ $۰<\dfrac{\cot\alpha}{\sin\alpha}\rightarrow\dfrac{\frac{\sin\alpha}{\cos\alpha}}{\sin\alpha}\rightarrow ۰<\frac{۱}{\cos\alpha}\rightarrow ۰<\cos\alpha$ $\sin\alpha\rightarrow$ (-) $\cos\alpha\rightarrow$ (+) $\longrightarrow$ ربع چهارم	۱۰

[illegible]