[redacted]

زهرا جیحانی / یازدهم تجربی / کلنفر ۲۷

بسمه تعالی

موسسه مالی و اعتباری ثامن الحجج(ع)

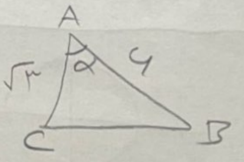
(تحت نظارت بانک مرکزی)

تاریخ :.........................

شماره :.........................

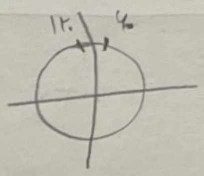
پیوست : ....

۱-



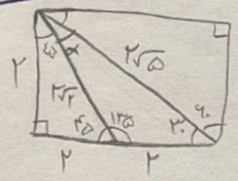
$\cancel{S}\ \cancel{۹}_{۳} = \cancel{\frac{۱}{۲}}\ \overset{۲}{\cancel{۴}}\sqrt{۳} \times \sin\alpha$

$\left.\sin\alpha = \frac{۳}{۲\sqrt{۳}} = \frac{\sqrt{۳}}{۲}\right\}$



$\left.\begin{array}{l}\max\alpha = ۱۲۰ \\ \min\alpha = ۶۰\end{array}\right] \Longrightarrow \max - \min = \boxed{۶۰}$

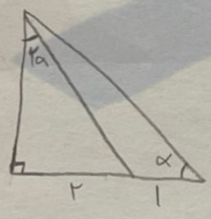
۲-



$\cot\alpha = ?$

$\cot = \frac{\text{مجاور}}{\text{مقابل}} = \frac{۲\sqrt{۲}}{۲} = \boxed{\sqrt{۲}}$

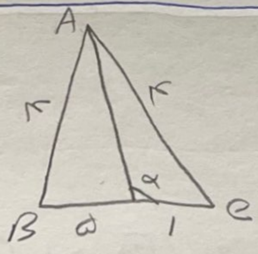
۳-



$\cot\alpha = ?$

$\boxed{\times}$

۴-



$\tan\alpha = ?$

$\boxed{\times}$

۵-

$۲\sin^۲ + \cos^۲ = \frac{۴}{۳} \to \sin^۲ + ۱ = \frac{۴}{۳} \to \sin^۲ = \frac{۱}{۳} \to \cos^۲ = \frac{۲}{۳}$

$\tan^۲\alpha = \frac{\sin^۲\alpha}{\cos^۲\alpha} = \frac{\frac{۱}{\cancel{۳}}}{\frac{۲}{\cancel{۳}}} = \boxed{\frac{۱}{۲}}$

-۶

$$\frac{\sin^{۴} + ۴\cos^{۲}}{۱+\cos^{۲}} - \frac{\cos^{۴} + ۴\sin^{۲}}{۱+\sin^{۲}}$$

X

$\sin^{۲} = \alpha$

$\cos^{۲} = \beta$

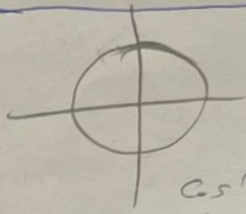
$$\frac{\alpha^{۲}+۴\beta}{۱+\beta} - \frac{\beta^{۲}+۴\alpha}{۱+\alpha}$$

$$(۱+\alpha)(\alpha^{۲}+۴\beta) - (۱+\beta)(\beta^{۲}-۴\alpha)$$

-۷

$\tan\alpha = \frac{۴}{۳}$

$$(+\cos\alpha)(-\sin\alpha)+\cot\alpha$$



$$-\sin\cos + \frac{\cos}{\sin} = \frac{-\sin^{۲}\cos+\cos}{\sin\alpha} \rightarrow \frac{\cos(۱-\cancel{\sin^{۲}})}{\sin} = \frac{\cos^{۳}}{\sin}$$

$\cos^{۲}$

$\cot\alpha = \frac{۳}{۴} = \frac{\cos}{\sin}$

$$\underbrace{\cos^{۲}}_{\frac{۹}{۲۵}} \times \underbrace{\cot}_{\frac{۳}{۴}} = \frac{\cos^{۳}}{\sin}$$

$\cos = \frac{۳}{۵}$

$\sin = \frac{۴}{۵}$

$$= \boxed{\frac{۲۷}{۱۰۰}}$$

-۸

$x = \frac{\pi}{۱۲}$

$$\cancel{۳\cos}\frac{\pi}{۳} + \sqrt{۲}\sin\frac{\pi}{۱۲} - \sqrt{۲}\cos\frac{\pi}{۱۲}$$

$$\frac{۳}{۲} + \sqrt{۲}(\sin x - \cos x)$$

X

-۹

$$\tan\left(\frac{\alpha}{۲}\right) = \frac{۱}{۴} \rightarrow \tan\alpha = \frac{۱}{۸}$$

$\sin = \frac{۱}{\sqrt{۶۵}}$

$\cos = \frac{۸}{\sqrt{۶۵}}$

$$\frac{\frac{۱}{۸} - \frac{۱}{\sqrt{۶۵}}}{\frac{۱}{\sqrt{۶۵}} - \frac{۸}{\sqrt{۶۵}}} = \frac{\frac{\sqrt{۶۵}-۸}{\cancel{۸\sqrt{۶۵}}}}{\frac{\sqrt{۶۵}-۸\sqrt{۶۵}}{\frac{\cancel{۶۵}}{\sqrt{۶۵}}}} = \frac{\cancel{\sqrt{۶۵}}(\sqrt{۶۵}-۸)}{-۷\cancel{\sqrt{۶۵}}} = \boxed{\frac{۸-\sqrt{۶۵}}{۷}}$$

-۱۰

$۰ < \frac{\cos}{\sin^{۲}} \rightarrow \cos\alpha > ۰ \rightarrow$ ربع ۱ یا ۴

$\rightarrow$ ربع ۱ $\Rightarrow \alpha = ۳۰ \rightarrow$ $۲\sin ۳۰ = ۱$, $\sin ۶۰ = \frac{\sqrt{۳}}{۲}$ $\rightarrow ۲\sin\alpha > \sin ۲\alpha \rightarrow$ X

$\boxed{\text{ربع ۴}}$