Subject: تکلیف شماره ۲۷۵ یازدهم

Year Month Day

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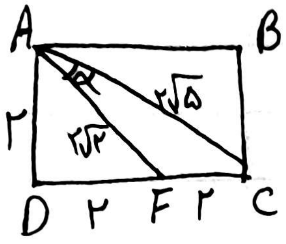
Page:( )

$S=\frac{۱}{۲}AB\sin\alpha \Rightarrow ۹=۶\sqrt{۳}\sin\alpha$ ①

$\Rightarrow \sin\alpha=\frac{\sqrt{۳}}{۲} \longrightarrow \alpha=\frac{\pi}{۳}$

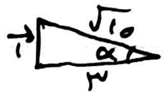
$\longrightarrow \alpha=\frac{۲\pi}{۳}$

$\frac{\frac{۲\pi}{۳}}{\frac{\pi}{۳}}=\boxed{۲}$



$AC=\sqrt{۴+۱۶}=۲\sqrt{۵}$ و $AF=۲\sqrt{۲}$ ②

قضیه کسینوس ها $\Rightarrow ۴=۸+۲۰-۸\sqrt{۱۰}\cos\alpha$

$\cos\alpha=\frac{۳}{\sqrt{۱۰}} \longrightarrow$  $\Rightarrow \cot\alpha=\boxed{۳}$

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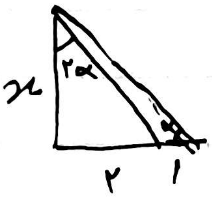
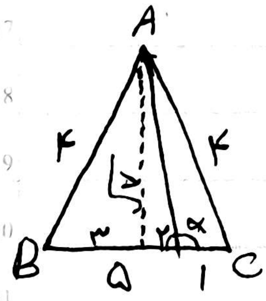
③



$\Rightarrow \tan۲\alpha=\frac{۲\tan\alpha}{۱-\tan^۲\alpha}=\frac{۲}{x}$ ①

$\tan\alpha=\frac{x}{۳}\Rightarrow ① \to \frac{\frac{۲x}{۳}}{\frac{۹-x^۲}{۹}}=\frac{۶x}{۹-x^۲}=\frac{۲}{x}$

$۸x^۲=۱۸\Rightarrow x=\sqrt{\frac{۹}{۴}}=\frac{۳}{۲}\Rightarrow \cot\alpha=\frac{\frac{۳}{۲}}{۳}=\boxed{۲}$



$\tan(\pi-\alpha)=-\tan\alpha=\frac{\sqrt{۷}}{۲}$ ④

$\tan\alpha=\frac{-\sqrt{۷}}{۲}$

$۲\sin^۲x+\cos^۲x\Rightarrow \sin^۲x+\sin^۲x+\cos^۲x=\frac{۴}{۳}$ ⑤

$\Rightarrow \sin^۲x=\frac{۱}{۳}$ ① $\Rightarrow \cos^۲x=۱-\frac{۱}{۳}=\frac{۲}{۳}$ ②

$\xrightarrow{①,②} \tan^۲x=\frac{\frac{۱}{۳}}{\frac{۲}{۳}}=\boxed{\frac{۱}{۲}}$

⑥

صورت $\Rightarrow \dfrac{\sin^۴\alpha+\sin^۶\alpha-\cos^۴\alpha-\cos^۶\alpha+۴\cos^۲\alpha-۴\sin^۲\alpha}{۲+\sin^۲\alpha\cos^۲\alpha}$

$(\sin^۲\alpha+\cos^۲\alpha)^۲-\sin^۲\alpha\cos^۲\alpha=۱-\cos^۲\alpha\sin^۲\alpha$

$\Rightarrow \dfrac{(\sin^۲\alpha-\cos^۲\alpha)+۴(\cos^۲\alpha-\sin^۲\alpha)+(\sin^۲\alpha-\cos^۲\alpha)(۱-\cos^۲\alpha\sin^۲\alpha)}{۲+\sin^۲\alpha\cos^۲\alpha}$

$\Rightarrow \dfrac{\cancel{(۲+\sin^۲\alpha\cos^۲\alpha)}(\sin^۲\alpha-\cos^۲\alpha)}{\cancel{(۲+\sin^۲\alpha\cos^۲\alpha)}}=\cos^۲\alpha-\sin^۲\alpha=\boxed{\cos ۲\alpha}$

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⑦

$\sin(\frac{۹\pi}{۲}+\alpha)\cos(\frac{۷\pi}{۲}-\alpha)-\tan(\alpha-\frac{۳\pi}{۲})$

$\Rightarrow -\cos\alpha\sin\alpha+\cos\alpha$

$\tan\alpha=\frac{۴}{۳} \Rightarrow$

$\xRightarrow{\text{ناحیه ۳}} -(\frac{-۳}{۵})(\frac{-۴}{۵})+\frac{۳}{۴}=\boxed{۰/۲۷}$

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⑧

$۳\cos\frac{۴\pi}{۱۲}+\sqrt{۲}(\sin\frac{\pi}{۱۲}-\cos\frac{۵\pi}{۱۲})$

$\Rightarrow \frac{۳}{۲}+\sqrt{۲}(\sqrt{۲}\sin(\frac{\pi}{۱۲}-\frac{\pi}{۴}))=\frac{۳}{۲}-۲\sin\frac{\pi}{۶}=\frac{۳}{۲}-۱=\boxed{\frac{۱}{۲}}$

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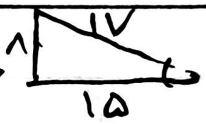
⑨

$\tan(\alpha)=\dfrac{۲\times\frac{۱}{۴}}{۱-(\frac{۱}{۴})^۲}=\dfrac{\frac{۲}{۴}}{\frac{۱۵}{۱۶}}=\frac{۸}{۱۵}\rightarrow$



$\dfrac{\frac{۸}{۱۵}-\frac{۸}{۱۷}}{\frac{۸}{۱۷}-\frac{۱۵}{۱۷}}=\boxed{\frac{-۱۶}{۱۰۵}}$

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⑩

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

$۰<\sin\alpha(\underbrace{\cos\alpha-۱}_{-}) \Rightarrow \underset{①}{\sin\alpha<۰} \Rightarrow ۰<\dfrac{\cot\alpha}{\sin\alpha} \Rightarrow \underset{②}{\cot\alpha<۰}$

$\xrightarrow{①,②}$ ناحیه سوم ← α