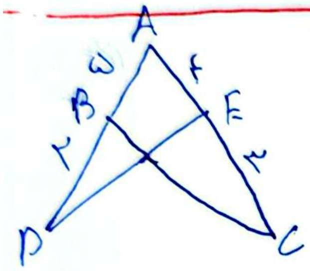
تکلیف شماره ۲۶ فرهام فرزنده یازدهم B

(1)

$S_{\square} = ab\sin\alpha = ۶a^{۲}\sin ۱۵۰^\circ = ۵۴ \Rightarrow a = ۴\sqrt{۲}$

$P_{\square} = ۱۰a = \boxed{۲۰\sqrt{۲}}$

(2)



$S_{ABC} - S_{ADE} = ۱٫۷۵$

$S_{ABC} = \frac{۱}{۲} \times ۵ \times ۷ \times \sin A = ۱۷٫۵ \sin A$

$S_{ADE} = \frac{۱}{۲} \times ۴ \times ۷ \times \sin A = ۱۴ \sin A$

$\Rightarrow ۱۷٫۵\sin A - ۱۴\sin A \Rightarrow ۳٫۵\sin A = ۱٫۷۵ \longrightarrow \sin A = \frac{۱}{۲} \xRightarrow{A=۳۰} \tan A = \boxed{\frac{۱}{\sqrt{۳}}}$

(3)

$\frac{۱}{\sqrt{\cos^{۲}\alpha}} - \tan\alpha = \frac{۱+\sin\alpha}{|\cos\alpha|} \Rightarrow \underbrace{\frac{۱}{|\cos\alpha|} - \tan\alpha = \frac{۱+\sin\alpha}{|\cos\alpha|}}$

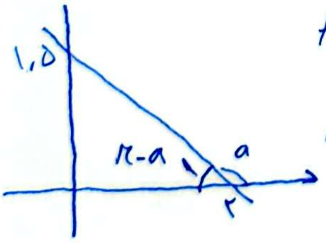
$\frac{۱}{|\cos\alpha|} - \tan\alpha - \frac{۱}{|\cos\alpha|} + \frac{\sin\alpha}{|\cos\alpha|} \Rightarrow \frac{-\sin\alpha}{\cos\alpha} = \frac{\sin\alpha}{|\cos\alpha|}$

$\Rightarrow \cos\alpha < ۰$

$\underbrace{\frac{|\sin\alpha|}{\cos\alpha} = -\frac{۱}{\cot\alpha}}$

$\frac{|\sin\alpha|}{\cos\alpha} = -\frac{\sin\alpha}{\cos\alpha} \Rightarrow |\sin\alpha| = -\sin\alpha \Rightarrow \sin\alpha < ۰ \Rightarrow$ ناحیه ۳

(4)



$\tan(\pi - a) = \frac{۱٫۵}{۲} \Rightarrow \tan a = -\frac{۳}{۴}$

$\tan(\frac{\pi}{۲} - a) - \cot a = \frac{۱}{\tan a} = \frac{۱}{-\frac{۳}{۴}} = \boxed{-\frac{۴}{۳}}$

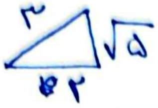
(5)

$\frac{۳\cos(۲۴۸^\circ) - ۲\sin(۱۵۸^\circ)}{\sin(۲۰۲^\circ) - \cos(۲۹۲^\circ)} = \frac{۳\cos(۲۷۰-۲۲) - ۲\sin(۱۸۰-۲۲)}{\sin(۱۸۰+۲۲) - \cos(۲۷۰+۲۲)}$

$\Rightarrow \frac{-۳\sin۲۲ - ۲\sin۲۲}{-\sin۲۲ - \sin۲۲} = \frac{-۵}{-۲} = \boxed{۲٫۵}$

$\cos\alpha = \frac{۲}{۳}$ (۵)

$$\frac{\sin(\frac{\pi}{۲}+\alpha)-\sin(\alpha-\pi)}{|\tan^۲\alpha-۱|} \Longrightarrow \frac{\cos\alpha+\sin}{|\tan^۲\alpha-۱|}$$

$\frac{\text{If ناحیه چهارم}}{\cos=\frac{۲}{۳}} >$ 

$\Longrightarrow \begin{matrix}\sin\alpha = -\frac{\sqrt{۵}}{۳} \\ \tan\alpha = -\frac{\sqrt{۵}}{۲}\end{matrix} \Longrightarrow \frac{\frac{۲}{۳}-\frac{\sqrt{۵}}{۳}}{|\frac{۵}{۴}-۱|} = \frac{\frac{۲-\sqrt{۵}}{۳}}{\frac{۱}{۴}} = \frac{۴(۲-\sqrt{۵})}{۳}$

$\sin\alpha - ۲\cos\alpha \xrightarrow{\div\cos} \tan = ۲$ (7)

$\hookrightarrow \frac{۱}{\cos^۲\alpha} = ۱+\tan^۲\alpha \Longrightarrow \frac{۱}{\cos^۲\alpha} = ۵ \Longrightarrow \cos\alpha = \pm\frac{\sqrt{۵}}{۵} \xrightarrow[\text{۲م}]{\text{ربع}} -\frac{\sqrt{۵}}{۵}$

$۲mx + (m^۲-۱)y = ۳ \Longrightarrow \frac{-۲m}{m^۲-۱} = \sqrt{۳} \Longrightarrow \underbrace{\sqrt{۳}m^۲ + ۲m - \sqrt{۳} = 0}_{|m_۱-m_۲| = \frac{\sqrt{\Delta}}{\sqrt{۳}} = \frac{\sqrt{۱۶}}{\sqrt{۳}} = \frac{۴}{\sqrt{۳}}}$ (8)

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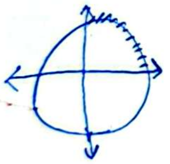
(9)

$-\frac{\pi}{۴} < \alpha < \frac{\pi}{۴}$

$\tan(\frac{\pi}{۴}-\alpha) = \frac{۱-m}{۲+m} \Longrightarrow 0 < \frac{\pi}{۴}-\cancel{\alpha} < \frac{\pi}{۲} \Longrightarrow 0 < \tan\frac{\pi}{۴}-\cancel{\alpha} \Longrightarrow 0 < \frac{۱-m}{۲+m}$


$\Longrightarrow$

	-۲		۱	
-		+		-

$\longrightarrow -۲ < m < ۱$

$\tan(۳۰۰^\circ)\cos(۲۱۰^\circ) + \tan(۴۸۰)\sin(۸۴۰)$ (۹۰)

$= (\frac{۵\pi}{۳} \times \frac{۷\pi}{۹}) + (\frac{۲\pi}{۳} \times \frac{۲\pi}{۳}) \Longrightarrow \underbrace{(-\sqrt{۳})(-\frac{\sqrt{۳}}{۲}) + (-\sqrt{۳})(\frac{\sqrt{۳}}{۲})}_{\frac{۳}{۲}-\frac{۳}{۲} = \boxed{0}}$