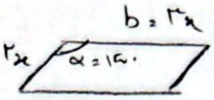
تکلیف شماره ۲۶ الهیا بلالی

۱- $S = ab\sin\alpha$



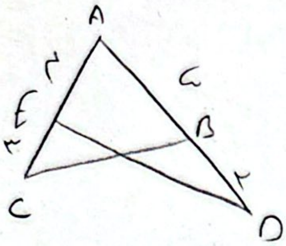
$S = ۶x^۲ \times \frac{۱}{۲} = ۳x^۲ = ۵۴ \quad x^۲ = ۱۸ \quad x = ۳\sqrt{۲}$

$a = ۶\sqrt{۲}$

$b = ۹\sqrt{۲}$

$P = ۲(۶\sqrt{۲} + ۹\sqrt{۲}) = ۳۰\sqrt{۲}$

۲-



$S_{ABC} - S_{ADE} = ۱/۷۵ \qquad \frac{\sin\hat{A}}{۲}(۵\times۷ - ۴\times۷) = ۱/۷۵$ ✓

$\sin\hat{A} = \frac{۳/۵}{۷} = \frac{۱}{۲}$

$\tan\hat{A} = \frac{۱}{\sqrt{۳}} = \frac{\sqrt{۳}}{۳}$

۳-

$\frac{۱}{\sqrt{\cos^۲\alpha}} - \tan\alpha = \frac{۱+\sin\alpha}{|\cos\alpha|} = \frac{۱}{|\cos\alpha|} - \frac{\sin\alpha}{\cos\alpha} \Rightarrow \frac{\sin\alpha}{|\cos\alpha|} = \frac{-\sin\alpha}{\cos\alpha} \Rightarrow \cos\alpha < ۰$

$\frac{-۱}{\cot\alpha} = \frac{-\sin\alpha}{\cos\alpha} = \frac{|\sin\alpha|}{\cos\alpha} \Rightarrow \sin\alpha < ۰$ ناحیه سوم

۴-

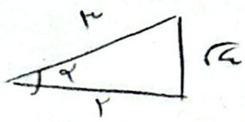
$m = \frac{-۱/۵}{۲} = -\frac{۳}{۴} = \tan\alpha \qquad \tan(\frac{\pi}{۲} - \alpha) = +\cot\alpha = \frac{۱}{\tan\alpha} = -\frac{۴}{۳}$

۵-

$\frac{۳\cos(۲۷۰-۲۲) - ۲\sin(۱۸۰-۲۲)}{\sin(۱۸۰+۲۲) - \cos(۲۷۰+۲۲)} = \frac{-۳\sin۲۲ - ۲\sin۲۲}{-\sin۲۲ - \sin۲۲} = \frac{-۵\sin۲۲}{-۲\sin۲۲} = \frac{۵}{۲}$

۶-

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



$\cos\alpha = \frac{۲}{۳}$

$\sin\alpha = -\frac{\sqrt{۵}}{۳}$

$\tan\alpha = -\frac{\sqrt{۵}}{۲}$

$\frac{\frac{۲-\sqrt{۵}}{۳}}{\frac{۱}{۴}} = \frac{۸-۴\sqrt{۵}}{۳}$

۷-

$\sin^۲\alpha + \cos^۲\alpha = ۱ \qquad \cos^۲\alpha + ۴\cos^۲\alpha = ۵\cos^۲\alpha = ۱ \qquad \cos^۲\alpha = \frac{۱}{۵}$

$\cos\alpha = \pm\frac{۱}{\sqrt{۵}} \begin{cases} -\frac{\sqrt{۵}}{۵} ✓ \\ \frac{\sqrt{۵}}{۵} ✗ \end{cases}$ ربع سوم

$2mx + (m^2-1)y = 2$ $\quad J_2 \frac{-2m}{m^2-1} + \frac{2}{m^2-1}$

$\frac{-2m}{m^2-1} = \tan 45^\circ = \sqrt{2}$ $\quad \sqrt{2}m^2 + 2m - \sqrt{2} = 0$ | تقسیم بر $\sqrt{2}$: $\frac{\sqrt{5}}{a} = \frac{\sqrt{2+2\times 2}}{\sqrt{2}}$

$\frac{4}{\sqrt{2}} = \frac{2\sqrt{2}}{2}$

۹- $-\frac{\pi}{4} < x < \frac{\pi}{4}$ $\xrightarrow{\times(-1)}$ $-\frac{\pi}{4} < -x < \frac{\pi}{4}$ $\xrightarrow{+\frac{\pi}{2}}$ $0 < \frac{\pi}{2} - x < \frac{\pi}{2}$

$\tan\alpha > 0$ $\quad \frac{1-m}{2+m} > 0$ $\quad$ $m \in (-2, 1)$

	-2		1
$1-m$	$+$	$+$	$-$
$2+m$	$-$	$+$	$+$

۱۰- $\tan(300)\cos(210) + \tan(210)\sin(120) = -\sqrt{3} \times -\frac{\sqrt{3}}{2} + (-\sqrt{3}) \times \frac{\sqrt{3}}{2} = \frac{3}{2} - \frac{3}{2} = 0$

$300 = 360 - 60$, $210 = 180 + 30$, $120 = 180 - 60$