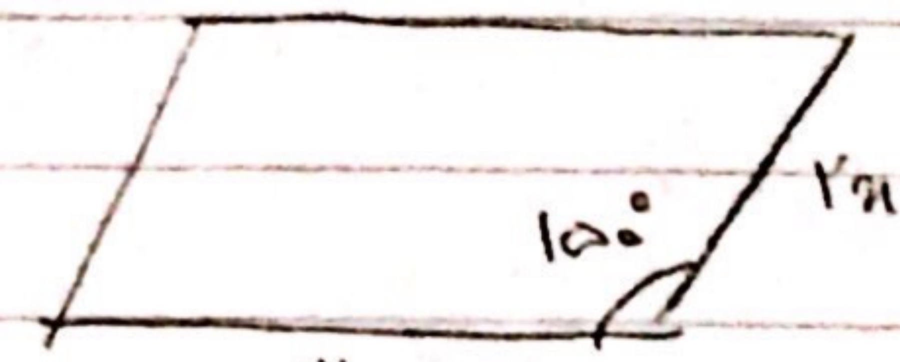
No. ۲۶ تکلیف شماره   یازدهم دختر A   ساینا میرمحمدی

Date.

۲۰

۱-

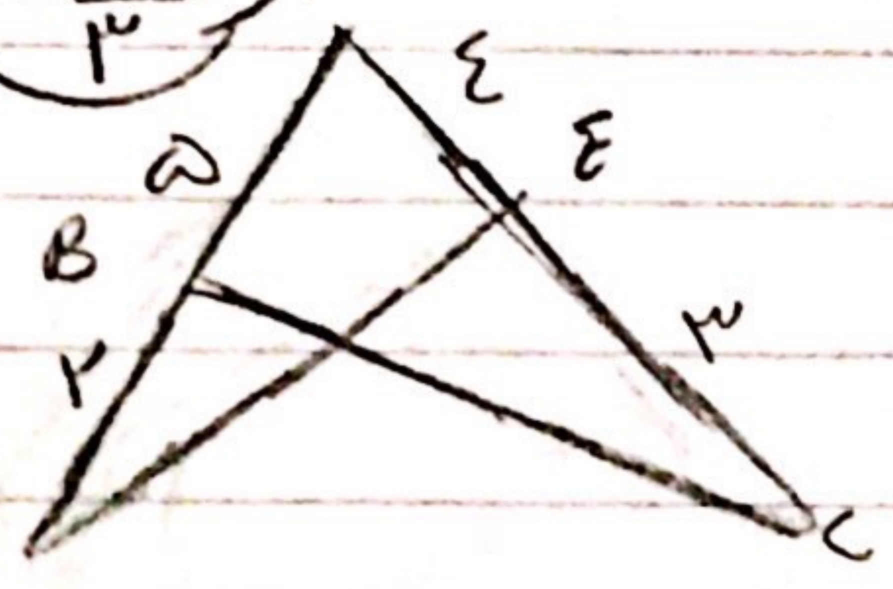


$S = 54$

$S = 2x \times 3x \times \sin 150^\circ = 6x^2 \times \frac{1}{2} = 54$

$P = 4(3\sqrt{2}) + 6(3\sqrt{2}) = 30\sqrt{2} \implies x^2 = 18 \implies x = 3\sqrt{2}$

۲-



$\tan A = \frac{\sqrt{3}}{3}$

$A = 30^\circ$

$S_{A\hat{B}C} - S_{A\hat{D}E} = 1.75 \qquad \tan \hat{A} = ?$

$S_{A\hat{B}C} = 7 \times 5 \times \sin A \times \frac{1}{2} = 17.5 \sin A$

$S_{A\hat{D}E} = 7 \times 4 \times \sin A \times \frac{1}{2} = 14 \sin A$

$\implies 17.5 \sin A - 14 \sin A = 3.5 \sin A = 1.75$

$\sin A = \frac{1.75}{3.5} = \frac{1}{2}$

۳- ~~ناحیه سوم~~

$\frac{|\sin\alpha|}{\cos\alpha} = -\frac{1}{\cot\alpha}$

$-\frac{1}{\cot\alpha} = -\tan\alpha = -\frac{\sin\alpha}{\cos\alpha}$

$|\sin\alpha| = \cancel{\cos\alpha} \times \frac{-\sin\alpha}{\cancel{\cos\alpha}} \implies \sin\alpha < 0$

ناحیه ۳ یا ۴

ناحیه ۳ یا ۱

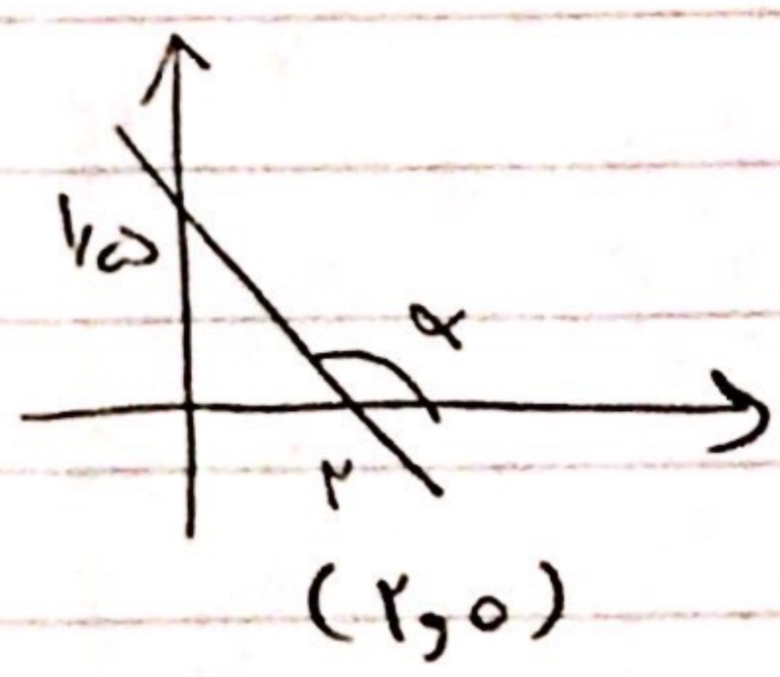
$\underbrace{\frac{1}{\sqrt{\cos^2\alpha}}}_{|\cos\alpha|} - \tan\alpha = \frac{1+\sin\alpha}{|\cos\alpha|}$

$-\tan\alpha < 0 \implies \tan\alpha > 0$

$\implies \frac{\cancel{1}}{|\cos\alpha|} - \tan\alpha = \frac{\cancel{1}}{|\cos\alpha|} + \frac{\sin\alpha}{|\cos\alpha|}$

۴-

$\tan\left(\frac{\pi}{2} - \alpha\right) = \cot\alpha = \frac{1}{\frac{-3}{4}} = -\frac{4}{3}$



$y = ax + b \implies 2a + 1.5 = 0$

$b = 1.5$

$2a = -1.5 \implies a = -0.75$

$\implies y = -\frac{3}{4}x + 1.5 \implies \tan\alpha = -\frac{3}{4}$

۵-

$$\frac{3\cos(248^\circ) - 2\sin(158^\circ)}{\sin(202^\circ) - \cos(292^\circ)} = \frac{3\cos(\frac{3\pi}{2} - 22^\circ) - 2\sin(\pi - 22^\circ)}{\sin(\pi + 22) - \cos(\frac{3\pi}{2} + 22^\circ)}$$

$$= \frac{-3\sin(22^\circ) - 2\sin(22^\circ)}{-\sin(22^\circ) - \sin(22^\circ)} = \frac{-5\sin\cancel{(22^\circ)}}{-2\sin\cancel{(22^\circ)}} = \frac{5}{2} = 2.5$$

No.

Date.

۶- ربع چهارم

$\cos\alpha = \frac{۲}{۳}$, $\cos^۲\alpha + \sin^۲\alpha = 1 \Rightarrow \sin^۲\alpha = \frac{۵}{۹}$

$\sin\alpha = \frac{\sqrt{۵}}{۳}$, $\tan\alpha = \frac{\sqrt{۵}}{۲}$

$$\frac{\sin(\frac{\pi}{۲}+\alpha) - \sin(\alpha-\pi)}{|\tan^۲\alpha - 1|} = \frac{\cos\alpha - \sin\alpha}{|\tan^۲\alpha - 1|} = \frac{\frac{۲}{۳}-\frac{\sqrt{۵}}{۳}}{\frac{۵}{۴}-\frac{۴}{۴}} = \frac{\frac{۲-\sqrt{۵}}{۳}}{\frac{1}{۴}} = \frac{۸-۴\sqrt{۵}}{۳}$$

۷- $\sin\alpha = ۲\cos\alpha$ ربع سوم $\cos\alpha = ?$

$\tan\alpha = \frac{۲\cancel{\cos\alpha}}{\cancel{\cos\alpha}} = ۲$, $\underbrace{\tan^۲\alpha + 1}_{۵} = \frac{1}{\cos^۲\alpha} \Rightarrow \cos^۲\alpha = \frac{1}{۵}$

$\Rightarrow \cos\alpha = -\frac{1}{\sqrt{۵}} = \frac{-\sqrt{۵}}{۵}$

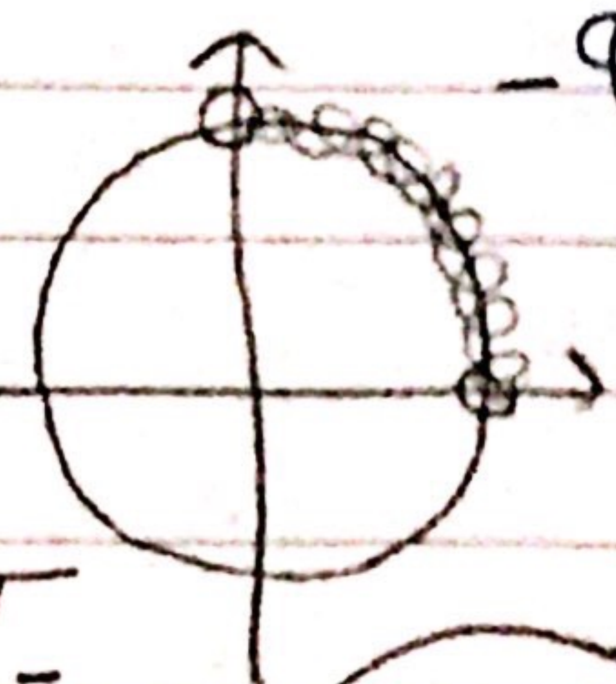
۸- $\alpha = ۶۰° \Rightarrow \tan ۶۰° = \sqrt{۳}$, $۲mx + (m^۲-1)y = ۳$

$|m_1 - m_2| = \left|\frac{-۳}{\sqrt{۳}} - \frac{1}{\sqrt{۳}}\right| = \frac{۴}{\sqrt{۳}}$

$y = \frac{-۲mx+۳}{m^۲-1} \Rightarrow \frac{-۲m}{m^۲-1} = \sqrt{۳}$

$\Rightarrow \sqrt{۳}m^۲ - \sqrt{۳} = -۲m \xRightarrow{\text{روش}} m^۲ + ۲m - ۳ = 0 \Rightarrow (m+۳)(m-1) = 0 \Rightarrow m_1 = \frac{-۳}{\sqrt{۳}}$, $m_۲ = \frac{1}{\sqrt{۳}}$

۹- $\tan(\frac{\pi}{۴} - x) = \frac{1-m}{۳+m}$ و $-\frac{\pi}{۴} < x < \frac{\pi}{۴}$



$\frac{\pi}{۴} > -x > -\frac{\pi}{۴} \Rightarrow 0 < \frac{\pi}{۴} - x < \frac{\pi}{۲}$

$\Rightarrow 0 < \frac{1-m}{۳+m} < +\infty \Rightarrow 0 < \frac{1-m}{۳+m}$

-۳		1
−	+	−

$\Rightarrow (-۳, 1)$

۱۰- $\tan(۳۰۰°)\cos(۲۱۰°) + \tan(۴۸۰°)\sin(۸۴۰°)$

$\tan(۲\pi - \frac{\pi}{۳})$, $\cos(\pi + \frac{\pi}{۶})$, $\tan(\frac{۵\pi}{۲} + \frac{\pi}{۶})$

$-\tan\frac{\pi}{۳} = -\sqrt{۳}$, $-\cos\frac{\pi}{۶} = -\frac{\sqrt{۳}}{۲}$, $-\cot\frac{\pi}{۶} = -\sqrt{۳}$

$\sin(۸۴۰°) = \sin(۵\pi - \frac{\pi}{۳}) = \sin\frac{\pi}{۳} = \frac{\sqrt{۳}}{۲}$

$-\sqrt{۳} \times \frac{-\sqrt{۳}}{۲} + -\sqrt{۳} \times \frac{\sqrt{۳}}{۲} = \frac{۳}{۲} - \frac{۳}{۲} = 0$