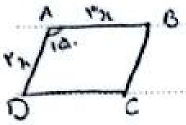
Subject:
Date

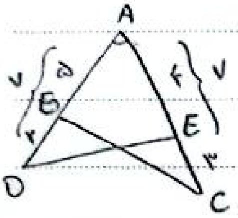
تکلیف شماره ۲۶

-۱ $S = 2x \times 3x \times \sin 150 = 54 \Rightarrow 6x^2 \times \frac{1}{2} = 54 \Rightarrow x^2 = 18 \Rightarrow x = 3\sqrt{2}$



محیط $= 2(3x+2x) = 2\times 5\times 3\sqrt{2} = 30\sqrt{2}$

-۲ $S_{ABC} - S_{ADE} = \frac{1}{2}\sin A(7\times 5 - 7\times 4) = \frac{7}{2}\sin A = 1.75$



$\Rightarrow \sin A = \frac{1}{2} \longrightarrow A = 30$ ✓ یا $A = 150$ ✗ (زاویه حاده)

$\Rightarrow \tan 30 = \frac{\sqrt{3}}{3}$

-۳ $\frac{1}{\sqrt{\cos^2\alpha}} - \tan\alpha = \frac{1+\sin\alpha}{|\cos\alpha|} \Rightarrow \tan\alpha = \frac{1-1-\sin\alpha}{|\cos\alpha|} = \frac{-\sin\alpha}{|\cos\alpha|}$ (1)

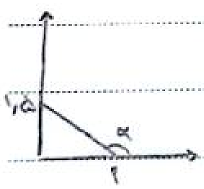
$\frac{|\sin\alpha|}{\cos\alpha} = -\frac{1}{\cot\alpha} = -\tan\alpha$ (2)

if $\sin\alpha > 0 \overset{(1)}{\Rightarrow} \tan\alpha < 0 \overset{(2)}{\Rightarrow} \cos\alpha > 0$ ~> غیرقابل قبول زیرا $\sin$, $\cos$ مثبت، $\tan$ منفی

if $\sin\alpha < 0 \overset{(1)}{\Rightarrow} \tan\alpha > 0 \Rightarrow \cos\alpha < 0$ ✓ $\Rightarrow$ ناحیه سوم

-۴ $\tan(\frac{\pi}{2}-\alpha) = \cot\alpha$

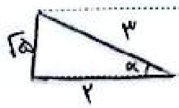
$\cot(\pi-\alpha) = \frac{2}{1.5} \Rightarrow -\cot\alpha = \frac{4}{3} \Rightarrow \cot\alpha = -\frac{4}{3}$



-۵ $\frac{3\cos(248) - 2\sin(158)}{\sin(202) - \cos(292)} = \frac{3\cos(\frac{3\pi}{2}-22) - 2\sin(\pi-22)}{\sin(\pi+22) - \cos(\frac{3\pi}{2}+22)} = \frac{-3\sin 22 - 2\sin 22}{-\sin 22 - \sin 22}$

$\Rightarrow \frac{-5\sin 22}{-2\sin 22} = \frac{5}{2}$

-۶ $\frac{\sin(\frac{\pi}{2}+\alpha) - \overbrace{\sin(\alpha-\pi)}^{-\sin(\pi-\alpha)}}{(\tan^2\alpha - 1)} = \frac{\cos\alpha + \sin\alpha}{|\frac{1}{\cos^2\alpha} - 2|} = \frac{\frac{2}{3} - \frac{\sqrt{5}}{3}}{|\frac{9}{4} - 2|} = \frac{\frac{2-\sqrt{5}}{3}}{\frac{1}{4}} = \frac{8-4\sqrt{5}}{3}$



$\Rightarrow \sin\alpha = -\frac{\sqrt{5}}{3}$

ناحیه ۴ $\cos\alpha = \frac{2}{3}$

Subject:
Date

$\sin\alpha = ۲\cos\alpha \Rightarrow \tan\alpha = ۲ \qquad \dfrac{۱}{\cos^۲\alpha} = ۱+\tan^۲\alpha = ۵ \Rightarrow \cos^۲ = \dfrac{۱}{۵}$ ۷-

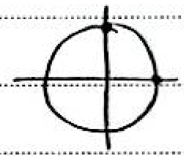
ربع سوم $\Rightarrow \cos\alpha = -\dfrac{۱}{\sqrt{۵}} = -\dfrac{\sqrt{۵}}{۵}$

$۲mx + (m^۲-۱)y = ۳ \Rightarrow y = \left(\dfrac{-۲m}{m^۲-۱}\right)x + \dfrac{۳}{m^۲-۱}$ ۸-

شیب: $\tan\alpha = \dfrac{-۲m}{m^۲-۱} \Rightarrow \tan ۶۰ = \sqrt{۳} = \dfrac{-۲m}{m^۲-۱} \Rightarrow -۲m = \sqrt{۳}m^۲ - \sqrt{۳} \Rightarrow \sqrt{۳}m^۲ + ۲m - \sqrt{۳} = ۰$

$\Rightarrow m = \dfrac{۱}{\sqrt{۳}}$ یا $\dfrac{-۳}{\sqrt{۳}} \Rightarrow m_۲ - m_۱ = \dfrac{۱}{\sqrt{۳}} + \dfrac{۳}{\sqrt{۳}} = \dfrac{۴}{\sqrt{۳}} = \dfrac{۴\sqrt{۳}}{۳}$

$\tan\left(\dfrac{\pi}{۴} - x\right) = \dfrac{۱-m}{۲+m} \qquad \dfrac{-\pi}{۴} < x < \dfrac{\pi}{۴} \Rightarrow ۰ < \dfrac{\pi}{۴} - x < \dfrac{\pi}{۲}$ ۹-



$\Rightarrow ۰ < \tan\left(\dfrac{\pi}{۴}-x\right) < ۱ \Rightarrow \overbrace{۰ < \dfrac{۱-m}{۲+m}}^{(۱)}$ $\underbrace{\dfrac{۱-m}{۲+m} < ۱}_{(۲)}$

$\Rightarrow (۱)$ $\begin{array}{ccccc} & -۲ & & ۱ & \\ \hline - & & + & & - \end{array}$ $\Big\} \xrightarrow{\cap} m = \left(-\dfrac{۱}{۲}, ۱\right)$

(۲) $\dfrac{۱-m-۲-m}{۲+m} < ۰ \Rightarrow \dfrac{-۲m-۱}{۲+m} < ۰$ $\begin{array}{ccccc} & -۲ & & -\frac{۱}{۲} & \\ \hline + & & - & & + \end{array}$

$\tan ۳۰۰ \cos ۲۱۰ + \tan ۴۸۰ \sin ۸۴۰ = \tan(۲\pi - ۶۰)\cos(\pi + ۳۰) + \tan(۳\pi - ۶۰)\sin(۵\pi - ۶۰)$ ۱۰-

$= -\tan ۶۰(-\cos ۳۰) - \tan ۶۰(+\sin ۶۰) = -\sqrt{۳} \times \dfrac{-\sqrt{۳}}{۲} - \sqrt{۳} \times \dfrac{\sqrt{۳}}{۲} = \dfrac{۱}{۲} - \dfrac{۱}{۲} = ۰$