باران ... سوم (ریاضی) تکلیف ۱۸ — ۲۰

۱)

الف)

$\tan\frac{11\pi}{4} + \sin\frac{15\pi}{4} \times \cos\frac{13\pi}{4}$

$\tan(2\pi + \frac{3\pi}{4}) + \sin(3\pi + \frac{3\pi}{4}) \times \cos(3\pi + \frac{\pi}{4})$

$\tan(135) + \sin(315) \times \cos(405)$

$-1 \quad -\frac{\sqrt{2}}{2} \times -\frac{\sqrt{2}}{2} = -1 + \frac{2}{4} = -\frac{1}{2}$

ب)

$\tan\frac{17\pi}{6} \times \sin\frac{11\pi}{3} + \cos\frac{10\pi}{3}$

$\tan(2\pi + \frac{5\pi}{6}) \times \sin(3\pi + \frac{2\pi}{3}) + \cos(3\pi + \frac{\pi}{3})$

$\tan(150) \times \sin([illegible]) + \cos(240)$

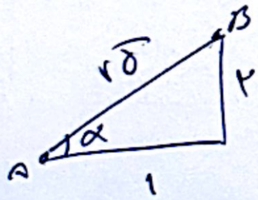
$-\frac{1}{\sqrt{3}} \times -\frac{\sqrt{3}}{2} + (-\frac{1}{2}) = \frac{1}{2} - \frac{1}{2} = 0$

۲)

$\cot x = 4 \qquad \frac{3\cos x - \sin x}{\cos x + \sin x} \div \sin x \Rightarrow \frac{3\cot x - 1}{\cot x + 1} \Rightarrow \frac{12-1}{4+1} = \frac{11}{5}$

۳)

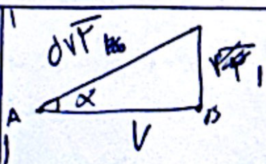
$\sin\alpha = 2\cos\alpha \Rightarrow \tan\alpha = 2$



$AB = \sqrt{5} \qquad \cos < 0 \qquad = -\frac{1}{\sqrt{5}}$

۴)

الف)



$AB \Rightarrow 50 = 1 + x^2 \qquad x = 7$

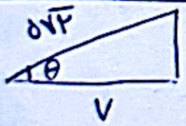
$\cos\alpha = \frac{-7}{5\sqrt{2}} \qquad \sin\alpha = \frac{1}{5\sqrt{2}}$

$\frac{11\pi}{4} = 2\pi + \frac{3\pi}{4} = \frac{3\pi}{4} \qquad \cos(\frac{3\pi}{4} + \alpha) =$

$(\cos\frac{3\pi}{4} \cdot \cos\alpha) - (\sin\frac{3\pi}{4} \cdot \sin\alpha) =$

$((-\frac{\sqrt{2}}{2}) \times \frac{-7}{5\sqrt{2}}) - (\frac{\sqrt{2}}{2} \times \frac{1}{5\sqrt{2}}) = \frac{7}{10} - \frac{1}{10} = \frac{6}{10} = \frac{3}{5}$ مثبت

ب)



$\sin\alpha = \frac{1}{5\sqrt{2}} \qquad \cos\alpha = \frac{7}{5\sqrt{2}}$

$\frac{13\pi}{4} = 3\pi + \frac{\pi}{4} = \frac{5\pi}{4}$

$\sin(\frac{5\pi}{4} + \alpha) = (\sin\frac{5\pi}{4} \times \cos\alpha) + (\sin\alpha \times \cos\frac{5\pi}{4})$

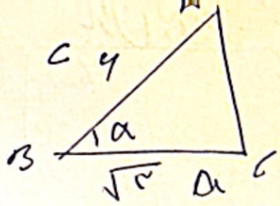
$\Rightarrow (-\frac{\sqrt{2}}{2} \times \frac{7}{5\sqrt{2}}) + (\frac{1}{5\sqrt{2}} \times \frac{-\sqrt{2}}{2}) = \frac{-7}{10} + \frac{-1}{10}$

$= -\frac{8}{10} = -\frac{4}{5} \rightarrow$ منفی

۵)

$\sin^2 + \underbrace{\sin^2 + \cos^2}_{1} = \frac{4}{3} \qquad \sin^2 + 1 = \frac{4}{3} \qquad \sin^2 = \frac{1}{3} \Rightarrow$

$\frac{2}{3} + x = \frac{4}{3} \qquad x/\cos^2 = \frac{2}{3} \qquad \tan^2 = \frac{\sin^2}{\cos^2} = \frac{\frac{1}{3}}{\frac{2}{3}} = \frac{1}{2}$

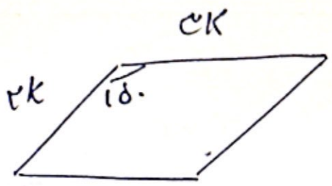


$S=\frac{1}{2}ac\underbrace{\sin\alpha}_{x} \Rightarrow ۴٫۵=\frac{1}{2}\times ۶\times\sqrt{۳}\times x \Rightarrow$

$۳\sqrt{۳}\,x=۴٫۵ \quad x=\frac{\sqrt{۳}}{۲} \Rightarrow \sin\alpha=\frac{\sqrt{۳}}{۲} \quad \alpha=۶۰,\ ۱۲۰$

min max

$\frac{۱۲۰}{۶۰}=(۲)$



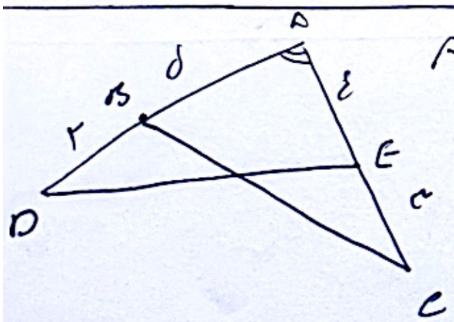
$\sin ۱۵۰=\frac{1}{۲} \quad S=\frac{1}{۲}\times ۳k\times ۲k \Rightarrow ۳k^{۲}=۵۴$

$k^{۲}=۱۸ \quad k=۳\sqrt{۲}$

$۳k:\ ۹\sqrt{۲}$

$۲k:\ ۶\sqrt{۲}$

$(۲\times ۹\sqrt{۲})+۱۸\sqrt{۲}=(۳۰\sqrt{۲})$



$A<۹۰$

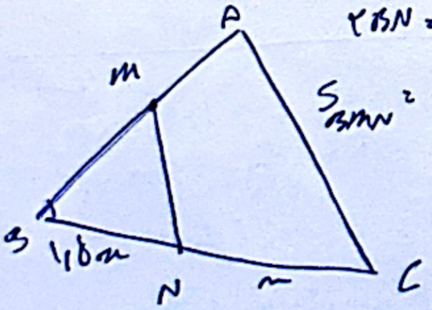
$S_{ABC}=\frac{1}{۲}\times ۵\times ۷\times \sin A=۱۷٫۵\sin A$

$S_{ADE}=\frac{1}{۲}\times ۴\times ۷\times \sin A=۱۴\sin A$

$۱۷٫۵\sin A-۱۴\sin A=۳٫۵\sin A=۱٫۷۵ \quad \sin A=\frac{1}{۲}$

$A=۳۰°$

$\tan ۳۰°=\frac{1}{\sqrt{۳}}$



$۲BN=۳NC \quad BN=۱٫۵\,NC \qquad S_{ABC}=\frac{1}{۲}\times BA\times ۲٫۵m\times \sin B$

$S_{BMN}=\frac{1}{۲}\times BM\times ۱٫۵m\times \sin B$

$\frac{S_{ABC}}{S_{BMN}}=۳ \Rightarrow \frac{۵BA}{۳BM}=۳$

$۹BM=۵BA \quad BM=\frac{۵}{۹}BA \Rightarrow MA=\frac{۴}{۹}BA$

$\frac{BM}{AM}=\frac{\frac{۵BA}{۹}}{\frac{۴BA}{۹}}=\frac{۵}{۴}=۱٫۲۵$

$\frac{1}{|\cos\alpha|}-\frac{\sin\alpha}{\cos\alpha}=\frac{1+\sin\alpha}{\cos\alpha}=\frac{1-\sin\alpha}{|\cos\alpha|} \Rightarrow \cos\alpha$ منفی

$-\cos\alpha=|\cos\alpha|$ جز

$\cos(<0)\to$ ربع ۲،۳ (۱)

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

$|\sin\alpha|=-\sin\alpha \Rightarrow \sin\alpha<0 \to$ ربع ۳،۴ (۲)

(۱) ∩ (۲) = ربع ۳