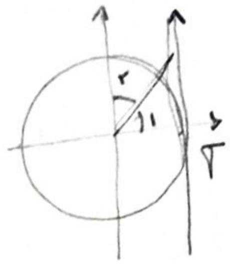
ماهان اسکاری - دوازدهم تجربی B — به نام خدا — تکلیف ۱۴ — ۱۹ آفرین



۱- $TB = \tan\beta = \cot\alpha \quad (\alpha+\beta=90^\circ)$

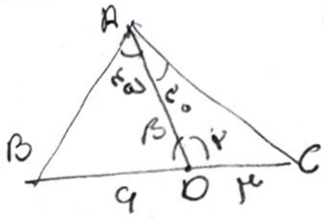
$OA = r = 1 = OT = 1 \longrightarrow OB^2 = (OT)^2 + (TB)^2$

$OB = \sqrt{1+\cot^2\alpha} \longrightarrow OB = \dfrac{1}{\sin\alpha}$

$\left(\dfrac{1}{\sin^2\alpha}\right)$

$AB = OB - OA = \dfrac{1}{\sin\alpha} - 1$ ✓

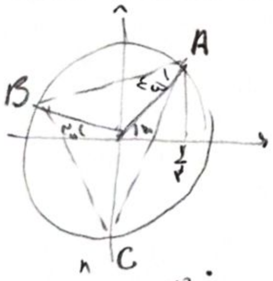
(۲)



۲- $\sin\alpha = \sin\beta \quad (\alpha+\beta=180^\circ)$

$\dfrac{3}{\sin 30} = \dfrac{AC}{\sin\alpha}$, $\dfrac{6}{\sin 45} = \dfrac{AB}{\sin\beta} \longrightarrow \dfrac{AB}{AC} = \dfrac{6\sqrt{2}}{6} = \sqrt{2}$ ✓

(۲)

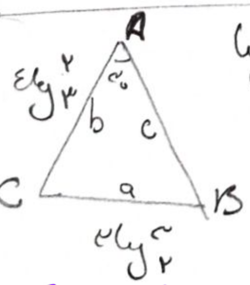


۳- $\hat{COA} = 150$, $\hat{BOC} = 120 \xrightarrow{\text{قضیه کسینوس}} AC = \dfrac{\sqrt{2}+\sqrt{6}}{2}$, $BC = \sqrt{3}$ ✓

$P = \dfrac{3+\sqrt{2}+\sqrt{6}+2\sqrt{3}}{2}$ ✓ ★

(۲)

$A = \dfrac{\hat{BC}}{2} \xrightarrow{120^\circ} A = 90^\circ \quad \sin A \times \dfrac{1}{2} \times AC \times AB = S_D \longrightarrow \dfrac{\sqrt{3}}{2} \times \dfrac{1}{2} \times \dfrac{\sqrt{2}+\sqrt{6}}{2} \times \sqrt{2} = \dfrac{3+\sqrt{3}}{4}$ ✓ ★



۴- $\log_3^2 = t \quad CB = \sqrt{16t^2 + c^2 - 8ct} \longrightarrow \dfrac{9}{t^2} = 16t + t^2 - 4\sqrt{c}\,tc \longrightarrow c = b\sqrt{3} + \sqrt{a^2 - b^2}$

$S_D = \sin\hat{A} \times \frac{1}{2} \times 4t \times AB = \dfrac{bc}{4}$ $SABC = \frac{1}{2} \times \sin\frac{\pi}{6} \times \log_2^{27} \times \log_3^{16}$

$c = 4\sqrt{3}\,t + \dfrac{\sqrt{36-16t}}{t} \longrightarrow \dfrac{bc}{4} = S \xrightarrow{t = \log_3^2} S = 2\sqrt{3}(\log_3^2)^2 + \sqrt{9 - 4(\log_3^2)^2}$

$SABC = \frac{1}{4} \times 4\log_2^3 \times 3\log_3^2 = 3$

(۱)

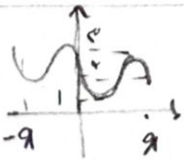
صورت سوال ۴ تغییر کرده بود...

۵- $2x^3 - x + \sin(\alpha)(\cos 2\alpha) \xrightarrow{x = \cos\alpha} \cos^2\alpha(\cos 2\alpha) + \sin^2\alpha(\cos 2\alpha)$ ✓

$(\cos^2\alpha \sin^2\alpha)(\cos 2\alpha)$

$\cos 2\alpha = 1 \longrightarrow 2\alpha = \pi \longrightarrow \dfrac{\pi}{2} = 1 \longrightarrow \sin 2\alpha = 0$ ✓

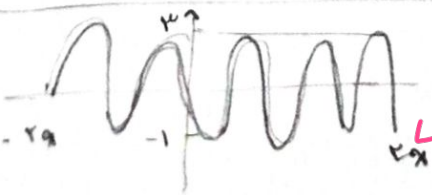
(۲)



۶- الف) $T = \pi$ ✓

مشکل‌ها را بزرگتر بکش!

(۲)



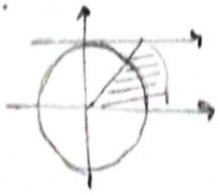
ب) $T = 2$ ✓

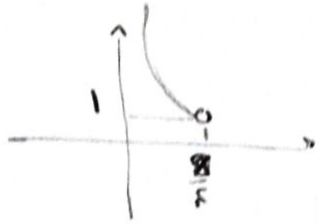
[illegible]

۷ -

$\cot\alpha \quad 0<\alpha<\frac{\pi}{4}$

$\sin\alpha \quad \alpha\leq 0$





$R\in(1,+\infty)$ ۲

$R\in[-1,1]$

$R_f\in[-1,+\infty)$

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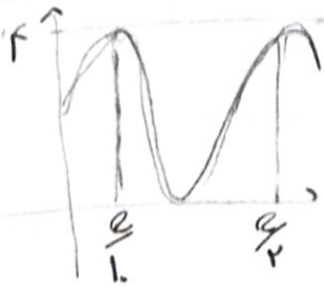
۸ -



$y=a+b\sin(cx)\cos(cx)\cos(2cx)=a+\frac{b}{4}\sin(4cx)$

$T=\frac{2\pi}{|4c|}=\frac{2\pi}{5}\rightarrow c=\frac{5}{4}$

$a+|\frac{b}{4}|,\ a-|\frac{b}{4}| \Rightarrow a=2 \rightarrow \frac{b}{4}=2,\ b=8$

$\frac{bc}{a}=5$ ✓ ۲

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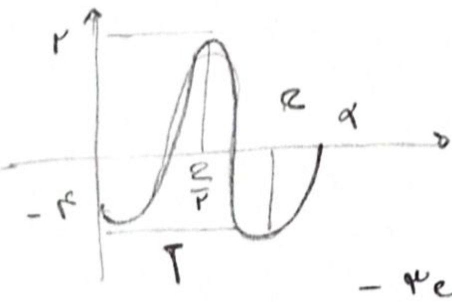
۹ -



$a\cos bx+c$

$|a|+c=2,\ -|a|+c=-4 \Rightarrow c=-1,\ a=\pm3$

$+3$ ✗, -3 ✓ ۲

$T=\pi,\ b=2$

$-3\cos 2\alpha-1=0\rightarrow -\frac{1}{3}=\cos 2\alpha\rightarrow|\tan 2\alpha|=2\sqrt{2}$ ✓

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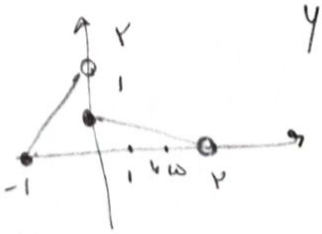
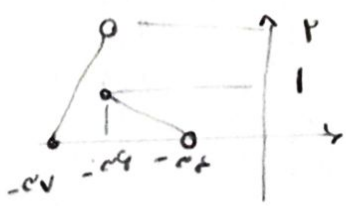
۱۰ -



$y=-\frac{1}{2}x+1 \quad x=\frac{3}{2}\rightarrow y=\frac{1}{4}$



$y=(-\frac{27}{4})=y(\frac{3}{2})=\frac{1}{4}$

✓ ۲