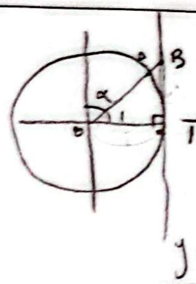
نام و نام خانوادگی ......سایان هیتیان..... پاسخنامه تشریحی تکلیف شماره .... کلاس .... دوازدهم B

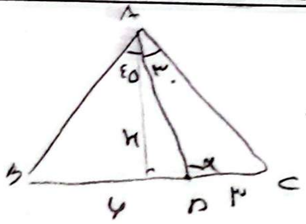


$\cos O_1 = \frac{OT}{OB} = \frac{1}{1+AB} \xrightarrow{O_1+\alpha=\frac{\pi}{2}}$

$\cos(O_1) = \sin\alpha = \frac{1}{1+AB} \to \sin\alpha + \sin\alpha\, AB = 1$ ۱

$y = \tan\alpha$

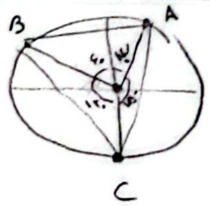
$\to \boxed{\frac{1-\sin\alpha}{\sin\alpha} = AB}$



$\frac{S_{ABD}}{S_{ADC}} = \frac{\frac{1}{2}\times h\times 6}{\frac{1}{2}h\times 3} = 2$

$\frac{S_{ABD}}{S_{ADC}} = \frac{\cancel{\frac{1}{2}}\times AB\times \cancel{AD}\times\sin 45}{\cancel{\frac{1}{2}}\times\cancel{AD}\times AC\times\sin 30} = 2 \longrightarrow \frac{AB\times\frac{\sqrt{2}}{2}}{AC\times\frac{1}{2}} = 2$ ۲

$\boxed{\frac{AB}{AC} = \sqrt{2}}$



$A = \left(\frac{1}{2}, \frac{\sqrt{3}}{2}\right) \to A = 60^\circ$

$B = \left(-\frac{\sqrt{3}}{2}, \frac{1}{2}\right) \to B = 150$

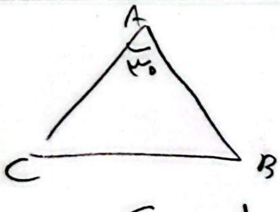
$S_{ABC} = S_{AOB} + S_{BOC} + S_{AOC}$

$= \frac{1}{2}\times1\times1\times\sin 90 + \frac{1}{2}\times1\times1\times\sin 120 + \frac{1}{2}\times1\times1\times\sin 150 = \frac{3+\sqrt{3}}{4}$ ۳

$BC^2 = OB^2 + OC^2 - 2OB\times OC\cos 120 \to BC^2 = 1+1-2 \;\; = 3 \to BC = \sqrt{3}$

$AB^2 = OB^2 + OA^2 - 2OA\times OB\cos 90 \to AB^2 = \;\; \to AB = \sqrt{2}$ → محیط $\sqrt{3}+\sqrt{2}+\sqrt{2+\sqrt{3}}$

$AC^2 = OA^2 + OC^2 - 2OA\times OC\cos 150 \to AC^2 = 2+\sqrt{3} \to AC = \sqrt{2+\sqrt{3}}$



$AC = \log_3 12$

$AB = \log_2 27$

$S = \frac{1}{2}\times AB\times AC\times\sin 30$

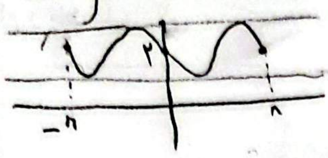
$\to S = \frac{1}{4}\times\log_2 27\times\log_3 12 = \frac{1}{4}\times\frac{\cancel{\log 27}^{\,3}}{\log 2}\times\frac{\cancel{\log 12}^{\,4}}{\log 3} = \boxed{3}$ ۴

$f = 2x^4 - x^2 - \sin^2(\alpha)(2\sin^2\alpha - 1)$ باقی‌مانده بر $x-\cos\alpha$ است $\to f(\cos\alpha) = 1$

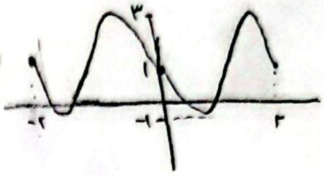
$x^2(2x^2-1) + \sin^2\alpha(1-2\sin^2\alpha) = \cos^2\alpha(\underbrace{2\cos^2\alpha-1}_{\cos 2\alpha}) + \sin^2\alpha(\cos 2\alpha)$ ۵

$\cos 2\alpha(\underbrace{\cancel{\sin^2\alpha+\cos^2\alpha}}_{1}) = 1 \to \cos 2\alpha = 1 \to \boxed{\sin 2\alpha = 0}$

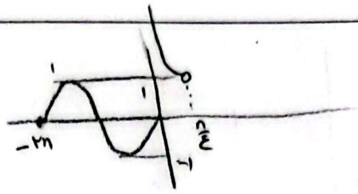
الف) $y = -2\sin x\cos x + 2 \xrightarrow{[-\pi,\pi]} y = -\sin 2x + 2 \to T = \frac{2\pi}{2} = \pi$ 6



ب) $y = \underbrace{2\cos(x+\frac{1}{2})\pi + 1}_{2\cos(\pi x+\frac{\pi}{2})+1 \,=\, -2\sin\pi x+1} \quad [-\pi, 2\pi] \to T = \frac{2\pi}{\pi} = 2$



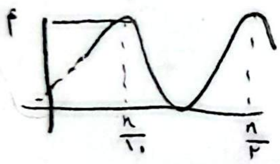
$f(x) = \begin{cases} \cot x & 0<x<\frac{\pi}{4} \\ \sin x & x \le 0 \end{cases}$ 7



$R = [-1, +\infty)$

$f(x) = a + b\underbrace{\sin(cx)\cos(cx)}_{\frac{\sin(2cx)}{2}}\cos(2cx) = a + \frac{b}{2}\underbrace{\sin(2cx)\cos(2cx)}_{\frac{\sin(4cx)}{2}}$ 8

$f(x) = a + \frac{b}{4}\sin(4cx) \to T = \frac{\pi}{2} - \frac{\pi}{10} = \frac{4\pi}{10} = \frac{2\pi}{5} \to \frac{2\pi}{4c} = \frac{2\pi}{5} \to c = \boxed{\frac{5}{4}}$

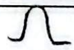


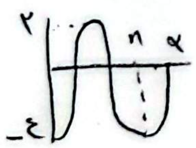
$\max\ \frac{b}{4} + a = 4$

$\min\ a - \frac{b}{4} = 0$

$\to 2a = 4 \to a = 2 \to \boxed{b = 8}$

$c>0 \to b>0 \to \frac{bc}{a} = \frac{8\times\frac{5}{4}}{2} = \boxed{5}$

$f(x) = a\cos bx + C \longrightarrow a<0$  زیر تابع 9



$T = \pi \to \frac{2\pi}{|b|} = \pi \to |b| = 2 \to b = 2$

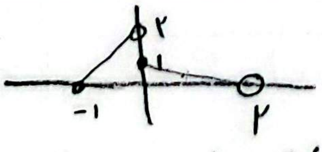
$-a + C = 2$

$a + C = -4$

$\to 2C = -2 \to C = -1 \quad a = -3$

$f(x) = -3\cos(2x) - 1 \quad f(\alpha) = 0 \to \cos(2\alpha) = -\frac{1}{3} \to \sin 2\alpha = \frac{\sqrt{8}}{3}$

$\to |\tan 2\alpha| = \frac{\frac{\sqrt{8}}{3}}{\frac{1}{3}} = \boxed{\sqrt{8}}$



$T = 3$ 10

$f(-34.5) \xrightarrow{\text{میدانیم}} f(x) = f(x \pm nT)$

$f(-34.5) = f(-34.5 + 12\times 3) = f(1.5)$  $\to y = -\frac{1}{2}x + 1$

$\longrightarrow f(1.5) = -\frac{1}{2}\times\frac{3}{2} + 1 = \boxed{\frac{1}{4}}$