نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ..... کلاس .....

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$\frac{\text{ضلب}}{\text{مجاور}} = \tan\hat{T} = \cos\alpha \to y = \cot\alpha = 4 \Rightarrow A\left|\begin{matrix}\cos\hat{T}\\ \sin\hat{T}\end{matrix}\right. \to A\left|\begin{matrix}\sin\alpha\\ \cos\alpha\end{matrix}\right. \to B\left|\begin{matrix}1\\ \cot\alpha\end{matrix}\right.$

$AB = \sqrt{(\sin\alpha-1)^2 + (\cot\alpha-\cos\alpha)^2} = \sqrt{\sin^2\alpha + 1 - 2\sin\alpha + \frac{(\cos\alpha - \cos\alpha\sin\alpha)^2}{\sin^2\alpha}} =$

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

$\sqrt{\frac{\sin^2\alpha + \cos^2\alpha - 2\sin\alpha - \cos^2\alpha\sin^2\alpha}{\sin^2\alpha}} = \sqrt{\frac{\sin^2\alpha(1-\cos^2\alpha) + 1 + \sin^2\alpha - 2\sin\alpha}{\sin^2\alpha}} = \sqrt{\frac{\sin^4\alpha - \sin^2\alpha - 2\sin\alpha + 1}{\sin^2\alpha}}$

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$\left.\begin{matrix}\frac{\sin 60}{4} = \frac{\sin\alpha}{AB}\\ \frac{\sin 30}{3} = \frac{\sin\alpha}{AC}\end{matrix}\right\} \div \Rightarrow \frac{AC}{AB} = \frac{\frac{\sqrt{3}}{2}}{2\times\frac{1}{2}} \to \frac{AB}{AC} = \frac{2}{\sqrt{3}} = \boxed{\frac{2\sqrt{3}}{3}}$ $\quad b_1 = \alpha \to b_2 = 180 - \alpha$

$\sin\hat{b}_1 = \sin\hat{b}_2$

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$A = \frac{\pi}{3} \Rightarrow AB = \sqrt{\left(\frac{\sqrt{3}}{2} - \frac{1}{2}\right)^2 + \left(\frac{\sqrt{3}}{2} - \frac{1}{2}\right)^2} = \frac{\sqrt{3}-1}{2}\times\sqrt{2}$

$C = \frac{3\pi}{2} \Rightarrow \boxed{AC = \left(\frac{1}{2}\right)^2 + \left(\frac{\sqrt{3}}{2}+1\right)^2}$

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$S_\Delta = \frac{1}{2}\times AB\times AC\times\sin\alpha = \frac{1}{2}\times\log_2^3\times\log_3^4\times\frac{1}{2} = \frac{1}{4}\times 3\times 4\times 1 = \boxed{3}$

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طبق نکته داریم $\to \underbrace{2\cos^4\alpha}_{\cos^4\alpha+\cos^2\alpha} - \cos^2\alpha - \left(\sin^2\alpha\times\underbrace{(2\sin^2\alpha-1)}_{-\cos^2\alpha+\sin^2\alpha}\right) = 1$

$2\cos^4\alpha - \cos^2\alpha + \sin^2\alpha(\cos^2\alpha - \sin^2\alpha) = (\sin^2\alpha+\cos^2\alpha)(\cos^2\alpha-\sin^2\alpha) - \underbrace{\cos^2(1-\sin^2\alpha)}_{\cos^4\alpha} + \cos^2\alpha$

$= \cos^2\alpha - \sin^2\alpha = \cos 2\alpha = 1 \to \boxed{\sin 2\alpha = 0}$

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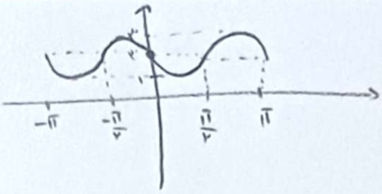
الف) $y = -2\sin x\cos x + 2 = -\sin 2x + 2$

$\{-\pi, \pi\}$ دوره تناوب $= \frac{2\pi}{2} = \pi$



ب) $y = 2\cos(x+\frac{1}{2})\pi + 1 =$

$\{-\pi, 2\pi\}$ دوره تناوب $= \frac{2\pi}{1} = 2\pi$

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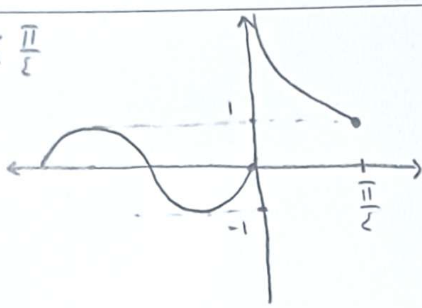
$f(x) = \begin{cases} \cot x & : 0 < x < \frac{\pi}{4} \\ \sin x & : x \leq 0 \end{cases}$



$R_f = (-1, +\infty)$

$\sin 0 = 0$

$\cot\frac{\pi}{4} = 1$

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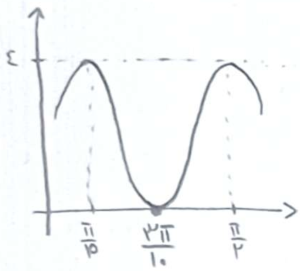

$f(x) = a + b\sin(cx)\cos(cx)\cos(2cx) = a + \frac{b}{2}\sin(2cx)\cos(2cx)$

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

دوره تناوب $= \frac{2\pi}{4c} = \frac{\pi}{2} - \frac{\pi}{10} = \frac{4\pi}{10} = \frac{2\pi}{4c}$ ، $4c = 5$ ، $c = \frac{5}{4}$

Max - Min = 4 ⟵ ۲ برابر شده ⟵ $\frac{b}{4} = 2 \to b = 8$ ، $a = 2$

$\frac{b \times c}{a} = 8 \times \frac{5}{4} \times \frac{1}{2} = 5$ ⟵ جواب

پایه از ۲- تا ۲ می‌برد ولی شده ۰ تا ۴ پس ۲+ شده

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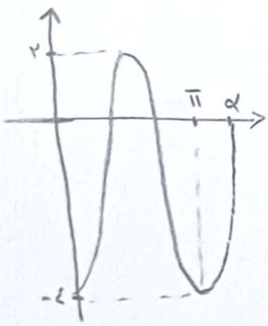

$f(x) = a\cos bx + c = 3\cos(2x) - 1$

$3\cos(\pi + 2\alpha) = 1$

$3\cos(2\alpha) = 1$

$\cos(2\alpha) = \frac{1}{3}$

دوره تناوب $= \frac{2\pi}{b} = \pi \to b = 2$

Max - Min = 6 ⟶ $2 \times a \to a = 3$

به اندازه ۱ واحد به پایین جابجا شده ⟶ $c = -1$

$\frac{1}{\cos^2} = 1 + \tan^2 \to \tan^2 = 8$

$|\tan 2\alpha| = \sqrt{8} = 2\sqrt{2}$

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$y = f(x)$ $T = 3$

$f(-34.5) = ?$

$[-1, 2)$ ، $[2, 5)$ ، $[5, 8)$ ، ....

$-1 \underset{+3}{\smile} 2 \underset{+3}{\smile} 5 \to 3n - 4$ (به صورت مثبت‌ها)

$-1, -4, -7$ $(-3, -3)$ ⟶ $-3n + 2$ (به صورت منفی‌ها)

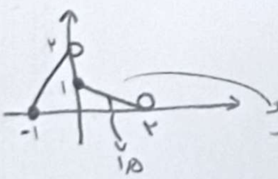
$n = 12$ $(-3 \times 12) + 2 = -34$

$n = 13$ $(-3 \times 13) + 2 = -37$

$[-37, -34)$

-34.5 ⟶ $\frac{1}{2}$ عقب‌تر از پایان

تفاوت ⇐ نقطه 1.5



معادله خط $= y = -\frac{x}{2} + 1$

$-\frac{3}{2} \times \frac{1}{2} + 1 = \frac{1}{4}$ ⟵ جواب