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

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$\tan(\alpha) = \frac{TB}{1}$, $AB = OB - OA$, $\cos(\alpha) = \frac{OT}{OB} = \frac{1}{OB} \Rightarrow OB = \frac{1}{\cos\alpha}$

$AB = OB - OA = \sec\alpha - 1$

غلط

$\left.\begin{array}{l} AB = \sec\alpha - 1 \\ \sec^2\alpha = 1 + \tan^2\alpha \end{array}\right\} \Rightarrow \sec\alpha = \frac{1}{\cos\alpha} = \frac{1}{\sqrt{1-\sin^2\alpha}}$

$OB^2 = OT^2 + BT^2 \longrightarrow OB^2 = 1 + \cot^2\alpha = \frac{1}{\sin^2\alpha}$

$OB = \frac{1}{\sin\alpha} \longrightarrow AB = \frac{1}{\sin\alpha} - 1$

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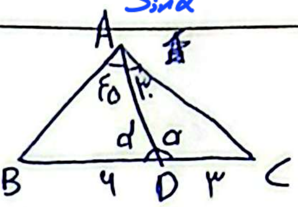

$\frac{AB}{\sin\alpha'} = \frac{BD}{\sin 45}$, $\frac{AC}{\sin\alpha} = \frac{DC}{\sin 30}$, $\sin\alpha = \sin\alpha'$

چون این ۲ مقدار برابر اند، ما مقایسه می خواهیم کنیم از طرح صرف نظر می کنیم

$\frac{AB}{AC} = \frac{\frac{6}{\sin 45}}{\frac{3}{\sin 30}} = \frac{6\times\frac{1}{2}}{3\times\frac{\sqrt{2}}{2}} = \sqrt{2}$

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$A(\frac{1}{2}, \frac{\sqrt{3}}{2})$, $B(\frac{-\sqrt{3}}{2}, \frac{1}{2})$, $C(0,-1) \Rightarrow S = \frac{1}{2}|x_A(y_B - y_C) + x_B(y_C - y_A) + x_C(y_A - y_B)| \Rightarrow S = \frac{1}{2}|(\frac{1}{2}\times\frac{3}{2}) + (-\frac{\sqrt{3}}{2})(-1-\frac{\sqrt{3}}{2})| \Rightarrow S = \frac{3+\sqrt{3}}{4}$

$AB = \sqrt{(\frac{1}{2}+\frac{\sqrt{3}}{2})^2 + (\frac{\sqrt{3}}{2}-\frac{1}{2})^2} = \sqrt{2}$, $BC = \sqrt{(\frac{-\sqrt{3}}{2}-0)^2 + (\frac{1}{2}+1)^2} = \sqrt{3}$

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

محیط $= \sqrt{3} + \sqrt{2} + \sqrt{2+\sqrt{3}}$

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$BC^2 = (AB)^2 + (AC)^2 - 2(AB)(AC)\cos\hat{A}$

$b^2 = x^2 + a^2 - 2ax\cos 30^\circ$, $S = \frac{1}{2}xa\sin 30 = \frac{1}{4}xa$

$x^2 - \sqrt{3}ax + (a^2 - b^2) = 0$ $x_1 = 6.8$, $a = \log_4 19 \simeq 2.5$, $b = \log_2 27 \simeq 4.7$

$S = \frac{1}{4}xa \simeq 4.3$

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$2\cos^4\alpha - \cos^2\alpha - 2\sin^4\alpha + \sin^2\alpha = 2(\cos^4\alpha - \sin^4\alpha) - (\cos^2\alpha - \sin^2\alpha)$

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

$\sin 2\alpha = 0$

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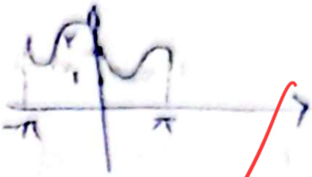
الف) $y=-2\sin x\cdot\cos x+2$ ⟸ $y=-\sin 2x+2$; $T=\frac{2\pi}{2}=\pi$



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

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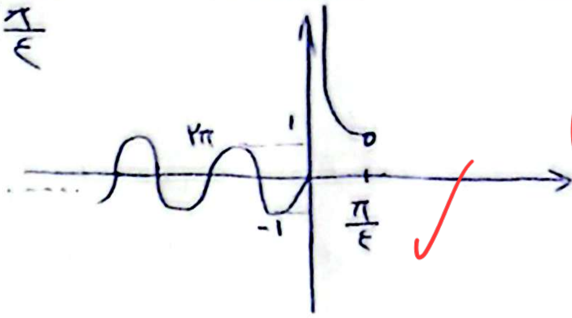
$f(x)=\begin{cases}\cot x & 0<x<\frac{\pi}{4}\\ \sin x & x\leq 0\end{cases}$

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

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



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

$\frac{b}{2}\sin(2cx)$

$T=\frac{\pi}{2}-\frac{\pi}{10}=\frac{2\pi}{5}$ ⟹ $T=\frac{2\pi}{|4c|}=\frac{2\pi}{5}$ ⟹ $\boxed{c=\frac{5}{4}}$,

$\frac{bc}{a}=5$; $\boxed{a=2}$

چون فاصله نقطه Max و min برابر ۴ است ⟸ $\frac{b}{4}=2$ ⟹ $\boxed{b=8}$

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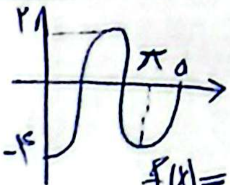
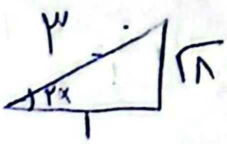


$f(x)=a\cos bx+c$

$\frac{2\pi}{|b|}=\pi$ ⟹ $\boxed{b=2}$; $\boxed{a=\frac{-6}{2}=-3}$, $\boxed{c=-1}$

$f(x)=-3\cos 2x-1$ ⟹ $f(x)=0$ ⟹ $1=-3\cos 2x$ ⟹ $\cos 2x=\frac{\pm 1}{3}=\cos 2\alpha$



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

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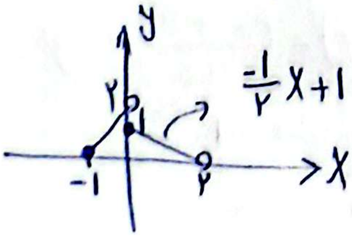
$T=3$ → $12\times 3=36$ ⟹ $f(-34.5)$, $f(-34.5+36)=f(1.5)$



$f(1.5)=\frac{-1}{2}(1.5)+1=\frac{1}{4}$

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