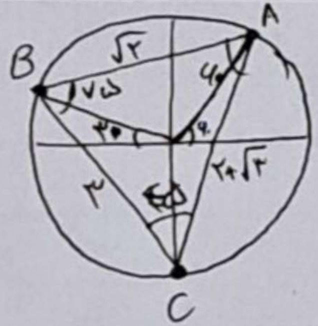
نام و نام خانوادگی ......ایلیا سالاری...... پاسخنامه تشریحی تکلیف شماره ....14....... کلاس ....دوازدهم A

$$\left.\begin{array}{l} BT = \tan\left(\frac{\pi}{2}-\alpha\right) = \cot\alpha \\ OT = 1 \end{array}\right\} \Rightarrow OB = \sqrt{1+\cot^2\alpha} = \frac{1}{\sin\alpha}$$

$$AB = OB - 1 = \frac{1}{\sin\alpha} - 1$$ ۱

$$\frac{AD}{\sin B} = \frac{BD}{\sin A_1} \Rightarrow \frac{AD}{\sin B} = \frac{6}{\frac{\sqrt{2}}{2}} = \frac{12}{\sqrt{2}} = 6\sqrt{2} \qquad \frac{AD}{\sin C} = \frac{DC}{\sin A_2} \Rightarrow \frac{AD}{\sin C} = \frac{3}{\frac{1}{2}} = 6$$

$$\frac{\frac{AD}{\sin B}}{\frac{AD}{\sin C}} = \frac{6\sqrt{2}}{6} = \sqrt{2} \qquad \frac{AB}{\sin C} = \frac{AC}{\sin B} \Rightarrow \frac{AB}{AC} = \frac{\sin C}{\sin B} = \sqrt{2}$$ ۲

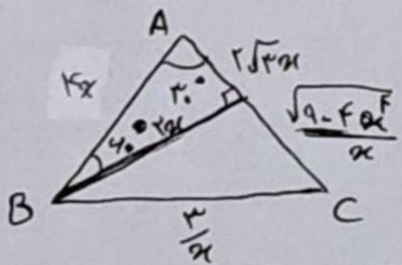


الف) $S = \frac{1}{2} ab\sin\alpha = \frac{1}{2} \times \frac{\sqrt{2}}{2} \times 3 \times (2+\sqrt{3}) = \frac{6+3\sqrt{3}}{2\sqrt{2}}$

ب) $AB = \sqrt{2} \quad AC = \sqrt{3}+2 \quad BC = 3$

محیط: $3+\sqrt{2}+\sqrt{3}+2 = 5+\sqrt{2}+\sqrt{3}$ ۳

$BC = \log_7^{27} = 3\log_7^3 = 3\times\frac{1}{x} = \frac{3}{x} \qquad AC = \log_3^{14} = 4\log_3^2 = 4\times x = 4x$



$$S = \frac{1}{2} ab\sin\alpha = \frac{1}{2} \times \frac{1}{2} \times 4x \times \frac{\sqrt{9-4x^4} + 2\sqrt{3}x^4}{x} =$$ ۴

$$\sqrt{9-4\left(\log_3^2\right)^4} + 2\sqrt{3}\left(\log_3^2\right)^2$$

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

$$\cos^2\alpha(2\cos^2\alpha-1) - \sin^2\alpha(2\sin^2\alpha-1) =$$ ۵

$$= \cos^2\alpha(\cos2\alpha) - \sin^2\alpha(-\cos2\alpha) = \cos2\alpha(\cos^2\alpha+\sin^2\alpha) = 1 \Rightarrow$$

$$\cos2\alpha = 1 \qquad \sin^2 2\alpha + \cos^2 2\alpha = 1 \Rightarrow \sin2\alpha = \sqrt{1-1} = 0$$

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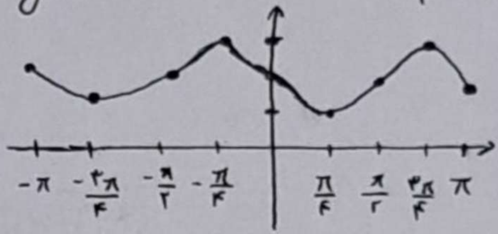
الف) $y=-2\sin x\cos x+2$ $[-\pi,\pi]$

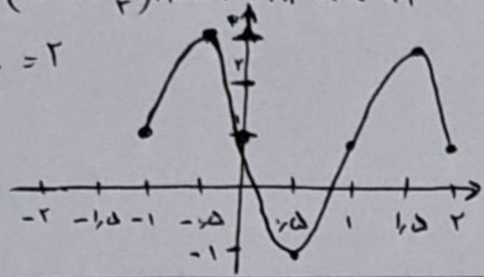
$y=-\sin 2x+2$ $T=\frac{2\pi}{2}=\pi$



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

$2\cos(x\pi+\frac{\pi}{2})+1=-2\sin x\pi+1$

$T=\frac{2\pi}{\pi}=2$



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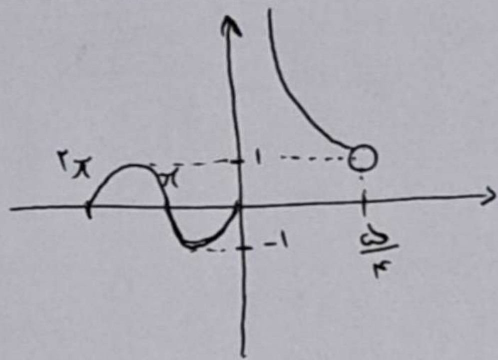
$f(x)=\begin{cases}\cot x & 0<x<\frac{\pi}{4}\\ \sin x & x\le 0\end{cases}$



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

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

$a+\frac{b}{4}\sin(4cx)$ $T=\frac{2\pi}{4c}=\frac{4\pi}{10}\Rightarrow 4c=5\Rightarrow c=\frac{5}{4}$ $a=2$

$2=\frac{b}{4}\Rightarrow b=8$ $\frac{bc}{a}=\frac{8\times\frac{5}{4}}{2}=\frac{2\times 5}{2}=5$

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$f(x)=a\cos bx+c$ $T=\frac{2\pi}{b}=\pi\Rightarrow b=2$ $a=-3$ $c=-1$

$f(x)=-3\cos 2x-1\Rightarrow \cos^2 2x=\frac{1}{9}$ $1+\tan^2 2x=\frac{1}{\cos^2 2x}=\frac{1}{\frac{1}{9}}=9\Rightarrow$

$\tan^2 2x=8\Rightarrow \tan 2x=\sqrt{8}=2\sqrt{2}$ $|\tan 2x|=2\sqrt{2}$

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$f(-34.5)=f(-36+1.5)=f(+1.5)=\frac{1}{2}$