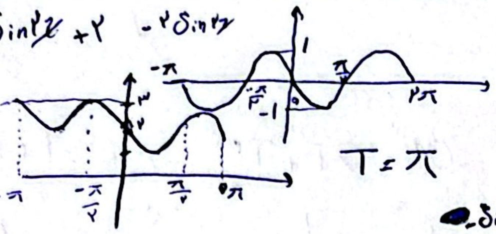
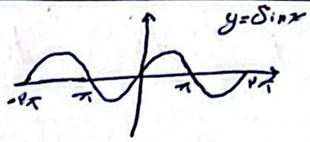
نام و نام خانوادگی ..امیرعلی تنهایی راد.......... پاسخنامه تشریحی تکلیف شماره ..۱۴.. کلاس ..دوازدهم پسر B..........

$TB = \tan(90-\alpha) = \cot\alpha \quad OT = 1 \quad OB^2 = OT^2 + TB^2 \Rightarrow OB^2 = 1 + \cot^2\alpha = \frac{1}{\sin^2\alpha}$ $OB = \frac{1}{\sin\alpha} \quad OA = 1 \quad AB = OB - OA = \frac{1}{\sin\alpha} - \frac{\sin\alpha}{\sin\alpha} = \frac{1-\sin\alpha}{\sin\alpha}$	۱
$\frac{AB}{\sin(180-\alpha)} = \frac{6}{\sin 45^\circ} \Rightarrow \frac{AB}{\sin\alpha} = \frac{6}{\frac{\sqrt{2}}{2}} \Rightarrow AB = \frac{6\sin\alpha}{\frac{\sqrt{2}}{2}} = \frac{12\sin\alpha}{\sqrt{2}}$ $\frac{AC}{\sin\alpha} = \frac{3}{\sin 30^\circ} \Rightarrow \frac{AC}{\sin\alpha} = \frac{3}{\frac{1}{2}} \Rightarrow AC = \frac{3\sin\alpha}{\frac{1}{2}} = 6\sin\alpha \Rightarrow \frac{AB}{AC} = \frac{\frac{12\sin\alpha}{\sqrt{2}}}{6\sin\alpha} = \sqrt{2}$	۲
$A\left\lvert\begin{matrix}\frac{1}{2}\\ \frac{\sqrt{3}}{2}\end{matrix}\right. \quad B\left\lvert\begin{matrix}\frac{\sqrt{3}}{2}\\ \frac{1}{2}\end{matrix}\right. \quad C\left\lvert\begin{matrix}0\\ -1\end{matrix}\right. \quad \hat{C} = 45^\circ$ $AB = \sqrt{\left(\frac{\sqrt{3}-1}{2}\right)^2 + \left(\frac{1-\sqrt{3}}{2}\right)^2} = \sqrt{3} - 1 \quad AC = \sqrt{}$ $BC = \sqrt{\left(\frac{\sqrt{3}}{2}\right)^2 + \frac{9}{4}} = \frac{\sqrt{13}}{2}$	۳
$S_{ABC} = \frac{1}{2} AB\, AC \sin 30^\circ = \frac{1}{2} \times \log_2 27 \times \log_3 16 \times \frac{1}{2} = \frac{1}{2} \times 3\log_2 3 \times 4\log_3 2 \times \frac{1}{2} =$ $\frac{1}{2} \times 3 \times 1 \times 4 \times 1 \times \frac{1}{2} = 3$	۴
$x - \cos\alpha = 0 \Rightarrow \cos\alpha = x \Rightarrow 4\cos^4\alpha - \cos^2\alpha - \sin^2\alpha(-\cos2\alpha) = 1$ $\Rightarrow 4\cos^4\alpha - \cos^2\alpha + \sin^2\alpha\cos2\alpha = \cos^2\alpha(\underbrace{2\cos^2\alpha - 1}_{\cos2\alpha}) + \sin^2\alpha\cos2\alpha = \cos2\alpha(\underbrace{\cos^2\alpha + \sin^2\alpha}_{1}) = 1$ $\Rightarrow \cos2\alpha = 1 \Rightarrow \sin^2 2\alpha + \cos^2 2\alpha = 1 \Rightarrow \sin^2 2\alpha + 1 = 1 \Rightarrow \sin^2 2\alpha = 0 \Rightarrow \sin 2\alpha = 0$	۵

الف) $y=-2\sin^2 x+2$ $\quad -2\sin^2 x$

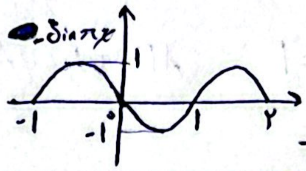
$-2\sin^2 x+2$

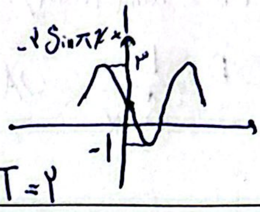




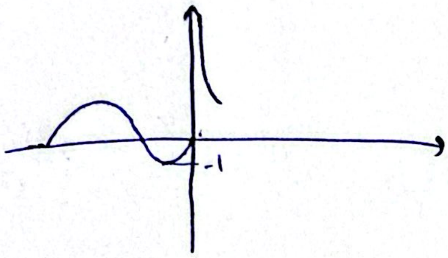
$T=\pi$ ۶

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





$T=2$



$R_f=[-1,+\infty)$ ۷

$f(x)=a+b\underbrace{\sin(cx)\cos(cx)}_{\frac{1}{2}\sin(2cx)}\cos(2cx) \Rightarrow f(x)=a+b\times\frac{1}{2}\underbrace{\sin(2cx)\cos(2cx)}_{\frac{1}{2}\sin(4cx)}$

$\Rightarrow f(x)=a+b\times\frac{1}{4}\sin(4cx)=a+\frac{b}{4}\sin(4cx)$ $\quad T=\frac{\pi}{2}-\frac{\pi}{10}=\frac{2\pi}{5}$ ۸

$T=\frac{2\pi}{4c}=\frac{2\pi}{5}\Rightarrow 4c=5\Rightarrow \boxed{c=\frac{5}{4}}$ $\quad a+\left|\frac{b}{4}\right|=4$, $\;a-\left|\frac{b}{4}\right|=0 \Rightarrow \boxed{a=2}$, $\left|\frac{b}{4}\right|=2\Rightarrow |b|=8 \xRightarrow{b>0} \boxed{b=8}$ $\quad \frac{\frac{8\times 5}{4}}{2}=5$

$T=\pi \qquad T=\frac{2\pi}{|b|}\Rightarrow |b|=2\Rightarrow b=\pm 2 \xRightarrow[\text{تعاقق ندارد}]{\text{به معنی بودن مثبت}} b=+2$

$c+|a|=2$, $\;c-|a|=-4 \Rightarrow c=-1$, $\;|a|=3\Rightarrow a=-3$ $\qquad f(x)=-3\cos 2x-1$ ۹

$f(\alpha)=0\Rightarrow -3\cos 2\alpha-1=0\Rightarrow -3\cos 2\alpha=1\Rightarrow \cos 2\alpha=\frac{-1}{3}$ $\cdot\; \sin 2\alpha=\pm\frac{2\sqrt{2}}{3}$

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

$f(-34.5)=f(-34.5+3n) \xRightarrow{n=12} f(-34.5)=f(1.5)$

$f(x)=\frac{-1}{2}x+1 \quad 1\leq x<2 \Rightarrow f(1.5)=\frac{-1}{2}\times\frac{3}{2}+1=\frac{-3}{4}+\frac{4}{4}=\frac{1}{4}$

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