۱۵/۵

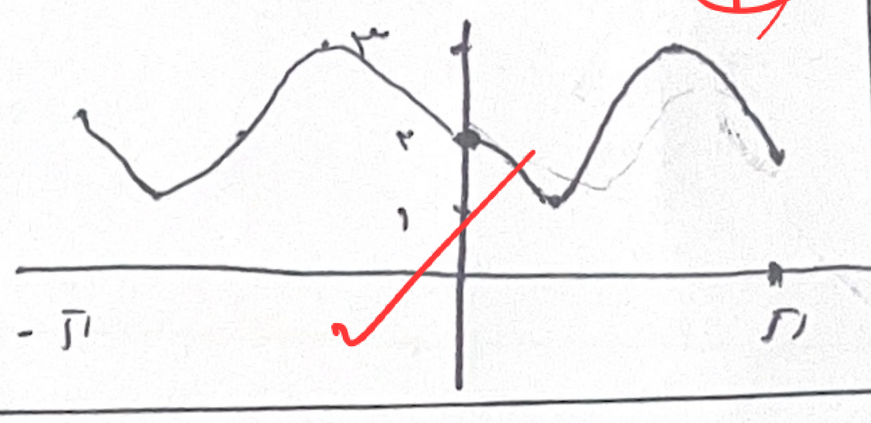
نام و نام خانوادگی ...پریا پیراحی...... پاسخنامه تشریحی تکلیف شماره ..۱۴.. کلاس ...دوازدهم ریاضی A...

۱	$OB = \tan(90-\alpha) = \cot a$ $OT = 1 \Rightarrow OB^2 = 1 + \cot^2 a = \frac{1}{\sin^2 a}$ $OA = 1$ $\Rightarrow OB = \frac{1}{\sin a}$ $\Rightarrow OB - OA = AB \Rightarrow \frac{1}{\sin a} - 1 = AB$ ✓ (۲)
۲	$\frac{6}{\frac{\sqrt{2}}{2}} = \frac{AB}{\sin a}$ ، $\frac{3}{\frac{1}{2}} = \frac{AC}{\sin a}$ (۲) $\frac{\frac{12}{\sqrt{2}}}{6} = \frac{\frac{AB}{\sin a}}{\frac{AC}{\sin a}} = \frac{AB}{AC} = \sqrt{2}$ ✓
۳	الف) $AB^2 + BC^2 - 2(AB)(BC)\cos B = AC^2$ $2 + 3 - 2\sqrt{6}\cos B = 2 + \sqrt{3}$ $\Rightarrow \cos B = \frac{\sqrt{3}-1}{2\sqrt{2}} \Rightarrow \sin B = \frac{\sqrt{2+\sqrt{3}}}{2}$ $\frac{1}{2} \times \sin B \times \sqrt{2} \times \sqrt{3} = S$ $\frac{1}{2} \times \frac{\sqrt{2+\sqrt{3}}}{2} \times \sqrt{6} = S$ $S_{ABC} = \frac{3+\sqrt{3}}{4}$ (۱/۵) ب) $A(\frac{1}{2}, \frac{\sqrt{3}}{2})$ و $B(-\frac{\sqrt{3}}{2}, \frac{1}{2})$ $C(0, -1)$ محیط: $\sqrt{2} + \sqrt{2+\sqrt{3}} + \sqrt{3}$ ✓ $AB: \sqrt{(\frac{\sqrt{3}}{2} - \frac{1}{2})^2 + (\frac{1}{2} - \frac{\sqrt{3}}{2})^2} = \sqrt{2}$ $AC: \sqrt{(\frac{1}{2})^2 + (\frac{\sqrt{3}}{2}+1)^2} = \sqrt{2+\sqrt{3}}$ $BC: \sqrt{(\frac{\sqrt{3}}{2})^2 + (\frac{1}{2}+1)^2} = \sqrt{3}$
۴	$\frac{1}{2} \times \frac{1}{2} \times \log_3 16 \times \log_2 27 = \frac{1}{4} \times 4\log_3 2 \times 3\log_2 3$ $= \frac{1}{4} \times 4\log_3 2 \times \frac{3}{\log_3 2} = 3$ ✓ (۲)
۵	$2\cos^4 a - \cos^2 a - \sin^2 a(2\sin^2 a - 1) = 1$ $\cos^2 a(\cos^2 a + \cos^2 a - 1) - \sin^2 a \cos 2a = 1$ $\cos^2 a \cos 2a - \sin^2 a \cos 2a = 1$ $\cos 2a(\cos^2 a - \sin^2 a) = 1$ $\cos^2 2a = 1 \Rightarrow \sin^2 2a = 0 \Rightarrow \sin 2a = 0$ ✓ (۲)

الف)

$-\sin 2x + 2$

دوره تناوب: $\frac{2\pi}{2} = \pi$



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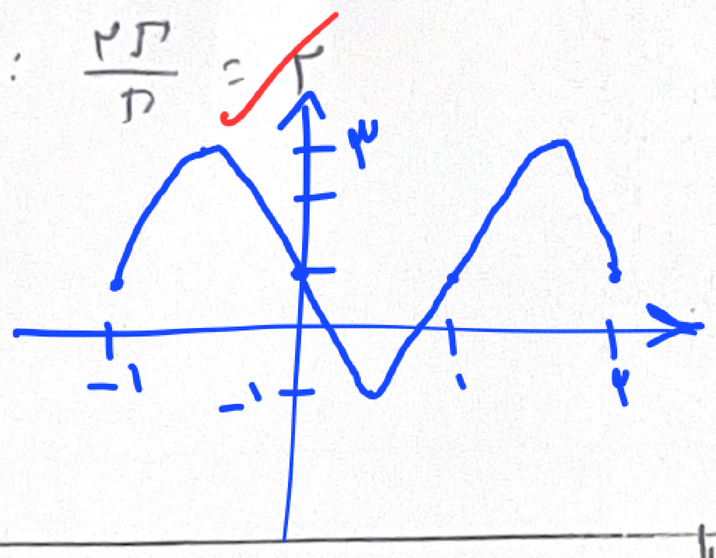
ب)

$2\cos(\pi x + \frac{3\pi}{2}) + 1$

دوره تناوب: $\frac{2\pi}{\pi} = 2$



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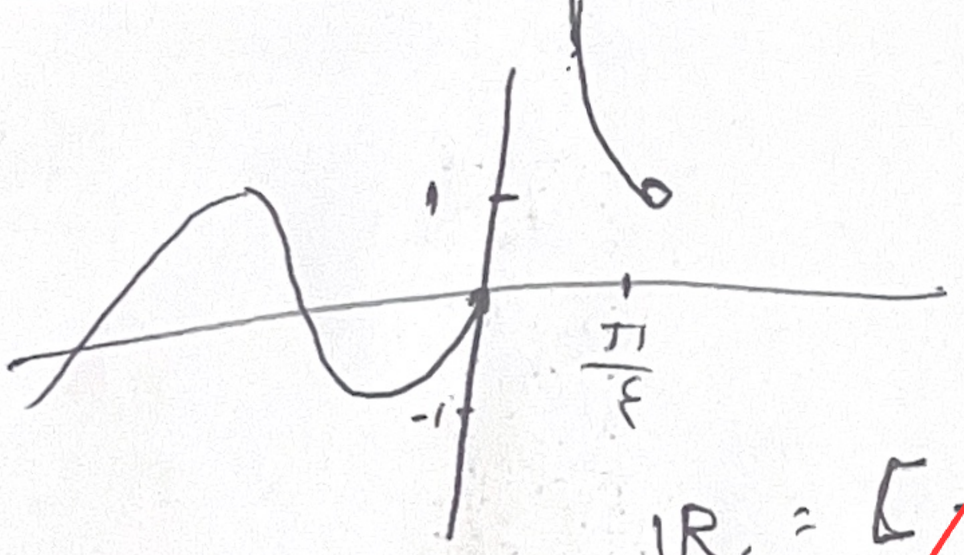

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$IR_f = [-1, +\infty)$ ✓

۱

$f(x) = a + b\frac{\sin 4x}{4} \Rightarrow a = \frac{4+0}{2} = 2$ ✓

$\Rightarrow \frac{b}{4} = 2 \Rightarrow b = 1$ ✓

$\frac{bc}{a} = 5$

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$\frac{T}{2} = \frac{\pi}{2} - \frac{\pi}{12} = \frac{5\pi}{12} \Rightarrow T = \frac{5\pi}{6} \Rightarrow \frac{2\pi}{4c} = \frac{5\pi}{6} \Rightarrow c = \frac{6}{5}$

$\Rightarrow \frac{bc}{a} = 2,6$

$C = 6/5$

$c = -\frac{4+2}{2} = -1 \Rightarrow a = 3 \rightarrow a = -3$

$\frac{T}{2} = 4 \Rightarrow \frac{2\pi}{b} = 2\pi \Rightarrow b = 1 \rightarrow b = 4$

$\Rightarrow f(x) = 3\sin(4x) - 1 = 0 \Rightarrow \sin(4x) = \frac{1}{3} \rightarrow \cos 4x = \frac{-1}{3}$

۱

$1 + \tan^2 a = 9 \Rightarrow \tan^2 a = 8 \Rightarrow \tan a = |2\sqrt{2}|$

$|\tan 2a| = \left|\frac{2\tan a}{1-\tan^2 a}\right| = \left|\frac{2|2\sqrt{2}|}{-7}\right| = \frac{4\sqrt{2}}{7}$

$|\tan 2a| = 4\sqrt{2}$

۹

$-\frac{۳۴}{۵} = -۶/۸$ $-۶/۸+۳+۳ = -۰/۸$ ⓪ $\Rightarrow f(-\frac{۳۴}{۵}) = f(-۰/۸)$ $y-۲ = ۲x \Rightarrow y = ۲x+۲$ $\Rightarrow f(-\frac{۴}{۵}) = -\frac{۸}{۵}+۲ = \frac{۲}{۵} = f(-\frac{۳۴}{۵})$ $f(-۳۴,۵) = f(-۳۶+۱,۵) = f(۱,۵)$	۱/۵ ۰	
$f(x) = \begin{cases} -\frac{۱}{۲}x+۱ & ۰ \leq x < ۲ \\ ۲x+۲ & -۱ \leq x < ۰ \end{cases} \rightarrow \boxed{f(۱,۵) = \frac{۱}{۴}}$		۸
		۹
		۱۰