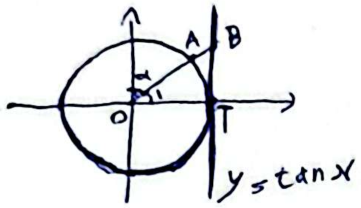
۲۰ آفرین

نام و نام خانوادگی ......[illegible]........ پاسخنامه تشریحی تکلیف شماره ..۱۴... کلاس .دوازدهم تجربی B.......



$AB = OB - OA$, $OA = 1$

$OB = \sqrt{OT^2 + BT^2}$, $OT = 1$

$BT = \tan \hat{O}_1 = \cot\alpha$, $\hat{\alpha} + \hat{O}_1 = 90°$

$OB = \sqrt{\cot^2\alpha + 1^2} = \sqrt{\frac{1}{\sin^2\alpha}}$

$\frac{\cos^2\alpha}{\sin^2\alpha} + 1 = \frac{\cos^2\alpha + \sin^2\alpha}{\sin^2\alpha}$

$OB = \frac{1}{\sin\alpha}$

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

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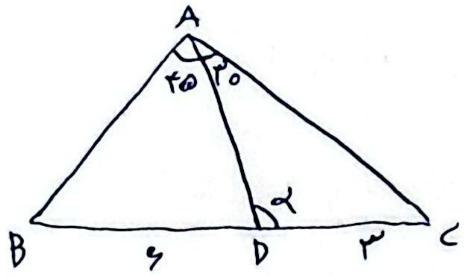

$\frac{AC}{\sin\alpha} = \frac{3}{\sin 30°}$ ($\frac{1}{2}$) $\rightarrow AC = 6\sin\alpha$

$\frac{AB}{\sin(\pi - \alpha)} = \frac{6}{\sin 45°}$ ($\sin\alpha$, $\frac{\sqrt{2}}{2}$) $\rightarrow AB = \frac{12}{\sqrt{2}}\sin\alpha$

$\frac{AB}{AC} = \frac{\frac{12}{\sqrt{2}}\sin\alpha}{6\sin\alpha}$

$\frac{AB}{AC} = \frac{2}{\sqrt{2}} = \sqrt{2}$

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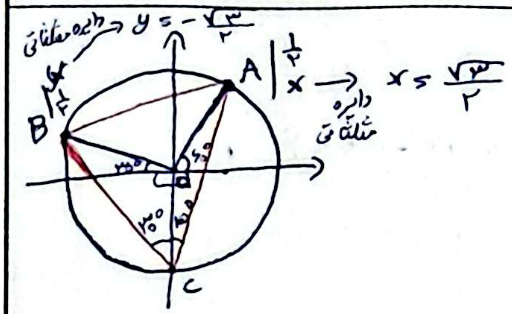

$AB = \sqrt{(\frac{1}{2} + \frac{\sqrt{3}}{2})^2 + (\frac{\sqrt{3}}{2} - \frac{1}{2})^2} = \sqrt{2}$

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

$BC = \sqrt{(0 + \frac{\sqrt{3}}{2})^2 + (-1 - \frac{1}{2})^2} = \sqrt{3}$ ($\frac{3}{4}$, $\frac{9}{4}$)

الف) $S_{ABC} = \frac{AC \cdot BC \cdot \sin\hat{C}}{2} = \frac{\sqrt{2+\sqrt{3}} \cdot \sqrt{3} \cdot \sqrt{2}}{4}$

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

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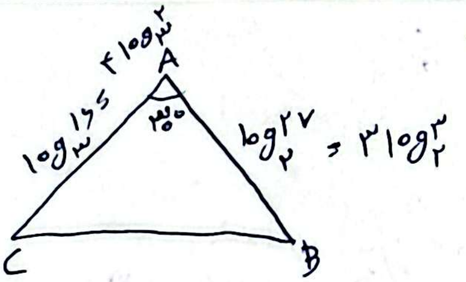

$S_{ABC} = \frac{AB \cdot AC \cdot \sin\hat{A}}{2} \rightarrow \frac{3\log_2 3 \times 4\log_3 2 \times \sin 30°}{2} = 3$

$S_{ABC} = 3$

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$2x^4 - x^2 - \sin^2(\alpha)(2\sin^2\alpha - 1) \div (x - \cos\alpha)$

$x = \cos\alpha \rightarrow 2\cos^4\alpha - \cos^2\alpha + \sin^2(\alpha)(2\sin^2\alpha - 1)$ ($-\cos 2\alpha$)

$\cos^2\alpha(2\cos^2\alpha - 1)$ ($\cos 2\alpha$)

$\cos 2\alpha(\cos^2\alpha + \sin^2\alpha) = 1 \rightarrow \cos 2\alpha = 1$

$\sin 2\alpha = 0$

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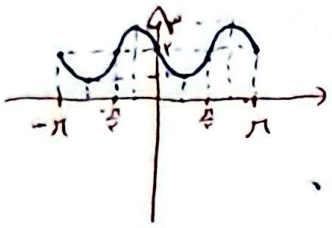
الف) $y = -2\sin x\cos x + 2 \quad [-\pi, \pi]$

$\downarrow$

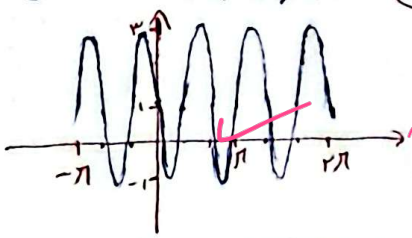
$y = -\sin 2x + 2$ → دوره تناوب $= \frac{2\pi}{2} = \pi$



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

$\left(x\pi + \frac{\pi}{2}\right)$

$y = -2\sin(x\pi) + 1$ → دوره تناوب $= \frac{2\pi}{\pi} = 2$



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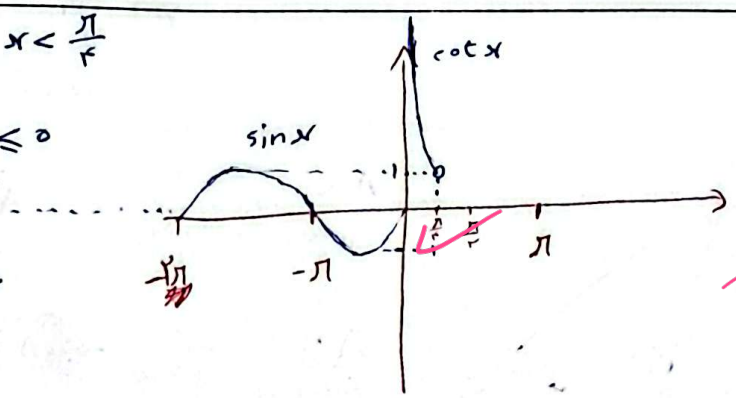
$$f(x) = \begin{cases} \cot x & ; \ 0 < x < \frac{\pi}{4} \\ \sin x & ; \ x \leq 0 \end{cases}$$



$R \in [-1, +\infty)$

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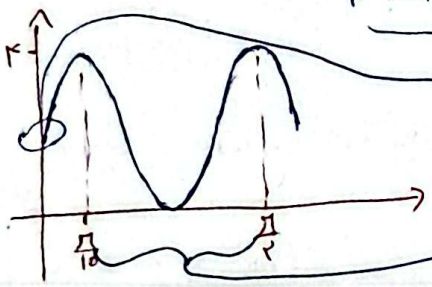
$f(x) = a + b\sin(cx)\cos(cx)\cos(2cx)$

$\frac{1}{2}\sin(2cx)$, $\frac{1}{4}\sin(4cx)$

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

$\frac{bc}{a} = \frac{\pi}{\frac{\pi}{2}} = 2 \Rightarrow b = \frac{2a}{c}$

$\frac{b}{4} = \pm 2 \xrightarrow{c>0} \frac{b}{4} = 2 \rightarrow b = 8 \rightarrow a = 2$



دوره تناوب $= \frac{2\pi}{|4c|} = \frac{\pi}{10} \rightarrow c = \pm\frac{2}{4} \xrightarrow{c>0} c = +\frac{2}{4}$

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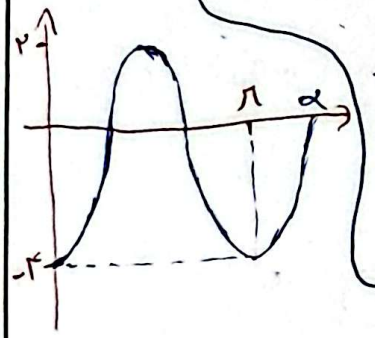
$f(x) = a\cos bx + c$



$\frac{2\pi}{|b|} = \pi$

$\downarrow$

$b = \pm 2$

چون تابع کسینوسی است → $b = 2$ فرقی نمی‌کند

$c = -1$

$a = -3$

$f(x) = -3\cos 2x - 1$

$x = \alpha$

$-3\cos 2\alpha - 1 = 0$

$\cos 2\alpha = -\frac{1}{3}$

$1 + \tan^2 2\alpha = \frac{9}{\cos^2 2\alpha} \rightarrow \tan^2 2\alpha = 8$

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

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

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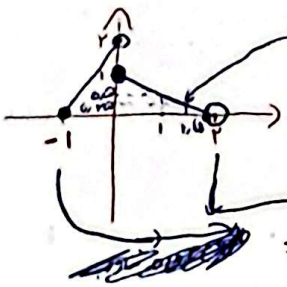
$f(x) = y$ دوره تناوب $= 3$

$f(1,0) = f(-2,5) = 0.25$



$= 3n - 1 = -3 \rightarrow f(-3) = f(2) \rightarrow f(-2,5) = f(1,0)$

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