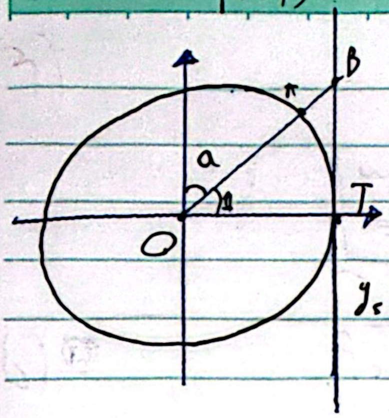
۲۰ آفرین

آروین خالوزاده

SUBJECT: فرض $(R=1)$ DATE:



۱)

$AB = ?$

$OT = 1$

$\cos_1 = \frac{OT}{OB} = \frac{1}{OB} \Rightarrow (1, a)$ متمم

$OA = R = 1$ ② $\cos_1 = \sin a \Rightarrow OB = \frac{1}{\sin a}$

$y = \tan a$

① ② $\Rightarrow AB = OB - OA = \frac{1}{\sin a} - 1 = \frac{1 - \sin a}{\sin a}$

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۲)

$\frac{AB}{AC} = ?$

$S_{A\hat{D}C} = \frac{1}{2} \cdot AD \cdot DC \cdot \sin a$

$S_{A\hat{D}B} = \frac{1}{2} \cdot AD \cdot DB \cdot \sin(90 - a) = \frac{1}{2} \cdot AD \cdot BD \cdot \sin a$

$\Rightarrow \frac{S_{A\hat{D}C}}{S_{A\hat{D}B}} = \frac{CD}{BD} = \frac{3}{6} = \frac{1}{2} \Rightarrow \frac{AB}{AC} = \frac{\frac{1}{1}}{\frac{1}{\sqrt{2}}} = \sqrt{2}$

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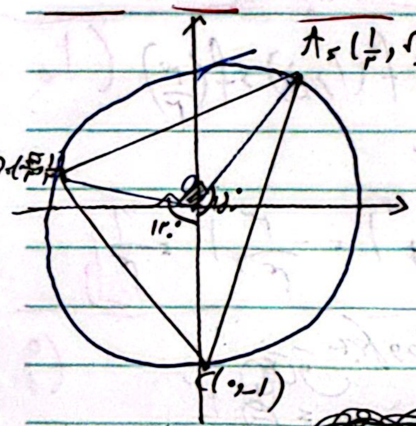
۳)



$A = (\frac{1}{2}, \frac{\sqrt{3}}{2})$, $C(0, -1)$

$\Rightarrow S_{A\hat{O}C} = \frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$

$S_{A\hat{O}B} = \frac{1}{2} \times 1 = \frac{1}{2}$

$S_{B\hat{O}C} = \frac{1}{2} \times \frac{\sqrt{3}}{2} = \frac{\sqrt{3}}{4}$

$\Rightarrow S_{ABC} = \sum S = \frac{3 + \sqrt{3}}{4}$

[redacted]

$AB = \sqrt{OA^2 + OB^2 - 2 OA\, OB \cos 90^\circ} = \sqrt{2}$

$AC = \sqrt{OA^2 + OC^2 - 2 OA\, OC \cos 150^\circ} = \sqrt{2 + \sqrt{3}}$

$BC = \sqrt{OB^2 + OC^2 - 2 OB\, OC \cos 120^\circ} = \sqrt{3}$

محیط $= AB + AC + BC = \sqrt{2} + \sqrt{2 + \sqrt{3}} + \sqrt{3}$

DATE : SUBJECT :

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$S = \frac{1}{2} \times AB \times AC \times \sin 30 = \frac{1}{4} \times \log_2 27 \times \log_3 16$

$= \frac{1}{4} \times 3\log_2 3 \times 4\log_3 2 = \frac{1}{4} \times 3 \times 4 \times \frac{\log 3}{\log 2} \times \frac{\log 2}{\log 3} = 3$

(۲)

(۸

$2x^4 - x^2 - \sin^2(a)(2\sin^2 a - 1) \quad \lfloor x = \cos a \quad \Rightarrow \sin 2a = ?$

(۲)

(1)

جاگذاری

$\Rightarrow 2\cos^4 a - \cos^2 a - $ [illegible] $\sin^2 a(2\sin^2 a - 1) = 1$

$= \cos^2 a(2\cos^2 a - 1) - 2\sin^4 a + \sin^2 a = 1$

$= \cos^2 a(\cos 2a) - \sin^2 a(2\sin^2 a - 1) = 1$

$= \cos^2 a(\cos 2a) + \sin^2 a \cos 2a = 1$

$= \cos^2 a(\cos 2a) + \sin^2 a(\cos 2a) = \cos 2a(\sin^2 a + \cos^2 a) = 1$

$\Rightarrow \cos 2a = 1 \Rightarrow \sin 2a = 0$

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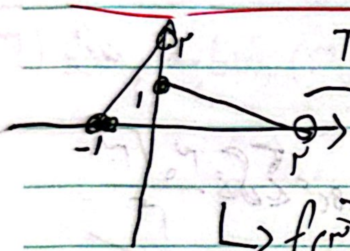


بدست آوردن معادله خط

$T = 3 \quad f(-34.5) = f(12 \times 3 - 34.5) = f(1.5) = f(\frac{3}{2})$

کوچکترین k>0 که بزرگتر از ۳ [illegible] $k = 12$

$\lfloor f(\frac{3}{2}) = -\frac{1}{2}x + 1 \Rightarrow f(\frac{3}{2}) = -\frac{1}{2} \times \frac{3}{2} + 1 = -\frac{3}{4} + 1 = \frac{1}{4}$

(۲)

(۹

$a\cos bx + c$

$T = \pi \Rightarrow |b| = 2 \qquad |a| + c = 2$

$-|a| + c = -4 \Rightarrow |a| = 3 \Rightarrow a = \pm 3$

$c = -1$ [illegible]

تحقق

(۲)

$a = -3$

$\Rightarrow b = \pm 2$ [illegible]

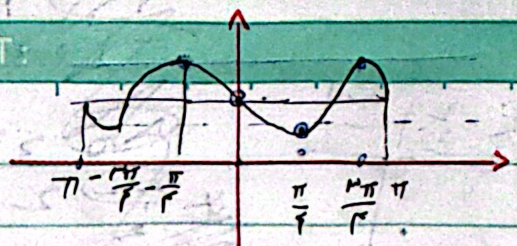
$c = -1$

$\Rightarrow y = -3\cos 2x - 1 \Rightarrow \cos 2x = -\frac{1}{3} \Rightarrow \sin 2x = \frac{2\sqrt{2}}{3}$

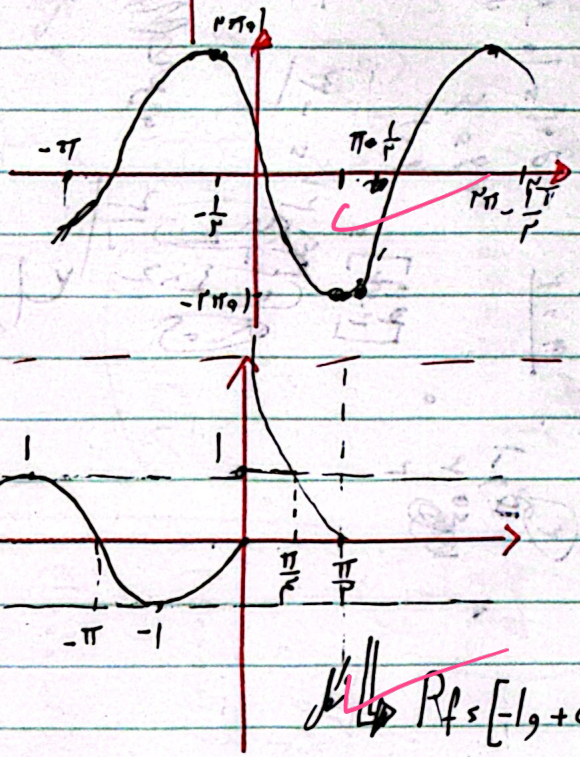
$\Rightarrow |\tan 2x| = \frac{2\sqrt{2}}{1} = 2\sqrt{2}$

آرین طالب‌زاده

۶) $y = -\sin x \cos x = -\frac{1}{2}\sin 2x + 2 \Rightarrow [-\pi, \pi]$



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



۷) $f(x) = \begin{cases} \cot x & ; 0 < x < \frac{\pi}{2} \\ \sin x & ; x \leq 0 \end{cases}$

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

۸) $f(x) = a_0 + \underbrace{b\sin(cx)\cos(cx)\cos(2x)}_{\frac{b}{2}\sin(4cx)}$

$\Rightarrow f(x) = a_0 + \frac{b}{2}\sin(4cx)$

د) $T = \left(\frac{\pi}{2} - \frac{\pi}{10}\right) = \frac{2\pi}{5} \Rightarrow \frac{2\pi}{5} = \frac{2\pi}{2c} \Rightarrow c = \frac{5}{2}$

$\Rightarrow f(x) = a_0 + \frac{b}{2}\sin(5x) \Rightarrow \begin{matrix} \min = -1 \\ \max = 1 \end{matrix}$

$\Rightarrow a_0 + \frac{b}{2} = 4 \quad | \Rightarrow a = 2 \quad | \rightarrow \frac{bc}{a} = \frac{4 \times \frac{5}{2}}{2} = \frac{5}{2}$

$a - \frac{b}{2} = 0 \quad | \quad b \neq 4$

$\Rightarrow \frac{5\pi}{2} = \max \sin$

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