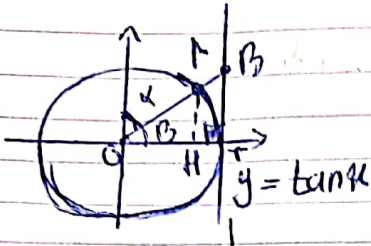


مردمان جاتی / تکلیف شماره ۱۲

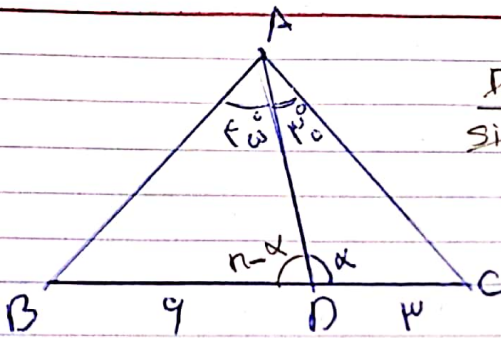


$$\sin \alpha = \cos \beta \quad OT = 1 = OA \quad (1)$$

$$\cos \beta = \frac{OH}{OA} = \frac{OT}{OB} \quad \sin \beta = \frac{BT}{OB} = \frac{AH}{AO} \quad (2)$$

$$OB = AB + AO \rightarrow AB = OB - 1 \xrightarrow{\text{تانس}} \frac{1}{OB = \frac{1}{OH}} - 1 = AB \rightarrow \frac{1}{\cos \beta} - 1 = AB$$

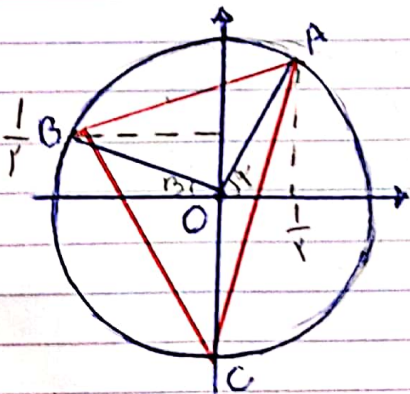
$$\cos \beta = \sin \alpha \rightarrow \frac{1}{\sin \alpha} - 1 = AB = \frac{1 - \sin \alpha}{\sin \alpha}$$



$$\frac{DC}{\sin \beta} = \frac{AC}{\sin \alpha} = \frac{AD}{\sin \gamma} \Rightarrow y = \frac{AC}{\sin \alpha} = \frac{AD}{\sin \gamma} \quad (2)$$

$$\frac{BD}{\sin \alpha} = \frac{AB}{\sin \beta} = \frac{AD}{\sin \gamma} \Rightarrow x = \frac{AB}{\sin \beta} = \frac{AD}{\sin \gamma}$$

$$\frac{\frac{AB}{\sin \alpha}}{\frac{AC}{\sin \alpha}} = \frac{x}{y} = \frac{AB}{AC} = \sqrt{2}$$



$$A \text{ عرض} = \frac{1}{r} \rightarrow \alpha = 90^\circ$$

$$B \text{ عرض} = \frac{1}{r} \rightarrow \beta = 30^\circ$$

الف) مساحت

$$\Delta AOC = \frac{1}{r} \times AO \times OC \times \sin 120^\circ = \frac{1}{r}$$

$$\Delta BOC = \frac{1}{r} \times OB \times OC \times \sin 30^\circ = \frac{\sqrt{3}}{r}$$

$$\Delta BOA = \frac{1}{r} \times OB \times OA \times \sin 90^\circ = \frac{1}{r}$$

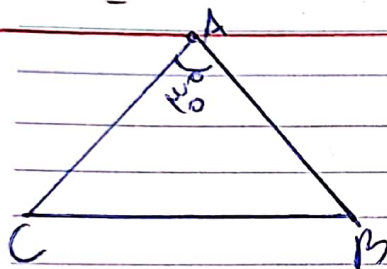
$$\text{مساحت} = \frac{1}{r} + \frac{\sqrt{3}}{r} + \frac{1}{r} = \frac{1}{r} \left(1 + \frac{\sqrt{3}}{r} + \frac{1}{r} \right) = \frac{1}{r} \times \frac{r + \sqrt{3} + 1}{r} = \frac{r + \sqrt{3} + 1}{r^2}$$

$$AC^2 = \underbrace{OA^2}_1 + \underbrace{OC^2}_1 - 2 \underbrace{OA \cdot OC}_1 \cos \underbrace{120^\circ}_{-\frac{1}{2}} \Rightarrow AC = \sqrt{1+1} \quad \text{ب) کمیت}$$

$$AB^2 = \underbrace{OB^2}_1 + \underbrace{OA^2}_1 - 2 \underbrace{OA \cdot OB}_1 \cos \underbrace{90^\circ}_0 \Rightarrow AB = \sqrt{2} \quad \text{نسبت } C.O.S \text{ منتهی}$$

$$BC^2 = \underbrace{OB^2}_1 + \underbrace{OC^2}_1 - 2 \underbrace{OB \cdot OC}_1 \cos \underbrace{120^\circ}_{-\frac{1}{2}} \Rightarrow BC = \sqrt{3} \quad \text{دقت کن دقت!}$$

$$\text{مساحت} = \frac{\sqrt{3} + \sqrt{2} + \sqrt{1} + \sqrt{3}}{2} \quad BC^2 = 1^2 + 1^2 - 2(1)(1)(-\frac{1}{2}) = 3 \rightarrow BC = \sqrt{3}$$



$$AB = \log_r^{19} \quad AC = \log_r^{19} \quad \text{ف)$$

$$AB = \log_r^{19} = 3 \log_r^{19}$$

$$AC = \log_r^{19} = \frac{11 \log_r^{19}}{\log_r^{19}} = \frac{11}{\log_r^{19}}$$

$$S = \frac{1}{2} \times AB \times AC \times \sin 120^\circ = \frac{1}{2} \times 3 \log_r^{19} \times \frac{11}{\log_r^{19}} \times \frac{1}{2} = 3$$

$$x - \cos \alpha = 0 \rightarrow x = \cos \alpha \quad x^2 - x^2 - \sin^2(\alpha)(x \sin^2 \alpha - 1)$$

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

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

$$x \cos^2 \alpha - \cos^2 \alpha - 1 + \cos^2 \alpha - \cos^2 \alpha = x \cos^2 \alpha - 1 = 1 \rightarrow$$

$$\cos^2 \alpha = 1 \rightarrow \sin \alpha = 0 \rightarrow \sin^2 \alpha = 0$$

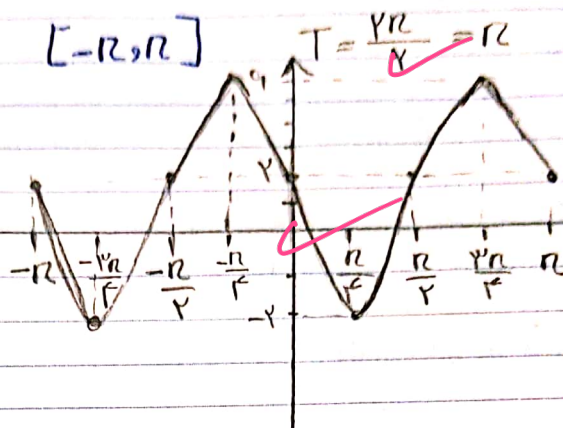
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الف) $y = -Y \sin \pi x \cos \pi x + 1 \quad [-R, R]$

$Y \sin \pi x$

$y = -Y \sin \pi x + 1$

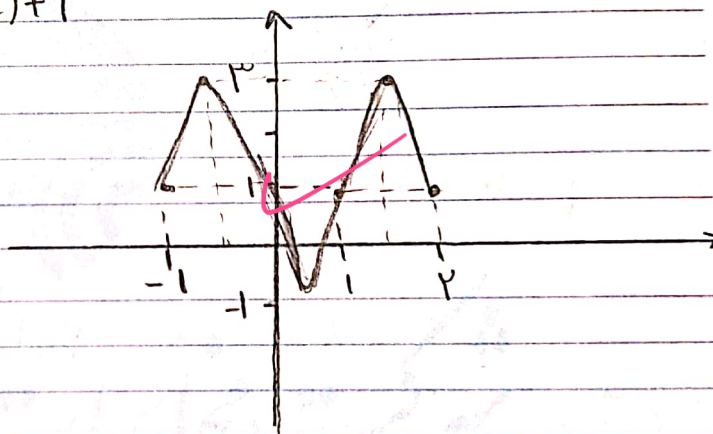
0	$\frac{R}{4}$	$\frac{R}{2}$	$\frac{3R}{4}$	$\frac{R}{2}$
Y	Y	Y	-Y	Y



ب) $Y \cos(\pi x + \frac{1}{Y})R + 1 \quad [-R, R]$

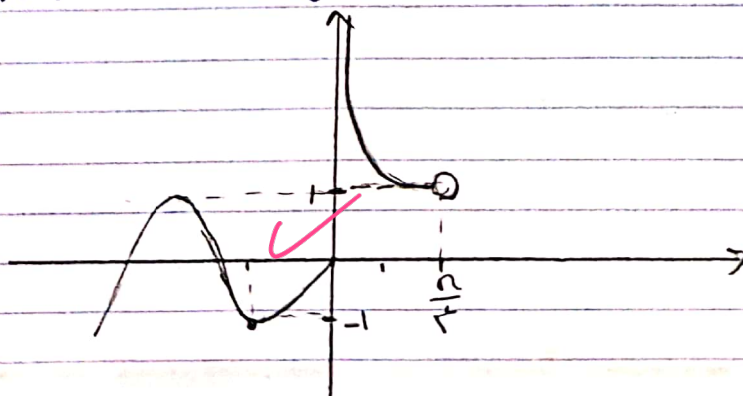
$T = \frac{YR}{R} = Y$

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



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

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



$$f(x) = a + b \sin(cx) \cos(cx) \quad \cos(cx) = \frac{1}{\sqrt{2} \sin(cx)} \quad \text{A}$$

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

$$T = \frac{2\pi}{\omega} = \frac{2\pi}{\omega} = \frac{2\pi}{\omega} \rightarrow \frac{2\pi}{\omega} = \frac{2\pi}{\omega} \rightarrow C = \frac{\omega}{\pi}$$

$$\begin{cases} a + \frac{b}{\pi} = 1 \\ a - \frac{b}{\pi} = 0 \end{cases} \quad \frac{bc}{a} = \frac{1 \times \frac{\omega}{\pi}}{1} = \omega$$

$$\pi a = 1 \rightarrow a = \frac{1}{\pi}, b = 1$$

$$f(x) = a \cos bx + c \quad |\tan \alpha| = ?$$

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

$$\begin{cases} a + c = -1 \\ -a + c = 1 \end{cases} \quad f(x) = -1 \cos x - 1 \rightarrow \cos x = -\frac{1}{2}$$

$$\pi C = -1 \rightarrow C = -1, a = -1$$

$$1 + \tan^2 x = \frac{1}{\cos^2 x} \rightarrow \tan^2 x = 9 - 1 = 8 \rightarrow |\tan x| = \sqrt{8}$$

از ۲ تا ۱۰ تا عقبی ردیف دیم
چون باید یک دوره تقارب کند که این!

$$-14, \omega = -13 - 1, \omega$$

$$\begin{vmatrix} 1 & 1 \\ 1 & 0 \end{vmatrix} \rightarrow \frac{1-0}{0-1} = -1$$

$$y = -\frac{1}{\pi}x + 1 \xrightarrow{x=\frac{1}{\pi}} y = -\frac{1}{\pi} \left(\frac{1}{\pi}\right) + 1 = \frac{1}{\pi}$$

$$f(-\pi, \omega) = f(-\pi + 1, \omega) = f(1 - \pi) = f(1) = f(\pi)$$

$$f(x) = \begin{cases} -\frac{1}{\pi}x + 1 & ; -\pi \leq x \leq \pi \\ \pi + x & ; -1 \leq x < 0 \end{cases} \rightarrow f(1) = -\frac{1}{\pi} \left(\frac{1}{\pi}\right) + 1 = \frac{1}{\pi}$$