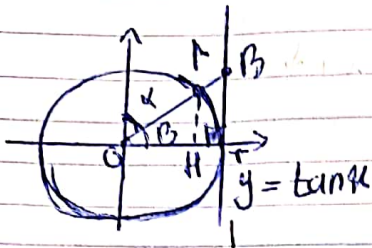


مدرسای حاجتی / تکالیف درساره ۱۲

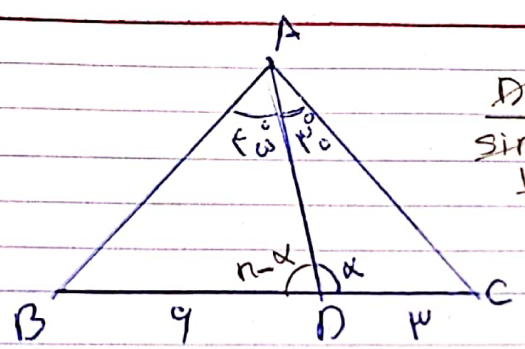


$$\sin \alpha = \cos \beta \quad OT = 1 = OA \quad (1)$$

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

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

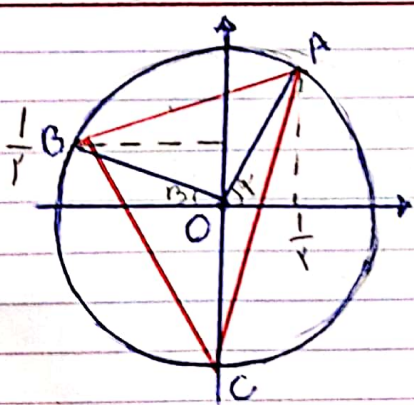
$$\cos \beta = \sin \alpha \rightarrow \frac{1}{\sin \alpha} - 1 = AB = \frac{1 - \sin \alpha}{\sin \alpha}$$



$$\frac{DC}{\sin \beta} = \frac{AC}{\sin \alpha} = \frac{AD}{\sin \gamma} \Rightarrow \gamma = \frac{AC}{\sin \alpha} = \frac{AD}{\sin \beta}$$

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

$$\frac{\frac{AB}{\sin \alpha}}{\frac{AC}{\sin \alpha}} = \frac{\gamma \sqrt{y}}{\gamma} \Rightarrow \frac{AB}{AC} = \sqrt{y}$$



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

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

الف) مساحت

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

$$\Delta BOC = \frac{1}{y} \times OB \times OC \times \sin 30^\circ = \frac{\sqrt{3}}{2y}$$

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

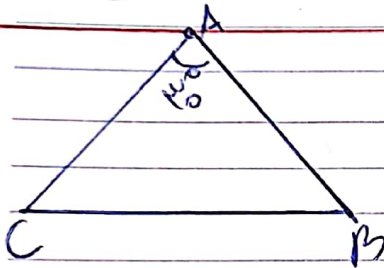
$$\text{مساحت} = \frac{1}{y} + \frac{\sqrt{3}}{2y} + \frac{1}{y} = \frac{1}{y} \left(1 + \frac{\sqrt{3}}{2} + 1 \right) = \frac{1}{y} \times \frac{2 + \sqrt{3}}{2} = \frac{2 + \sqrt{3}}{2y}$$

$$AC^2 = \underbrace{OA^2}_1 + \underbrace{OC^2}_1 - 2 \underbrace{OA \cdot OC}_1 \cos \underbrace{90^\circ}_{\frac{\pi}{2}} \Rightarrow AC = \sqrt{2} \quad \text{ب) (ب)}$$

$$AB^2 = \underbrace{OA^2}_1 + \underbrace{OB^2}_1 - 2 \underbrace{OA \cdot OB}_1 \cos \underbrace{90^\circ}_{\frac{\pi}{2}} \Rightarrow AB = \sqrt{2}$$

$$BC^2 = \underbrace{OB^2}_1 + \underbrace{OC^2}_1 - 2 \underbrace{OB \cdot OC}_1 \cos \underbrace{180^\circ}_{\pi} \Rightarrow BC = 1$$

$$\text{مساحت} = 1 + \sqrt{2} + \sqrt{2} - \sqrt{2}$$



$$AB = \log_r^{\sqrt{2}} = \sqrt{2} \log_r^{\sqrt{2}} \quad AC = \log_r^{\sqrt{2}} \quad \text{ف)$$

$$AC = \log_r^{\sqrt{2}} = \frac{1}{\log_r^{\sqrt{2}}} = \frac{1}{\log_r^{\sqrt{2}}}$$

$$S = \frac{1}{r} \times AB \times AC \times \sin 90^\circ = \frac{1}{r} \times \sqrt{2} \log_r^{\sqrt{2}} \times \frac{1}{\log_r^{\sqrt{2}}} \times 1 = \sqrt{2}$$

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

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

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

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

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

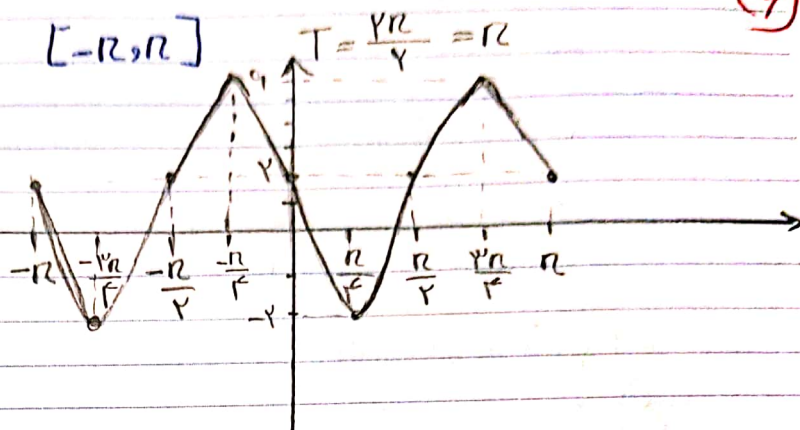
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الف) $y = -r \sin \theta \cos \theta + r$ $[-R, R]$

$r \sin \theta \cos \theta$

$y = -r \sin \theta \cos \theta + r$

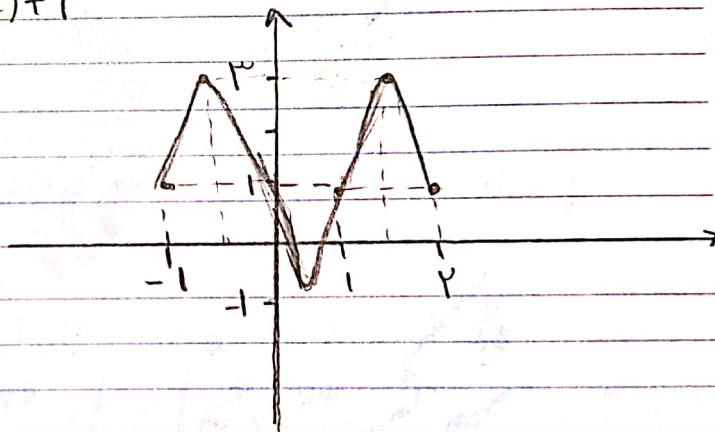
0	$\frac{R}{r}$	π	$\frac{3\pi}{2}$	$\frac{2\pi}{r}$
r	r	r	$-r$	r



ب) $r \cos(\theta + \frac{1}{r})r + 1$ $[-R, 2R]$

$T = \frac{2\pi R}{r} = 2$

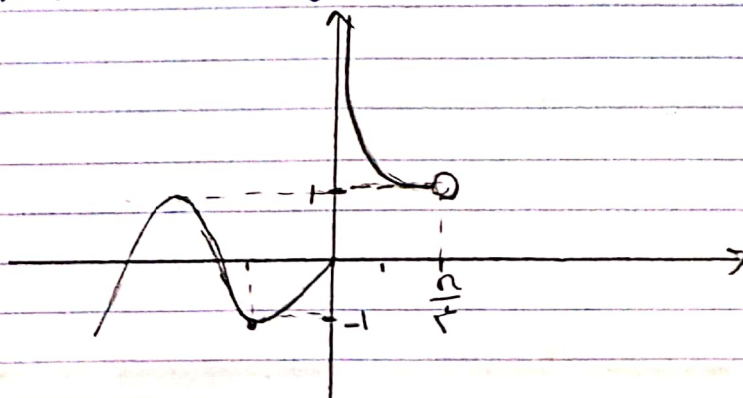
$r \cos(nr + \frac{R}{r}) + 1 = -r \sin(nr) + 1$



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

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

10



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

(A)

$$f(x) = a + \sqrt{2} b \sin(cx)$$

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

$$\begin{cases} a + \frac{b}{\sqrt{2}} = 1 \\ a - \frac{b}{\sqrt{2}} = 0 \end{cases}$$

$$\frac{bc}{a} = \frac{\sqrt{2} \times \frac{\omega}{\sqrt{2}}}{1} = \omega$$

$$\sqrt{2}a = 1 \rightarrow a = \frac{1}{\sqrt{2}}, b = 1$$

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

$$|\tan \alpha| = ?$$

(9)

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

$$\begin{cases} a + c = -1 \\ -a + c = 1 \end{cases}$$

$$f(x) = -3 \cos x - 1 \rightarrow \cos x = \frac{-1}{3}$$

$$\sqrt{2}c = -1 \rightarrow c = -\frac{1}{\sqrt{2}}, a = -1$$

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

(10)

$$-14, \omega = -33 - 1, \omega$$

از ۲ تا ۱۴ تا عقب می رود
(۱۰/۱۰) می رسد

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

$$y = -\frac{1}{x} + 1 \xrightarrow{x=1} y = -\frac{1}{1} + 1 = 0$$