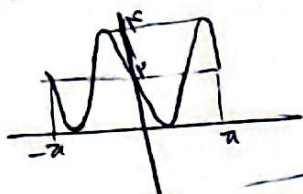


الف) $y = -2 \sin \pi x + 1$ $T = \frac{2\pi}{\pi} = 2$

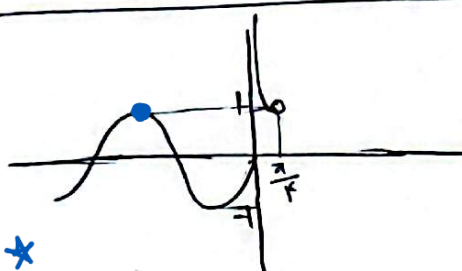


ب) $y = 2 \cos(\pi x + \frac{\pi}{2}) + 1$

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



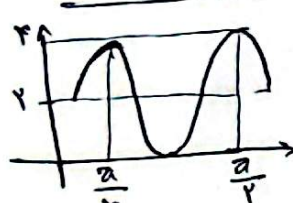
$f(x) = \begin{cases} \cos x & 0 < x < \frac{\pi}{2} \\ \sin x & x \leq 0 \end{cases}$



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

1, 10

* يك در بردارست چن $1 \leq \sin x \leq 1$



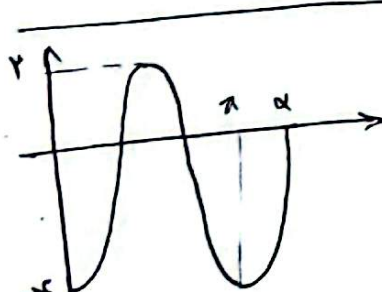
$f(x) = a + b \sin(\frac{x}{c})$

$a + \frac{b}{c} \sin(\frac{x}{c})$

$a + \frac{b}{c} \times \frac{1}{c} \times \sin(\frac{x}{c}) \Rightarrow f(x) = a + \frac{b}{c} \sin(\frac{x}{c})$

$T = \frac{2\pi}{\frac{1}{c}} = 2\pi c$ $\frac{2\pi}{\frac{1}{c}} = 2\pi c$ $\rightarrow c = \frac{T}{2\pi}$

$\frac{bc}{a} = \frac{A \times D}{\frac{1}{c} \times T}$



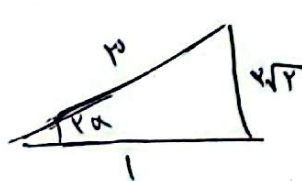
$f(x) = a \cos bx + c$

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

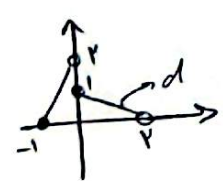
$f(x) = -2 \cos \pi x - 1$

$f(x) = 0 \rightarrow -2 \cos \pi x - 1 = 0$

$\rightarrow -2 \cos \pi x = 1 \rightarrow \cos \pi x = -\frac{1}{2}$



$\Rightarrow |\tan \alpha| = \frac{\sqrt{3}}{1} = \sqrt{3}$



$T = \pi \rightarrow f(-\pi/2) = f(-\pi/2 + \pi/2) = f(0) = f(1/2)$

$d = \frac{\pi}{2} + 1 \Rightarrow f(1/2) = -\frac{\pi}{2} + 1 = \frac{1}{2}$

علی لوب