

14, 12 $f: \mathbb{R} \rightarrow \mathbb{R}$ A function

$$x \rightarrow f(-x) - xf(x) = \gamma|x| + 1 \quad (1)$$

$$-x \rightarrow f(x) + xf(-x) = \gamma|x| + 1 \rightarrow xf(-x) + f(x) = \gamma|x| + 1$$

$$f(x) = \begin{cases} \frac{\gamma^2 x + 1}{\gamma^2 + 1} & x \geq 0 \\ \frac{\gamma^2 x - \gamma^2 + 1}{\gamma^2 + 1} & x < 0 \end{cases}$$

$$(\gamma^2 + 1)f(x) = -\gamma^2|x| - \gamma^2 + 1$$

$$x=0, \quad \gamma f(0) = \gamma \rightarrow f(0) = 1 \rightarrow f(x) = \gamma^2 x - \gamma^2 + 1 \rightarrow f(x) = \gamma^2 x - \gamma^2 + 1$$

$$y = x - \gamma = \gamma^2 x + \gamma \rightarrow \gamma^2 x + \gamma(1-y) + \gamma = y \rightarrow \dots$$

$$x = \frac{(y-1) \pm \sqrt{(1-y)^2 - 4\gamma y}}{2\gamma} \rightarrow y^2 - \gamma y + 1 - 4\gamma y = y^2 - 5\gamma y + 1 \geq 0$$

$$(y-1)(y+1) \geq 0 \rightarrow \frac{-1}{2} \leq y \leq 1 \rightarrow R_f = [R - 6\gamma, 1]$$

$a > 0$ $x_{\min} = \frac{\omega}{\gamma}$ $y_{\min} = -\frac{1}{\gamma}$ $R_f = [-\frac{1}{\gamma}, \infty)$	$a < 0$ $x_{\max} = \frac{\omega}{\gamma}$ $y_{\max} = \frac{1}{\gamma}$ $R_f = [0, 1]$	$\gamma > 0$ $R_f = [0, \infty)$	$\gamma < 0$ $R_f = [1, \infty)$
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$1R - \frac{\gamma^2}{\gamma^2 + 1} = R_f$	$\sqrt{1R - \frac{\gamma^2}{\gamma^2 + 1}} = \frac{1}{\gamma^2 + 1}$ $R_f = [0, \infty)$	$\sqrt{\gamma^2 + 1} + \frac{1}{\sqrt{\gamma^2 + 1}} = \frac{\gamma^2 + 1}{\gamma^2}$ $R_f = [\frac{\gamma^2 + 1}{\gamma^2}, \infty)$	$\gamma^2 + \frac{1}{\gamma^2} - \gamma = 0$ $R_f = [\frac{1}{\gamma}, \infty)$
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$$\gamma^2 x - y = \gamma^2 x + \gamma \rightarrow (\gamma^2 - y)x + (\gamma + y) = 0$$

$$\gamma(\gamma^2 - y) \neq 0 \rightarrow y \neq \gamma^2$$

$$- \gamma(\gamma^2 - y)(\gamma + y) \geq 0 \rightarrow \frac{-\gamma}{\gamma + y} \geq 0$$

$$R_f = (-\infty, -\gamma] \cup [\gamma, \infty)$$

$$x^2 = +\infty \rightarrow \frac{\gamma^2 \infty + \gamma}{\infty - 1} = \gamma$$

$$x^2 = 0 \rightarrow \frac{\gamma}{\gamma^2}$$

$$R_f = (-\infty, -\gamma] \cup [\gamma, \infty)$$

$\sin n = 1 \rightarrow -\pi$
 $\sin n = -1 \rightarrow -\frac{1}{\pi}$

متر جعفر و نفس شود $(-\frac{1}{\pi}, \pi)$

$R_f = \left[-\frac{1}{\pi}, \frac{1}{\pi} \right]$

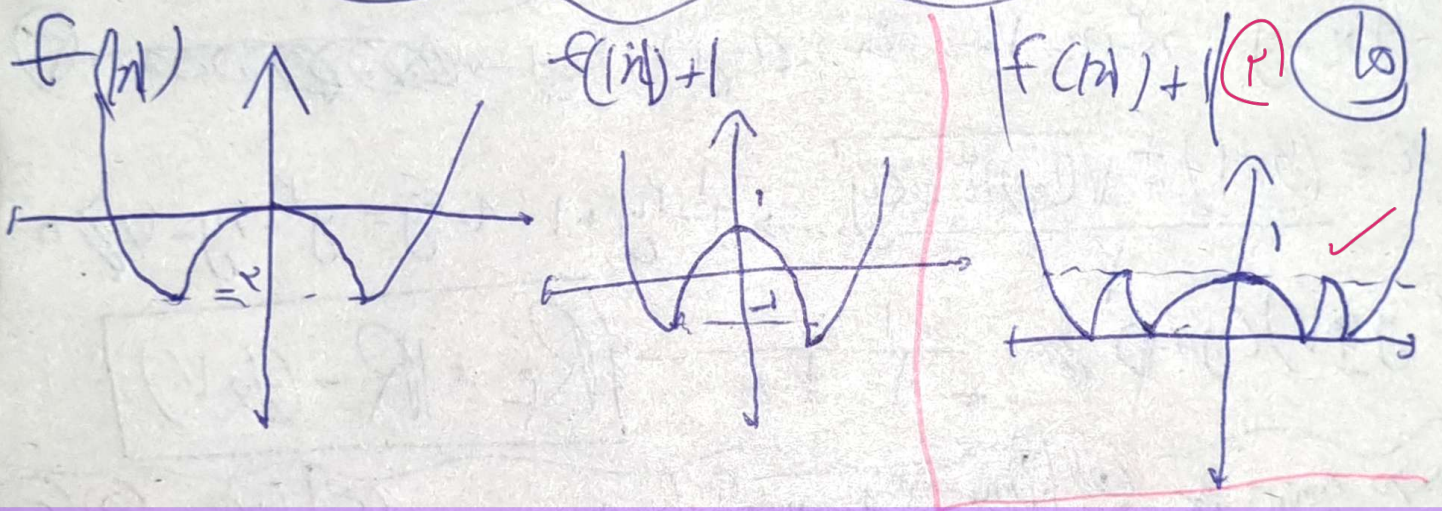
$R = \left[-\frac{1}{\pi}, \frac{1}{\pi} \right]$

$R_f = \left[-\frac{1}{\pi}, \frac{1}{\pi} \right]$

$R_f = \left[-\frac{1}{\pi}, \frac{1}{\pi} \right]$

$\begin{cases} n^2 - 2n & n \geq 0 \\ -n^2 + 2n & n < 0 \end{cases}$

$R_f = \mathbb{R}$



۸- اول برد عبارت داخل قدر مطلق
 رو حساب می کنیم بعد قدر مطلق می گیریم
 فقط حواست باشد که $\frac{3}{4} = y$ هم هست داخل برد
 $y = -\frac{3}{4}$ عضو برد عبارت داخل قدر مطلق هست و وقتی قدر مطلق بگیریم $y = \frac{3}{4}$
 رو قید بهمون نده

