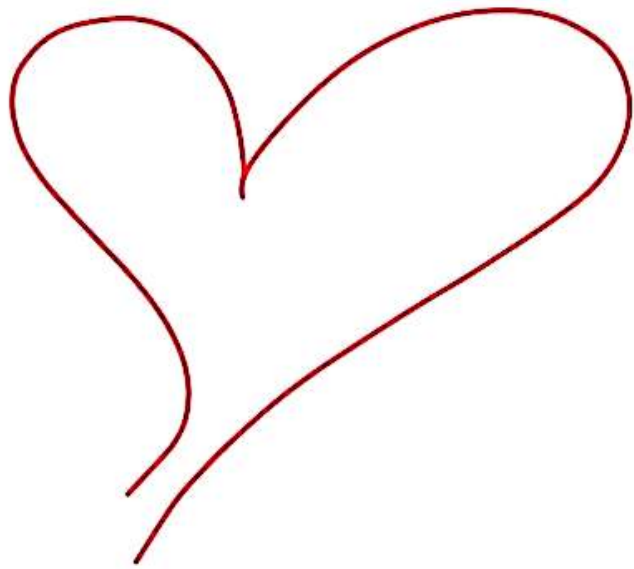


رای بر خطی

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الف) $\delta_2 \frac{|n|+1}{|n|-2} = y|n|-2y = |n|-1 = y|n|-|n|$

$$\Rightarrow 1+r_y \Rightarrow |z|(y-1) = 1+r_y \Rightarrow |z| = \frac{1+r_y}{y-1} \rightarrow \delta z = \frac{1}{y-1}$$

۱۔ عید کے جہاز میں قمر مائی

جبرین قدر مطلق
 ہووے $\oplus 1$ ← $\frac{-\frac{1}{x}}{+\frac{1}{x} - \frac{1}{x+1}}$
 $\boxed{(-\infty, -\frac{1}{x}) \cup (1, +\infty)}$

$$y = \frac{z^c + r_2 - r}{\lambda + c} \Rightarrow y_2 + r y = z^c + r_2 - r = y_2^c - y_2 + r_2 - r y - r = 0$$

$$\Rightarrow n^2 + (1-y)n - cy - c = 0 \Rightarrow n = \frac{-b \pm \sqrt{\Delta}}{2a} =, \Delta \geq 0 \Rightarrow b^2 - 4ac \geq 0$$

$$\Rightarrow (x-y)^2 - (x+1)(-y-c) = x^2 - y^2 - (-y - cy - x - c) = x^2 - y^2 + y + cy + x + c = x^2 + x + y + cy - y^2 \geq 0$$

$$\Rightarrow (y+c)(y+k) \geq 0 \Rightarrow \frac{-c}{k+c} \leq y \leq \frac{-c}{k-c} \Rightarrow R_F = (-\infty, -\frac{c}{k-c}] \cup [\frac{-c}{k+c}, \infty)$$

$$f(n) = \frac{n^c - n + 1}{n^c - n + 1} \Rightarrow D_f \Rightarrow n^c - n + 1 \neq \rightarrow \Delta 2b^c - 24c = 1 - (24c + 1)$$

$$= \langle c, a \rangle \Rightarrow \sum_{i=1}^n \langle c, a_i \rangle = \langle c, \sum_{i=1}^n a_i \rangle = \langle c, 0 \rangle = 0$$

$$1) \text{ (b) } 2y^2 - y^2 + 2x^2 - x + \frac{1}{x} = 0 \Rightarrow y^2 - x^2 - y + x + \frac{1}{x} = 0 \Rightarrow (y-1) + (1-x) + \frac{1}{x} = 0$$

$$= \frac{1}{1+1} = \frac{1}{2} \quad (1 \cap \mathbb{R}), \mathbb{R}_f \subseteq [0, 1] \quad (1)$$

$$\text{انذ } y = \int -n + (n-1) = -n^2 + 2n - 1$$

$$\text{ex } \left| \begin{array}{l} \frac{-b}{a} = n = -\frac{5}{-2} = 2.5 \rightarrow G.C. = 1 \text{ max} \Rightarrow R_y'(-\infty, \infty) \\ \delta = -(c)^r + n - 1 = 0 \end{array} \right| \Rightarrow R_y = [0, \sqrt{e}]$$

به این روش می توانیم به جواب برسیم: $y' = 2^x - 2 + 1$ $\Rightarrow$ $y = 2^x - 2x + x + C$ $\Rightarrow$ $y = 2^x - x + C$

$\Rightarrow$  $\rightarrow \sigma_1 = (0, +\infty)$ (ب) $\sigma_2 = (-\infty, +\infty) = \mathbb{R}$

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جواب :-

$$y_2 \frac{2^r + 1}{|2|} \Rightarrow y_2 \frac{|2|^r + 1}{|2|} \Rightarrow |2| + \frac{1}{|2|} \Rightarrow |2| \neq 0$$

$$[r, +\infty) \cap G \leftarrow$$

$$\Rightarrow R_f = [r, +\infty)$$

$$y_2 = \sqrt{r_2^2 - a^2} \Rightarrow J_2(r_2^2 - a^2) = 1 \quad \left| \begin{array}{l} \text{ex} + \left| \eta = \frac{b}{r_2} \rightarrow \frac{1}{r_2} \rightarrow \frac{1}{a} \rightarrow \sin(\eta) \rightarrow R_j = 1 \right. \\ \left. \eta = \frac{b}{r_2} \rightarrow \frac{1}{r_2} \rightarrow \frac{1}{a} \rightarrow \sin(\eta) \rightarrow R_j = 1 \right. \end{array} \right. \quad [n, \text{total}]$$

$$\Rightarrow R_f = [-5, +\infty)$$

(بمضی ب)

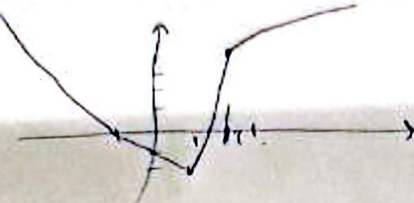
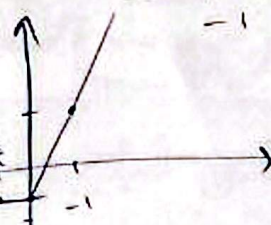
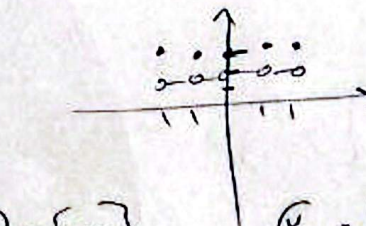
2 D'.

(1) 3

ب) $y, \left(y^{\left(\frac{n-1}{n} \right)} \right)$

$\int_{-\infty}^{\infty} \frac{1}{x^2+1} dx = \int_{-\infty}^{\infty} \frac{1}{(x-i)(x+i)} dx$
 $\int_{-\infty}^{\infty} \frac{1}{x^2+1} dx = \int_{-\infty}^{\infty} \frac{1}{2i} \left(\frac{1}{x-i} - \frac{1}{x+i} \right) dx$
 $\int_{-\infty}^{\infty} \frac{1}{x^2+1} dx = \frac{1}{2i} \left(\int_{-\infty}^{\infty} \frac{1}{x-i} dx - \int_{-\infty}^{\infty} \frac{1}{x+i} dx \right)$
 $\int_{-\infty}^{\infty} \frac{1}{x^2+1} dx = \frac{1}{2i} \left(2\pi i - 0 \right) = \pi$

$$C_j \left(\frac{1}{r}, +\infty \right)$$

انذ $x-2 - x-1 = \frac{-x-1}{2} + 1$ $R_f = [-2, +\infty)$		6
$x-2 - x+1 \leq 1$ $R_f = (-\infty, -\frac{1}{2}] \cup [-\frac{1}{2}, +\infty)$ $\Delta = x \leq -1 \Rightarrow x+1 \leq 0 \Rightarrow x \leq -1 \wedge x \leq -1 \wedge x \leq -1 \Rightarrow x \leq -1$ $\square = -1 \leq x \leq 1 \Rightarrow -x-1 \leq 1 \Rightarrow x \geq -2 \Rightarrow -1 \leq x \leq 1 \wedge x \geq -\frac{1}{2} \Rightarrow -\frac{1}{2} \leq x \leq 1$ $\bigcirc = x \geq 2 \Rightarrow -x-1 \leq 1 \Rightarrow -x \leq 2 \Rightarrow x \geq -2 \Rightarrow x \geq 2 \wedge x \geq -2 \Rightarrow x \geq 2$	$\Delta = x \leq -1 \Rightarrow x+1 \leq 0 \Rightarrow x \leq -1 \wedge x \leq -1 \wedge x \leq -1 \Rightarrow x \leq -1$ $\square = -1 \leq x \leq 1 \Rightarrow -x-1 \leq 1 \Rightarrow x \geq -2 \Rightarrow -1 \leq x \leq 1 \wedge x \geq -\frac{1}{2} \Rightarrow -\frac{1}{2} \leq x \leq 1$ $\bigcirc = x \geq 2 \Rightarrow -x-1 \leq 1 \Rightarrow -x \leq 2 \Rightarrow x \geq -2 \Rightarrow x \geq 2 \wedge x \geq -2 \Rightarrow x \geq 2$	7
$y = x - x+1 + x$ $R_f = \mathbb{R}$		8
انذ $y = [x] + \{x-2\} \Rightarrow y = [x] + [-2] + x$	$R_f = \{x, x\}$ 	9
انذ $y = \sin^2 x - \sin x + 1$ $\sin x = -1 \Rightarrow y = (-1)^2 - (-1) + 1 = 3$ $\sin x = \frac{1}{2} \Rightarrow y = (\frac{1}{2})^2 - \frac{1}{2} + 1 = \frac{3}{4}$ $\sin x = 1 \Rightarrow y = 1 - 1 + 1 = 1$ $R_f = [\frac{3}{4}, 3]$	$a \square^2 + b \square + c$ $\Rightarrow R_f = [\frac{3}{4}, 3]$	10

ب) $y = \sin^2 x + \sin^2 x + 1$

$\sin^2 x = 1 \Rightarrow y = 1 + 1 + 1 = 3$

$\sin^2 x = 0 \Rightarrow y = 0 + 0 + 1 = 1$

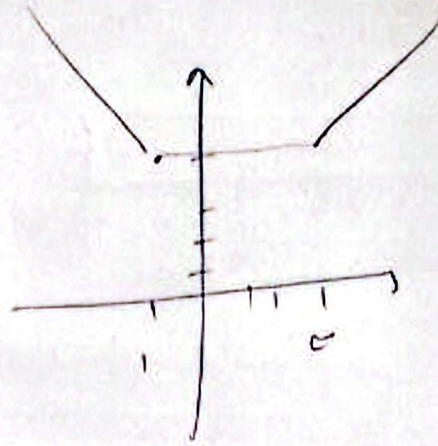
$R_f = [1, 3]$

AK (A) لکھتی

سداں لکھتی (ب)

$$y \geq |x-1| + |y+1|$$

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 1 -1



$$Ry \geq [\epsilon, +\infty)$$

سداں لکھتی (ب)

$$y \geq \lfloor x \rfloor, -1 \leq x < 2$$

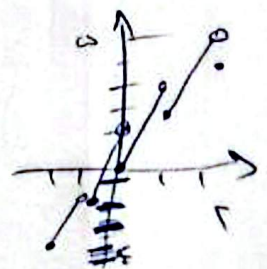
$$-1 \leq x < -1 \Rightarrow \lfloor x \rfloor = -1 \Rightarrow x+1 = y$$

$$-1 \leq x < 0 \Rightarrow \lfloor x \rfloor = -1 \Rightarrow x+1 = y$$

$$0 \leq x < 1 \Rightarrow \lfloor x \rfloor = 0 \Rightarrow x = y$$

$$1 \leq x < 2 \Rightarrow \lfloor x \rfloor = 1 \Rightarrow y = x-1$$

$$x=2 \Rightarrow \lfloor x \rfloor = 2 \Rightarrow y \geq x-2$$



$$Ry \geq [-\epsilon, 0)$$