

دعای سوال ۷ د ۵

را سدر ج و د دربرگی

جدا نوئے سہ

ببیند

صنوں



$$\begin{cases} f(-n) - n f(n) = 2|n| + 1 \\ f(n) - (-n) f(-n) = 2|1-n| + 1 \end{cases} \quad |n| = n \quad (n > 0) \quad \text{فرض می کنیم}$$

$$\rightarrow \begin{cases} f(-n) - 2nf(n) = 2n + 1 \\ n f(n) + n f(-n) = n^2 + n \end{cases}$$

$$(n^2 + 1) f(-n) = n^2 + n + 1 \Rightarrow f(-n) = \frac{n^2 + n + 1}{n^2 + 1} \Rightarrow f(n) = \frac{n^2 - n + 1}{n^2 + 1}$$

$$f(n) + f(1) = n^2 - n + 6 \xrightarrow{2=0} 2f(0) = 6 \Rightarrow f(0) = 3$$

$$f(n) + 3 = n^2 - n + 6 \Rightarrow f(n) = n^2 - n + 3 \Rightarrow f(n) = n^2 - n + 3$$

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

$$\Rightarrow n = \frac{y - 1 \pm \sqrt{(1 - y)^2 - 4(y + 1)}}{2} = \frac{(y - 1) \pm \sqrt{(y + 1)^2 - 4(y + 1)}}{2}$$

$$\Rightarrow y^2 - 2y + 1 - 4y - 4 \geq 0 \Rightarrow y^2 - 6y - 3 \geq 0 \Rightarrow R_f = (-\infty, -1] \cup [7, +\infty)$$

$$\text{الف) } y = n^2 - 5n + 1$$

$$\min \left| -\frac{b}{2a} = \frac{5}{2} \right|$$

$$2 \times \frac{50}{16} - 5 \times \frac{5}{2} + 1 = -\frac{19}{8}$$

$$R_f = \left[-\frac{19}{8}, +\infty\right)$$

$$\text{ب) } y = \sqrt{-n^2 + 4n - 5}$$

$$\max \left| -\frac{b}{2a} = -\frac{2}{-2} = 1 \right|$$

$$\Rightarrow R_f = \{1, 2\}$$

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

$$R_f = R - \left\{\frac{a}{c}\right\}$$

$$R_f = R - \left\{\frac{3}{1}\right\}$$

$$\text{ب) } y = \sqrt{\frac{n + 1}{n - 2}}$$

$$R = \{1\}$$

$$\sqrt{R - \{1\}} \Rightarrow R_f = [1, +\infty) - \{1\}$$

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دوسری صفحہ

(5)

(1) U'

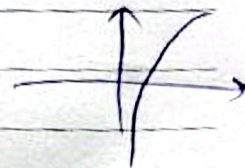
2.) $y = \sqrt{x^2 - 2x + 1}$

1.) $y = \sqrt{x^2 - 2x + 1}$

$\sqrt{(-\infty, +\infty)} \sim R_F = [0, +\infty)$

$y(-\infty, +\infty) = y(0, +\infty)$

$R_F = (-\infty, +\infty)$



ج.) $y = \frac{x^2 + 1}{\sqrt{x^2 + 1}}$

1.) $y = \frac{x^2 + 1}{\sqrt{x^2 + 1}} + 1 - 1$

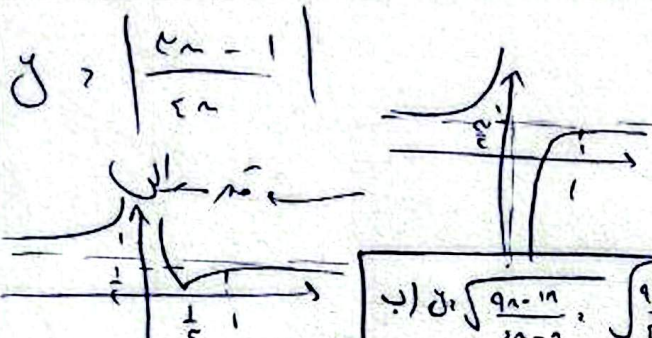
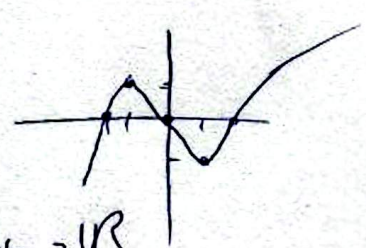
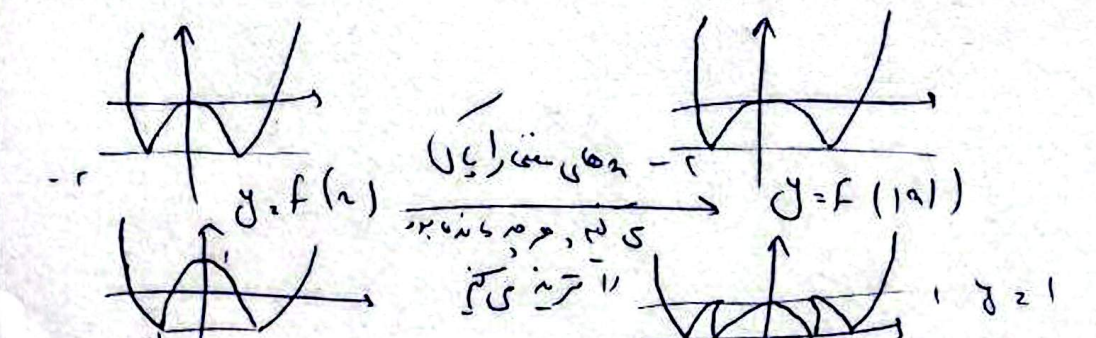
$\Rightarrow \frac{x^2 + 1}{\sqrt{x^2 + 1}} = \sqrt{x^2 + 1}$

$R_F = [\frac{1}{\sqrt{1}} - 1, +\infty)$ $\leftarrow \frac{x^2 + 1}{\sqrt{x^2 + 1}} \sim 0$

$R_F = [\frac{1}{\sqrt{1}}, +\infty)$ $\frac{x^2 + 1}{\sqrt{x^2 + 1}} \sim 1$
 $\frac{1}{\sqrt{1}} = 1$ $\frac{1}{\sqrt{1}} = 1$ $\frac{1}{\sqrt{1}} = 1$

$\sqrt{x^2 + 1} \sim 1$ $\sqrt{x^2 + 1} \sim 1$

$R_F = [\sqrt{x^2 + 1}, +\infty) \cup [\frac{1}{\sqrt{x^2 + 1}}, +\infty) \cup [\frac{1}{\sqrt{x^2 + 1}}, +\infty)$

(5) 12A $y = \frac{x^2 + 1}{x^2 - 1} \Rightarrow x^2 = \frac{y+1}{y-1}, \quad \frac{-y-1}{y-1} = \frac{y+1}{y-1}$ $\Rightarrow x = \pm \sqrt{\frac{y+1}{y-1}} \Rightarrow \frac{y+1}{y-1} \geq 0 \Rightarrow \frac{-1}{y-1} \geq 0$ $R_f = (-\infty, -1] \cup (1, +\infty)$	6
$y = \frac{2 \sin \alpha + 1}{\sin \alpha - 1} \xrightarrow{\sin \alpha = -1} \frac{-2-1}{-1-1} = \frac{-3}{-2} = \frac{3}{2}$ $\xrightarrow{\sin \alpha = 1} \frac{2+1}{1-1} = \frac{3}{0} \rightarrow -\infty$ مخرج نمی تواند منفی شود، زیرا در اینجا $\left(-\infty, -\frac{1}{2}\right) \leftarrow$ $R_f = \left[-\infty, -\frac{1}{2}\right)$	7
$y = \left \frac{x-1}{x} \right $  جانب قائم: $x=0$ جانب افقی: $y=1$ الف $R_f = [0, +\infty)$ ب $R_f = \left\{ \frac{2}{3} \right\}$	8
$y = x x - x^2$ $x > 0 \rightarrow y = x^2 - x^2 = 0$ $x < 0 \rightarrow y = -x^2 - x^2 = -2x^2$  $R_f = \mathbb{R}$	9
 $y = f(x)$ $y = f(x)$ ی، نه، همواره مثبت لا تریبی می شود $y = 1$	10

$$y = f(|x|) + 1$$

$$y = |f(x)| + 1$$