

۲۰ آفرین

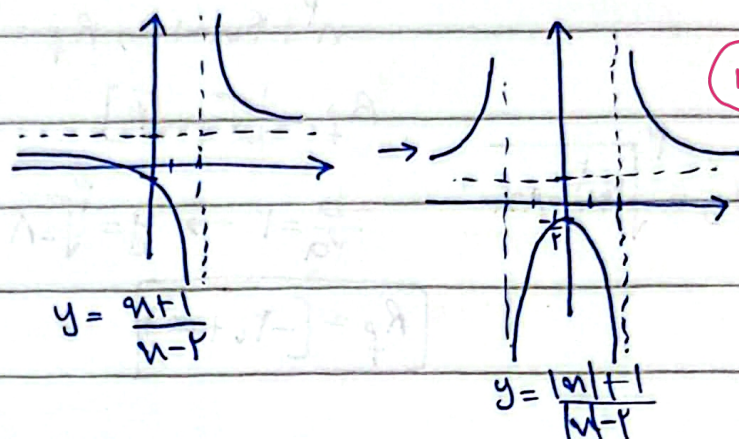
دوازدهم دفتر A

تکلیف کرده

نیایش شاه تهری

الف) $y = \frac{|x|+1}{|x|-2}$

$x=0 \rightarrow y = -\frac{1}{2}$



$R_f = \mathbb{R} - (-\frac{1}{2}, \frac{1}{2}]$

ب) $y = \frac{x^2+1}{|x|} \rightarrow y = |x| + \frac{1}{|x|} \rightarrow |x| > 0 \rightarrow R_f = [\frac{1}{2}, +\infty)$

$y = \frac{x^2+2x-2}{x+2} \rightarrow x^2+2x-2 = xy+2y \rightarrow x^2+(2-y)x-(2+2y)=0$

$\Delta = y^2 - 4y + 4 + 4(2y+2) = y^2 + 4y + 12$
 $x = \frac{(y-2) \pm \sqrt{y^2+4y+12}}{2} \rightarrow y^2+4y+12 \geq 0$

$(y+4)(y+2) \geq 0$

$R_f = (-\infty, -4] \cup [-2, +\infty)$

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

$x^2-x+1 \neq 0 \rightarrow \Delta < 0 \rightarrow D_f = \mathbb{R}$

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

$\frac{-b}{2a} = \frac{1}{2} \rightarrow 1 - \frac{\frac{1}{2}}{f(\frac{1}{2})} = 0$
 $1 - \frac{\frac{1}{2}}{f(+\infty)} = 1$
 $R_f = [0, 1]$

max, min

$$\text{الف) } y = \sqrt{x^2 + 4x - 1}$$

$$\frac{-b}{2a} = -1 \rightarrow -(x)^2 + 4x - 1 = 0$$

(2) (5)

$$-x^2 + 4x - 1 \rightarrow R_f = (-\infty, 3]$$

$$R_f = [0, \sqrt{5}]$$

$$\text{ب) } y = \sqrt{x^2 - 4x}$$

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

$$R_f = [-2, +\infty)$$

$$\text{الف) } y = \log(x^2 - x + 1)$$

$$x^2 - x + 1 \rightarrow R_f = \mathbb{R}$$

(2) (2)

$$\log(x^2 - x + 1) \rightarrow R_f = \mathbb{R}$$

$$\text{ب) } y = \log_r\left(\frac{x^2 + 1}{x}\right)$$

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

$$x + \frac{1}{x} > 0 \rightarrow R_f = [1, +\infty)$$

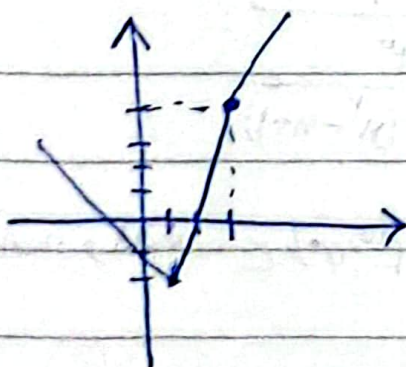
$$\log_r\left(\frac{x^2 + 1}{x}\right) \rightarrow R_f = [1, +\infty)$$

$$\text{الف) } y = |x - 1| - |x - 4|$$

$$\begin{array}{c|c|c} 1 & 4 \\ \hline x - 1 + x - 4 = -x - 3 & x - 1 + x - 4 = -x - 3 & x - 1 - x + 4 = 3 - x \end{array}$$

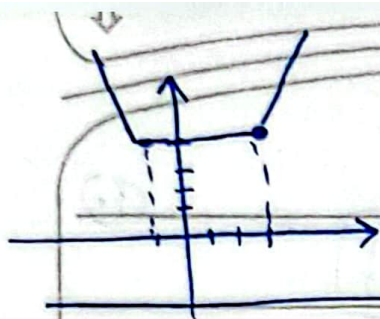
(2) (4)

$$R_f = [-3, +\infty)$$

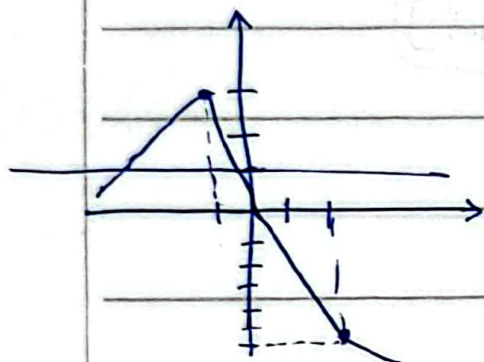


$$\text{ب) } y = |x - 1| + |x + 1|$$

$$\begin{array}{c|c|c} -1 & 1 \\ \hline x - 1 + x + 1 = 2x & x - 1 + x + 1 = 2x & x - 1 - x - 1 = -2 \end{array}$$



$$R_f = [K, +\infty)$$



$$|n-r| - |r_m+r| \leq 1$$

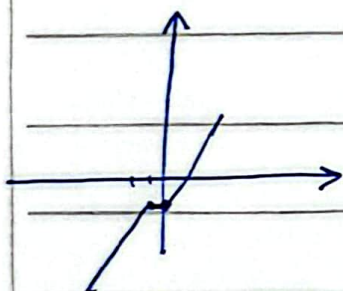
$$\begin{array}{c|c|c} & -1 & 1 \\ \hline 1-q+1 & 1-q-1 & \\ \hline & -1 & \\ & -1 & \\ & \downarrow & \\ & -1 & \end{array}$$

$$m + k = 1 \rightarrow$$

$$IR - (-1, -\frac{1}{r})$$

(V)

~~$$y = r_n - |r_n + 1| + |r_n|$$~~



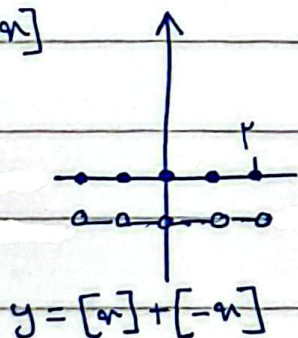
$$R_f = IR$$

$$\frac{-1}{r} \quad 0$$

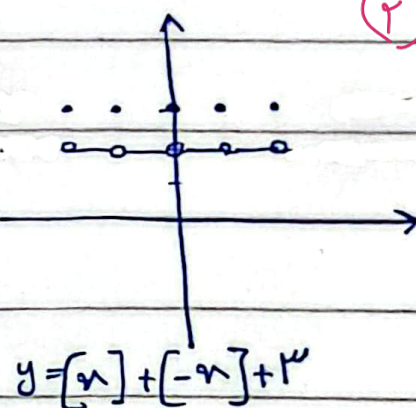
$$\frac{r_n + r_{n+1} - n}{r_n + 1} \quad \frac{r_n - r_{n-1} - n}{-1} \quad \frac{r_n - r_{n-1} + n}{r_n - 1}$$

④ ⑤

الف) $y = 3 + [91] + [-91]$



$$y = [a] + [-a]$$



$$y = \begin{bmatrix} x \\ 1 \end{bmatrix} + \begin{bmatrix} -x \\ 1 \end{bmatrix} + \mu$$

② ⑨

$$R_{\neq} = \{rc\}$$

∴ $y = x_n - [x]$

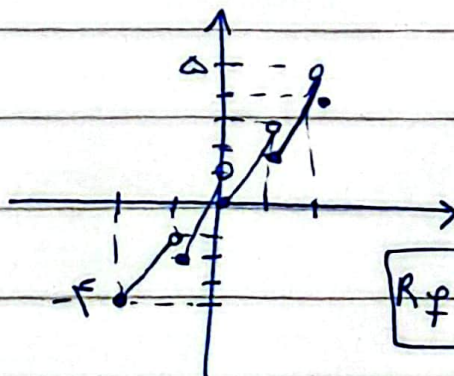
$$-1.5n - 1 \rightarrow y = 1.5n + 1$$

- $1,5n50 \rightarrow y = r_{n+1}$

• $|x| < 1 \rightarrow y = x^n$

$$1 \leq n \leq r \rightarrow y = r_n - 1$$

$$n=y \rightarrow y = r_n - y$$



$$R_f = [-f(\omega)]$$

$$\text{a)} y = \sin^2 x - \sin x + 1 \quad \sin x = 1 \rightarrow y = 1$$

$$\sin x = -1 \rightarrow y = 1$$

$$\sin x = \frac{1}{r} \rightarrow y = \frac{1}{r}$$

$$\rightarrow R_f = \left[\begin{matrix} r \\ r \end{matrix} \right]$$

(r) (1.0)

$$\text{b)} y = \sin^2 x + \sin x + 1$$

$$\sin^2 x = 1 \rightarrow y = 1$$

$$\sin^2 x = 0 \rightarrow y = 1$$

$$\sin^2 x = \frac{1}{r} \times$$

$$\rightarrow R_f = \left[\begin{matrix} 1 \\ 1 \end{matrix} \right]$$