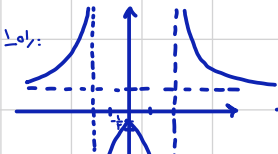


# هستی / معنایی / دوازدهم دفتر A

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$$y = \frac{|x|+1}{|x|-2}$$



$$R = (-\infty, -\frac{1}{2}) \cup (1, +\infty)$$

$$y = \frac{x^2+1}{|x|} \rightarrow \frac{|x|^2+1}{|x|} \rightarrow |x| + \frac{1}{|x|} \xrightarrow{2+\frac{1}{\epsilon}} R = [2, +\infty)$$

$$y = \frac{x^2+2x-2}{x+2} \rightarrow yx+2y = x^2+2x-2 \rightarrow x^2+(2-y)x-(2+2y) = 0 \rightarrow (2-y)^2 + 4(2+2y) \geq 0 \rightarrow 4y^2-4y+16+8y \geq 0 \rightarrow 4y^2+4y+16 \geq 0 \rightarrow y^2+y+4 \geq 0 \rightarrow R = \mathbb{R}$$

$$f(x) = \frac{(x-\frac{1}{2})^2}{(x-\frac{1}{2})^2+\frac{1}{4}} \rightarrow R_f = [0, 1) \quad \Delta_f < 0 \rightarrow D_f = \mathbb{R}$$

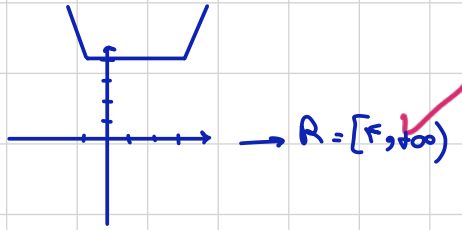
$$y = \sqrt{-x^2+5x-1} \quad -\frac{\Delta}{4a} = \frac{4-5}{4} = -\frac{1}{4} \rightarrow (-\infty, \frac{1}{2}] \rightarrow R = [0, \sqrt{\frac{1}{4}}]$$

$$y = \sqrt[3]{2x^2-11x} \quad -\frac{\Delta}{4a} = \frac{-11}{4} = -2.75 \rightarrow [-2.75, +\infty) \rightarrow R = [-2.75, +\infty)$$

$$\log(x^2-x+11) \quad x^2-x+11 \rightarrow R = \mathbb{R} = D_{\log} \Rightarrow R = \mathbb{R}$$

$$\log_r\left(\frac{x^2+1}{x}\right) \quad \frac{x^2+1}{x} \rightarrow R = \mathbb{R} - (0, 1) = D_{\log} \Rightarrow R = [1, +\infty)$$

$$\begin{array}{c|c|c} 1 & 2 & \\ \hline x^2+x-2 & x^2-2x-3 & x^2-x-2 \\ \hline -x-1 & -x-3 & x+1 \end{array} \rightarrow R = [1, +\infty)$$



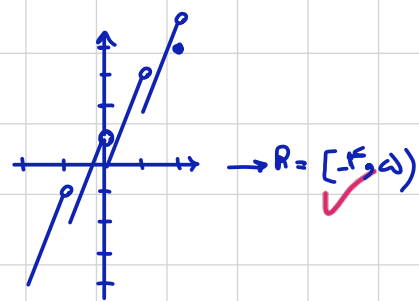
$$\begin{array}{c|c|c} -1 & 2 & \\ \hline x^2+x-2 & x^2-2x-3 & x^2-x-2 \\ \hline x+1 & -x-3 & -x-2 \end{array} \rightarrow (-\infty, -3] \cup [\frac{1}{2}, +\infty)$$

شکل پیش راحت تری :

$$\begin{array}{c|c|c|c} -\frac{1}{2} & 0 & & \\ \hline x^2+x-1 & x^2-x-1 & x^2-x-1 & x^2-x-1 \\ \hline x+1 & -1 & -1 & x-1 \end{array} \rightarrow R = \mathbb{R}$$

$$y = [x] + [-x] + 2 \rightarrow R = \{2, 3\}$$

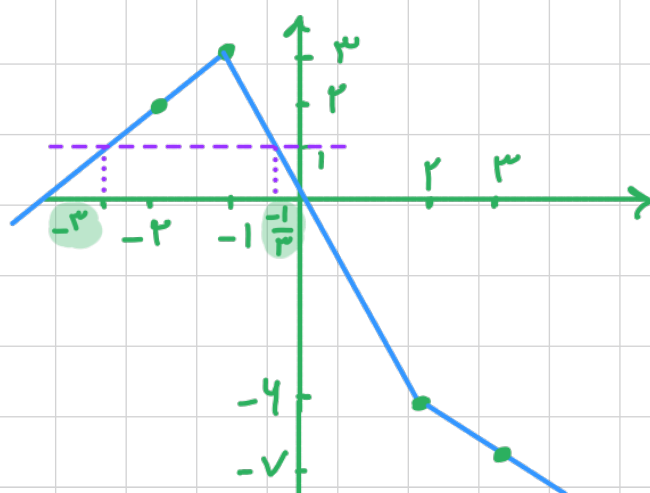
$$y = 2x - [x] \rightarrow \begin{array}{l} -1 \leq x < 0 \rightarrow 2x+2 \\ -1 \leq x < 0 \rightarrow 2x+1 \\ 0 \leq x < 1 \rightarrow 2x \\ 1 \leq x < 2 \rightarrow 2x-1 \\ x=2 \rightarrow 2x-2 \end{array}$$



$$y = \sin^2 x - \sin x + 1 \quad -1 \leq \sin x \leq 1 \rightarrow [\frac{1}{4}, 2]$$

$$y = \sin^2 x + \sin^2 x + 1 \rightarrow [1, 3]$$

$$\begin{cases} -n-2 & n \geq 2 \\ -n & -1 \leq n \leq 2 \\ n+2 & n \leq -1 \end{cases}$$



$$R_y = (-\infty, -2] \cup [-\frac{1}{2}, +\infty)$$

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۳- مندرجہ ذیل معادلات میں  $y$  کی قیمت  $\mathbb{R}$  میں ہے

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

طرفین میں  $y$  سے ضرب دے کر  $yx^2 - yx + y = x^2 - x + \frac{1}{y} \rightarrow (y-1)x^2 - (y-1)x + y - \frac{1}{y} = 0$

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

$\frac{0}{-} \mid \frac{1}{+} \Rightarrow y = [0, 1]$

غیر  $y \neq 1$  کی صورت میں

و تابع  $y$  کی تمام قدریں  $y \in [0, 1]$  میں برابر ہیں:

میں سے  $y$  کی تمام قدریں  $y \in [0, 1]$  میں برابر ہیں:

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