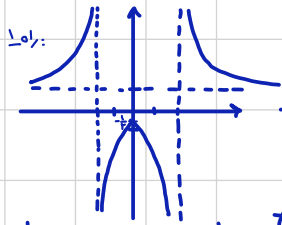


هستی / معنایی / دوازدهم دفتر A

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



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

$$\lim_{x \rightarrow +\infty} y = 1, \lim_{x \rightarrow 0} y = -\frac{1}{2}$$

1

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

$$y = \frac{x^2+2x-2}{x+2} \rightarrow yx+2y = x^2+2x-2 \rightarrow x^2+(2-y)x-(2+2y) = 0 \rightarrow (2-y)^2 + 4(2+2y) \geq 0 \rightarrow 4+y^2-4y+8+8y \geq 0 \rightarrow y^2+4y+12 \geq 0 \rightarrow (y+2)(y+6) \geq 0 \rightarrow R = \mathbb{R} - (-4, -2)$$

2

$$f(x) = \frac{(x-\frac{1}{2})^2}{(x-\frac{1}{2})^2 + \frac{1}{4}} \rightarrow R_f = [0, 1)$$

$$\Delta_f < 0 \rightarrow D_f = \mathbb{R}$$

3

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

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

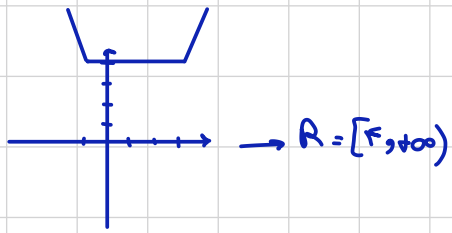
4

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

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

5

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



6

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

7

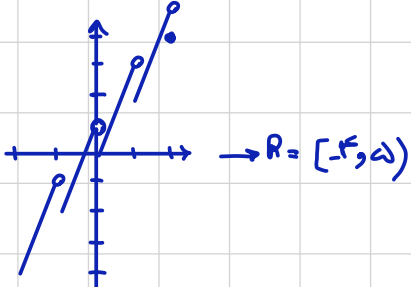
$$\begin{array}{c|c|c} -\frac{1}{2} & 0 & \\ \hline 2x+2x+1-x & 2x-2x-1-x & 2x-2x-1+x \\ \hline 3x+1 & -1 & x-1 \end{array} \rightarrow R = \mathbb{R}$$

8

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



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



9

$$y = \sin^2 x - \sin x + 1 \xrightarrow{0} 1 \xrightarrow{-1} \frac{1}{4} \xrightarrow{-\frac{1}{2}} \frac{3}{4} \rightarrow [\frac{1}{4}, \frac{3}{4}]$$

$$y = \sin^2 x + \sin^2 x + 1 \xrightarrow{0} 1 \xrightarrow{1} 2 \xrightarrow{-\frac{1}{2}} 1 \rightarrow [1, 2]$$

10