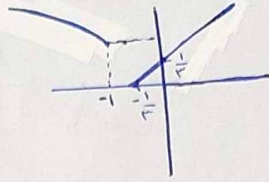


$$x = \begin{cases} 3y-1 & y \geq 0 \\ -y^2 & y < 0 \end{cases}$$



تابع است

$$y \geq 0 \rightarrow x = 3y-1 \rightarrow y = \frac{x}{3} + \frac{1}{3}$$

$$y < 0 \rightarrow x = -y^2 \rightarrow y = \sqrt{-x}$$

$$g(x) = \sqrt{\frac{x f(x-2)}{f(x)}} \rightarrow -2, 0, 2, \infty$$

$$\begin{array}{c} -2 \quad -2 \quad 0 \quad 2 \quad \infty \\ -\frac{1}{3} + \frac{1}{3} - \frac{1}{3} + \frac{1}{3} - \frac{1}{3} + \frac{1}{3} \end{array}$$

$$D_f = (-2, -2] \cup [0, 2) \cup [2, +\infty)$$

$$D_f = x^2 - 2x \neq 0 \Rightarrow x(x-2) \neq 0 \rightarrow x \neq \{0, 2\} = \mathbb{R} - \{0, 2\}$$

$$D_f = f(x) \geq 0 \Rightarrow \frac{x^2 - 2x + 2}{x^2 - 2x} \geq 0 \rightarrow \frac{-2 \quad 0 \quad 2}{-\frac{1}{3} + \frac{1}{3} - \frac{1}{3} + \frac{1}{3}}$$

$$D_f = (-2, 0) \cup (2, +\infty)$$

$$\frac{x-2}{x^2-2x^2-1} \geq 0$$

$$\frac{-2 \quad 2}{-\frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3}} \quad D_f = (-2, +\infty) - \{2\}$$

$$t^2 - 2t - 1 = 0 \rightarrow (t-2)(t+1) = 0 \Rightarrow \begin{cases} t=2 \rightarrow x^2 = 4 \rightarrow x = \pm 2 \\ t=-1 \rightarrow \infty \end{cases}$$

$$x-2 \in [-n] \neq 0 \Rightarrow x \in [-n] \neq 0 \rightarrow x \neq [-n] \rightarrow D_f = \mathbb{R} - (-2, -2)$$

$$y = f(x) \begin{cases} x(x^2-1) \geq 0 \Rightarrow \frac{-1 \quad 0 \quad 1}{-\frac{1}{3} + \frac{1}{3} - \frac{1}{3} + \frac{1}{3}} \quad x \in [-1, 0] \cup [1, +\infty) \\ |x| + x > 0 \Rightarrow x > 0 \quad \text{II} \Rightarrow \text{I} \cap \text{II} = [1, +\infty) \end{cases}$$

$$y = f(x) \begin{cases} |x-2| - x^2 \geq 0 \\ |x| \neq 1 \rightarrow x \neq \{-1, 1\} \end{cases} \quad \begin{aligned} -x^2 - x + 2 &\geq 0 \rightarrow x^2 + x - 2 \leq 0 \rightarrow x^2 + x - 2 \leq 0 \\ (x+2)(x-1) &\leq 0 \rightarrow \frac{-2 \quad 1}{-\frac{1}{3} + \frac{1}{3} - \frac{1}{3} + \frac{1}{3}} \rightarrow [-2, 1] \end{aligned}$$

$$\text{I} \cap \text{II} = [-2, 1] - \{-1, 1\}$$

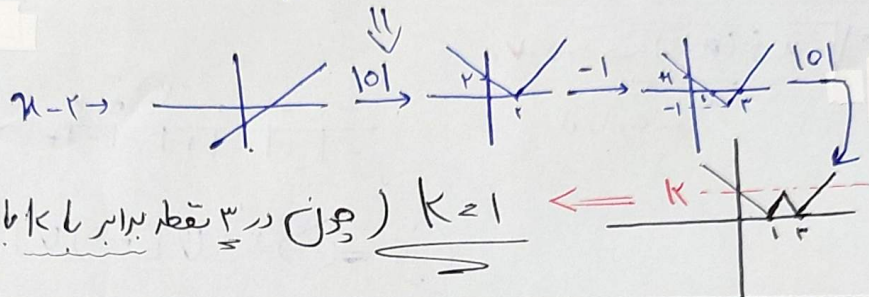
$$(n-2)[x-2] \geq 0$$

$$\begin{array}{c} 2 \quad 2 \\ + \quad 0 \quad + \quad + \end{array} \quad D_f = \mathbb{R}$$

$$\rightarrow (n-1)[x-3] \geq 0$$

$$\begin{array}{c} 3 \quad 3 \\ - \quad 0 \quad + \end{array} \Rightarrow D_f = [3, +\infty) \cup \{1\}$$

$$||x-2|-1|-k \neq 0 \Rightarrow ||x-2|-1| \neq k$$



$$f(n) = \frac{\frac{n^2+3n+2}{n^2+3n+2}}{\frac{n+1}{n-1}} \begin{cases} n^2+3n+2 \neq 0 \rightarrow (n+2)(n+1) \neq 0 \rightarrow n \neq \{-2, -1\} \\ n-1 \neq 0 \rightarrow n \neq 1 \\ \frac{n+1}{n-1} \neq 0 \rightarrow n \neq \{-1, 1\} \end{cases}$$

$D_f = \mathbb{R} - \{-2, -1, 1\}$

$n=2 \leftarrow$

$n^2-4n+9=0 \leftarrow$

$\Delta = 16-36 = -20 < 0$

$$g_{n+1} g_n \geq \frac{1}{2} \begin{cases} g_n^2 > 0 \rightarrow n < 1 \\ n+1 > 0 \rightarrow n > -1, n+1 \neq 1 \Rightarrow n \neq 0 \end{cases}$$

$$D_f = (-1, 1)$$

$$-5 < 2n^2-1 \leq 7 \begin{cases} 2n^2-1 \leq 7 \Rightarrow 2n^2 \leq 8 \Rightarrow n^2 \leq 4 \Rightarrow -2 \leq n \leq 2 \\ 2n^2-1 > -5 \Rightarrow 2n^2 > -4 \Rightarrow n^2 > -2 \end{cases}$$

$$D_f = (-2, 2) \setminus \{0\}$$