

19,5

A. دایره

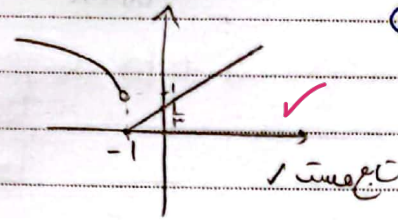
P. 2. 2. 2

کتاب و موسسه

$$n \begin{cases} 2y-1 > y \\ y > 1 \\ y^2 > 1 \end{cases} \rightarrow y > 1$$

$$y^2 > 1 \rightarrow y > 1 \vee y < -1 \rightarrow n < -1$$

$$y \begin{cases} \frac{n+1}{2} & n > -1 \\ \sqrt{-n} & n < -1 \end{cases}$$



$$g(n) = \sqrt{\frac{n(f(n-2))}{f(n)}} \quad D_g = \mathbb{R}$$

$$n \begin{cases} f(n-2) > 0 \\ f(n) > 0 \end{cases} \rightarrow n = -2, 0, 2$$

n	-2	-1	0	1	2	3	4	5
f(n)	-	+	+	+	+	-	+	+
f(n-2)	-	-	+	+	+	+	-	+
n(f(n-2))	-	+	+	+	+	-	-	+
f(n)	-	+	+	+	+	-	+	+

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

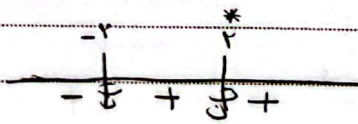
$$f(n) = \frac{n^2 - 2n + 2}{2^2 - n^2} = \frac{n^2 - 2n + 2}{n(n-2)} = \frac{n^2 - 2n + 2}{n(n-2)}$$

$$D_f = \mathbb{R} - \{-2, 0, 2\} \checkmark$$

$$\sqrt{f(n)} = \sqrt{\frac{n^2 - 2n + 2}{n^2 - 4n}} \rightarrow \Delta < 0 \Rightarrow \text{no real roots} \Rightarrow \text{no real roots}$$

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

$$y = \sqrt{\frac{n-2}{n^2 - 2n - 1}} \rightarrow \frac{n-2}{n^2 - 2n - 1} \geq 0$$



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

$$y = \frac{n^2 + 1}{n^2 - 2n} \quad n - 2 \neq 0$$

$$n - 2 \neq 0 \rightarrow n \neq 2 \rightarrow n \in \mathbb{R} - \{2\}$$

$$-2 > n > -2 \rightarrow D_f = \mathbb{R} - (-2, -2] \cup (-2, +\infty)$$

Arman

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

$$x(x^2-1) \geq 0$$

$$-1 \quad 0 \quad 1$$

$$- \quad + \quad - \quad +$$

$$[-1, 0] \cup [1, +\infty)$$

$$b) |x|+2 > 0 \rightarrow |x| > -2 \quad x=0 \quad (0, +\infty)$$

$$\begin{cases} x > 0 \\ x < 0 \end{cases}$$

$$a) \cap b) \Rightarrow D_f = [1, +\infty)$$

$$c) f(x) = \frac{\sqrt{|x-x^2|}}{|x|-1} \quad |x-x^2| \geq 0 \rightarrow x^2-x \leq 0$$

$$\begin{cases} x > 0 \\ x < 0 \end{cases} \quad x^2-x \leq 0 \rightarrow x(x-1) \leq 0$$

$$|x| \neq 1 \rightarrow x \neq \{-1, 1\}$$

$$-1 \quad 0 \quad 1$$

$$+ \quad - \quad +$$

$$[-1, 1]$$

$$a) \cap b) \Rightarrow D_f = [-1, 0) \cup (-1, 1)$$

$$d) y = \sqrt{(x-1)[2x]} \quad -(x-1)[2x] \geq 0$$

$$+ \quad 0 \quad +$$

$$D_f = \mathbb{R}$$

$$e) y = \sqrt{|x-1|[2-x]} \quad |x-1|[2-x] \geq 0$$

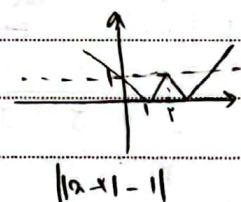
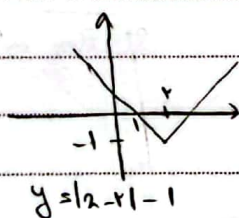
$$- \quad 0 \quad +$$

$$D_f = \{1\} \cup [2, +\infty)$$

$$y = \frac{1}{|x-1|-1} - k$$

$$|x-1|-1 \neq 0$$

$$|x-1| \neq 1$$



$$y=1 \Rightarrow k=1$$

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

$$x^2+x+1 \neq 0 \rightarrow (x+1/2)^2 + 3/4 \neq 0$$

$$x \neq -1, x \neq -2$$

$$x-1 \neq 0 \rightarrow x \neq 1$$

$$x+1 \neq 0 \rightarrow x \neq -1$$

$$x \neq \{-1, 1, -2\} \rightarrow x \in \mathbb{R}$$

$$x^2 - 4x + 9 = 0 \rightarrow (x-2)^2 = -5 \rightarrow x=1$$

$$y = \log_{x+1} \log_2 x$$

$$x+1 > 0 \rightarrow x > -1$$

$$x+1 \neq 1 \rightarrow x \neq 0$$

$$x > 0, x \neq 1 \rightarrow D_f = (0, 1) \cup (1, +\infty)$$

$$D_{f(x)} = [-0, 1]$$

$$D_{f(x^2-1)} = [-\frac{1}{\sqrt{e}}, \frac{1}{\sqrt{e}}]$$

$$-0 \leq x^2-1 \leq 1 \rightarrow -1 \leq x^2 \leq 1 \rightarrow -1 \leq x \leq 1$$

$$-\frac{1}{\sqrt{e}} \leq x \leq \frac{1}{\sqrt{e}}$$

$$1) \quad n+1 > 0 \rightarrow n > -1, \quad n+1 \neq 1 \rightarrow n \neq 0 \quad -9$$

$$2) \quad n > 0, \quad n \neq 1$$

$$\xrightarrow{n} D_f = (0, 1)$$

$$3) \quad \lg \frac{1}{n} > 0 \rightarrow 0 < n < 1$$