

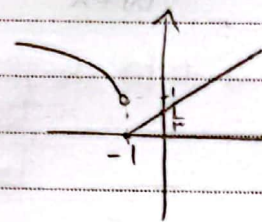
A function, $y > 1$ $y > 1$

y > 1

$$n \begin{cases} y > 1 \\ y < -1 \end{cases}$$

$$y > 1, y < -1$$

$$y > 1$$



①

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

$$y > 1$$

$$y > 1 \rightarrow y < -1 \rightarrow n < -1$$

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

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

②

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

	$-y$	$-y$	0	y	y	y	y
n	$-y$	$-y$	0	y	y	y	y
$f(n)$	$-$	$+$	$+$	$+$	$+$	$+$	$+$
$f(n-y)$	$-$	$-$	$+$	$+$	$+$	$+$	$+$
$\frac{n(f(n-y))}{f(n)}$	$-$	$+$	$+$	$+$	$+$	$+$	$+$

$$Dg = (-y, y] \cup [0, y) \cup [y, +\infty)$$

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

③

$$Df = \mathbb{R} - \{-1, 0, 1\}$$

$$\sqrt{f(n)} = \sqrt{\frac{f(n^2) - f(n+1)}{n^2 - n}} \rightarrow \Delta f(n) \rightarrow \Delta f(n) \rightarrow \Delta f(n)$$

$$\sqrt{f(n)} \rightarrow \Delta f(n)$$

$$Df = (-1, 0) \cup (0, +\infty)$$

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

④

$$n^2 - n - 1 = 0 \rightarrow (n-1)(n+1) = 0$$

$$\begin{cases} n+1 = 0 \rightarrow n = -1 \\ n-1 = 0 \rightarrow n = 1 \end{cases}$$

$$-1 \quad 1$$

$$Df = (-1, 1) \cup (1, +\infty)$$

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

$$f(n-1) \neq 0$$

$$f(n-1) \neq 0 \rightarrow f(n-1) \neq 0 \rightarrow f(n-1) \neq 0$$

$$-1 > n > -1 \rightarrow Df = \mathbb{R} - (-1, -1] \cup (-1, -1] \cup (-1, +\infty)$$

Arman

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

$$x(x^2-1) \geq 0 \quad \begin{array}{c} -1 \quad 0 \quad 1 \\ - \quad + \quad - \quad + \end{array} \quad \textcircled{a}$$

$$\textcircled{a} |x|+2 > 0 \rightarrow |x| > -2 \quad \begin{array}{l} x=0 \\ x>2 \\ x<-2 \end{array} \quad (0, +\infty)$$

$$\textcircled{a} \cap \textcircled{a} \Rightarrow D_f = [1, +\infty)$$

$$\hookrightarrow f(x) = \frac{\sqrt{|x-x^2|}}{|x|-1} \quad |x-x^2| \geq 0 \rightarrow \begin{array}{l} x^2-x+1 \leq 0 \\ x^2+x-2 \leq 0 \end{array} \quad \begin{array}{l} + \quad - \quad 0 \quad + \\ - \quad + \quad - \quad + \end{array}$$

$$|x| \neq 1 \rightarrow x \neq \{-1, 1\} \quad \textcircled{b}$$

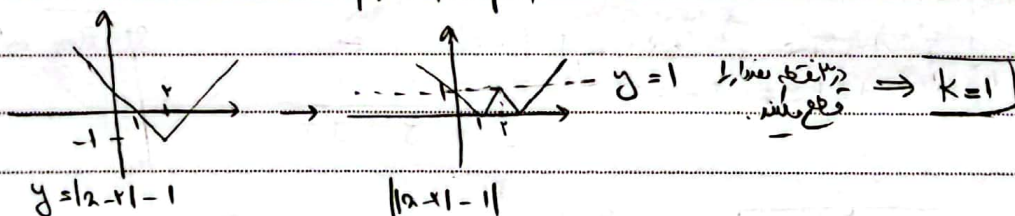
$$\begin{array}{c} -1 \quad 1 \\ + \quad - \quad - \quad + \end{array} \quad \textcircled{b} [-1, 1]$$

$$\textcircled{a} \cap \textcircled{b} \Rightarrow D_f = [-2, -1) \cup (-1, 1)$$

$$a) y = \sqrt{(x-1)[2x]} \quad -(x-1)[2x] \geq 0 \quad \begin{array}{c} 1 \quad 2 \\ + \quad 0 \quad + \end{array} \quad D_f = \mathbb{R} \quad \textcircled{c}$$

$$\hookrightarrow y = \sqrt{|x-1|[2-x]} \quad |x-1|[2-x] \geq 0 \quad \begin{array}{c} 1 \quad 2 \\ - \quad 0 \quad + \end{array} \quad D_f = \{1\} \cup [2, +\infty)$$

$$y = \frac{1}{||x-1|-1| - k} \quad \begin{array}{l} ||x-1|-1| - k \neq 0 \\ ||x-1|-1| \neq k \end{array} \quad \textcircled{d}$$



$$f(x) = \frac{\frac{x^2+x+1}{x^2+x+1}}{\frac{x+1}{x-1}} \rightarrow \frac{x^2+x+1}{x^2+x+1} \neq 0 \rightarrow (x+1)(x+1) \neq 0 \quad \textcircled{e}$$

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

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

$$x \neq \{-1, 1, -2\} \rightarrow x \neq$$

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

$$y = \log_{x+1} \log_2 x \quad x+1 > 0 \rightarrow x > -1 \quad \textcircled{f}$$

$$\textcircled{f} x > 0, x \neq 1 \rightarrow D_f = (0, +\infty) - \{1\}$$

$$D_{f(x)} = [-0, 2] \quad D_{f(x^2-1)} = \left[\frac{-1}{\sqrt{2}}, \frac{1}{\sqrt{2}}\right] \quad \textcircled{g}$$

$$-0 < x^2-1 < 1 \rightarrow -1 < x^2 < 2 \rightarrow -\sqrt{2} < x < \sqrt{2} \quad \text{Arman}$$

$$-\frac{\sqrt{2}}{2} < x < \frac{\sqrt{2}}{2}$$