

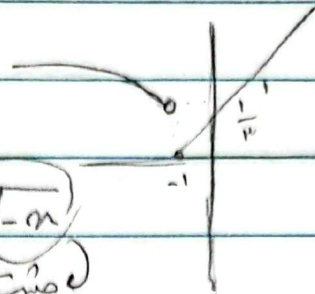
۲۰ آفرین

تالیف: ۲۰ آفرین

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①

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



تابع است

(۲)

$$y = \frac{n+1}{n}$$

$$y = \frac{+ \sqrt{-n}}{n}$$

$$g(n) = \sqrt{\frac{n f(n-1)}{f(n)}}$$

$$n=0 \Rightarrow f(n-1)=0 \rightarrow n=-1$$

$$n=\infty$$

$$n=1$$

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

$$n=1, n=\infty$$

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

$$-\frac{1}{2} + \frac{1}{2} - \frac{1}{2} + \frac{1}{2} - \frac{1}{2} + \frac{1}{2} \dots D_f = (-1, -1] \cup [0, 1) \cup [1, +\infty)$$

فقط دو نقطه است: $x=1$ و $x=0$ در دامنه f و $n=1$ در دامنه $f(n-1)$ نیست که در بازه است آفرین

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

(۲) (۳)

$$\text{الف) } n^2 - 2n \neq 0 \rightarrow n(n-2) \neq 0 \rightarrow n \neq 0, n \neq 2 \rightarrow D_f \subseteq \mathbb{R} - \{0, 2\}$$

$$\text{ب) } \frac{2n^2 - 2n + 1}{n^2 - 2n} \xrightarrow{\Delta < 0, \Delta > 0} \text{هوازیست}$$

$$\frac{-1 \pm \sqrt{1-4}}{2} = \frac{-1 \pm \sqrt{-3}}{2}$$

$$D_f \subseteq (-1, 0) \cup (2, +\infty)$$

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

$$n^2 - 2n - 1 = 0 \rightarrow n = 1, n = -1 \rightarrow$$

$$n = -1 \text{ و } n = 1 \rightarrow n = \pm 1, n-1=0 \rightarrow n=1$$

$$-\frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} \dots$$

$$D_y = (-1, +\infty) - \{1\}$$

$$\text{ب) } y = \frac{2n^2 + 1}{n^2 - 2[-n]} \rightarrow 1 \neq 2[-n] \rightarrow [-n] \neq 2 \rightarrow -1 < n \leq -2$$

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

رفت!

$$\text{الف) } f(x) = \sqrt{x(x^2-1)} \rightarrow x=0, x=\pm 1 \rightarrow \frac{-1}{-1+1-1} \text{ ①}$$

$$\sqrt{|x|+x} \rightarrow |x|+x \geq 0 \rightarrow \left. \begin{array}{l} \text{if } x < 0 \rightarrow 0 \\ \text{if } x = 0 \rightarrow 0 \\ x > 0 \rightarrow \checkmark \end{array} \right\} \text{ ②}$$

$$\text{①} \cap \text{②} = Df = [1, +\infty) \checkmark$$

$$\text{ب) } f(x) = \sqrt{|x-1|-x^2} \rightarrow \begin{array}{l} x > 1 \rightarrow -x^2 + x - 1 = 0 \rightarrow \Delta < 0, \Delta < 0 \rightarrow \text{هیچ جوابی نیست} \\ x < 1 \rightarrow -x^2 - x + 1 = 0 \rightarrow x = \pm 1 \end{array}$$

$$|x|-1 \rightarrow |x| \neq 1 \rightarrow x \neq \pm 1 \text{ ③}$$

$$\text{①} \cap \text{③} = Df = [-1, 1) - \{-1\} \checkmark$$

$$\text{الف) } y = \sqrt{(x-2)[x-3]} \rightarrow x=2, [x-3]=0 \rightarrow 0 \leq x-3 < 1 \rightarrow 3 \leq x < 4$$

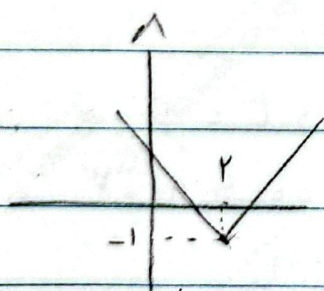
$$3 \leq x < 4 \rightarrow \frac{2}{+} \frac{3}{0} \frac{4}{+} \rightarrow Df = [3, 4) \checkmark$$

$$\text{ب) } y = \sqrt{|x-1|[x-4]} \rightarrow y \geq 0 \rightarrow x=1, 0 \leq x-4 < 1 \rightarrow 4 \leq x < 5$$

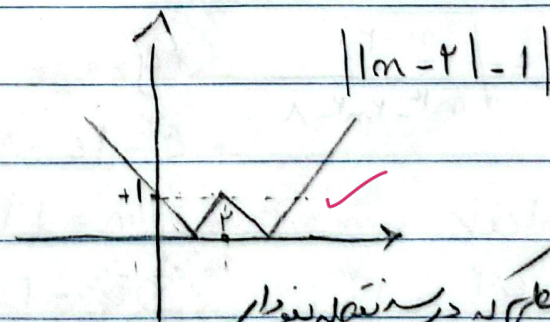
$$- \quad - \quad - \quad 0 \quad + \quad + \rightarrow Df = [4, +\infty) \cup \{1\} \checkmark$$

$$y = \frac{1}{||x-2|-1|-K} \text{ ④}$$

$$||x-2|-1| \neq K \rightarrow \text{نمودار}$$



$$||x-2|-1|$$



نقاط خطر در متغیرها

را قطع می کنند از $K \leq 1$

①

$$m^2 + 2m + 1 \neq 0 \rightarrow m \neq -1, m \neq -1 \rightarrow \text{معرک در این صورت}$$

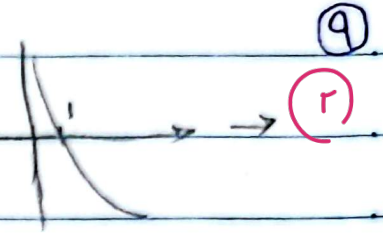
$$m \neq 1, m \neq -1$$

$$m^2 - 4m + 4 = 0 \rightarrow (m - 2)^2 = 0 \rightarrow m = 2 \quad \checkmark \text{ یک ریشه دارد}$$

$$\textcircled{1} m + 1 \neq 1 \rightarrow m \neq 0, m + 1 > 0 \rightarrow m > -1$$

$$\textcircled{2} m \neq 1, m > 0 \quad \log \frac{1}{m} > 0 \rightarrow$$

$$\textcircled{3} 0 < m < 1 \rightarrow \textcircled{1} \cap \textcircled{2} \cap \textcircled{3} = Df = (0, 1) \quad \checkmark$$



$$-2 \leq 10^{\frac{1}{m}} - 1 \leq 2 \rightarrow -2 \leq 10^{\frac{1}{m}} \leq 3 \rightarrow m^{\frac{1}{10}} \leq \frac{3}{10} \rightarrow \textcircled{1} \textcircled{2} \quad \checkmark$$

$$\frac{-\frac{1}{\sqrt{10}}}{\sqrt{10}} \leq m \leq \frac{1}{\sqrt{10}} \rightarrow -\frac{\sqrt{10}}{10} \leq m \leq \frac{\sqrt{10}}{10} \rightarrow Df = \left[-\frac{\sqrt{10}}{10}, \frac{\sqrt{10}}{10}\right] \quad \checkmark$$