

$$y = \sqrt{(a-x)x^2 + ax + b} \rightarrow a-x \geq 0 \rightarrow a, x$$

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$$\rightarrow 2x+b \geq 0 \rightarrow 2x \geq -b \rightarrow x \geq \frac{-b}{2} \rightarrow x \geq \frac{-b}{2} \rightarrow \frac{-b}{2} \geq b, 4$$

دقت کن!

$$y = \sqrt{x^2 + 2x + 2 - m^2} \rightarrow D: R \rightarrow \Delta < 0 \rightarrow 4 - 4(2 - m^2) \leq 0$$

$$\rightarrow 4 - 4 + 4m^2 \leq 0 \rightarrow 4m^2 - 4 \leq 0 \rightarrow 4(m^2 - 1) \leq 0 \rightarrow m^2 - 1 \leq 0$$

$$\rightarrow m^2 \leq 1 \rightarrow m \leq 1, m \geq -1 \rightarrow [-1, 1] \rightarrow \Delta_{\max \text{ and } \min}, 1 - (-1) = 2$$

$$y = \frac{\sqrt{4 - x^2}}{[x] + [-x] + 1}$$

$$\rightarrow 4 - x^2 \geq 0 \rightarrow 4 \geq x^2 \rightarrow D: [-2, 2]$$

$$[x] + [-x] + 1 \neq 0$$

$$\rightarrow \text{عدد صحیح} = 0 + 1 = 1 \checkmark$$

$$\rightarrow \text{عدد صحیح} = -1 + 1 = 0 \times$$

$$\rightarrow Df: [-2, 2] \cap \mathbb{Z} = [-2, -1, 0, 1, 2] \rightarrow \text{عدد صحیح}$$

$$y = \sqrt{x^3 + 3x^2} \rightarrow x^3 + 3x^2 \geq 0 \rightarrow x^2(x+3) \geq 0$$

$$\rightarrow \frac{x}{-3} \rightarrow Df: [-3, +\infty)$$

$$y = \sqrt{\frac{(x^2-1)(x^2-3x^2)}{x^3-1}} = \sqrt{\frac{(x-1)(x+1)(x^2)(x-3)}{x^3-1}}$$

$$\frac{(x-1)(x+1)(x^2)(x-3)}{x^3-1} \geq 0 \rightarrow x \mid \begin{array}{c} -1 \quad 0 \quad 3 \\ + \quad - \quad - \quad + \end{array}$$

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$$\rightarrow Df: (-\infty, -1] \cup [3, +\infty) \cup \{0\}$$

به ازای $x=0$ عبارت برابر است

لین درد افذهت!

$$y = \frac{(x^2-1)(x^2-3x^2)}{(x^3-1)} \geq 0 \rightarrow \frac{(x-1)(x+1)(x^2)(x-3)}{(x-1)(x^2+x+1)} \geq 0$$

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

$$Df: (-\infty, -1] \cup \{0\} \cup [3, +\infty)$$

دقت کن!

الف) $\sqrt{|u-2|} - 3 \rightarrow |u-2| - 9 \geq 0 \rightarrow |u-2| \geq 3 \rightarrow u-2 \geq 3$
 $u-2 \leq -3$

$\left. \begin{array}{l} u \geq 5 \\ u \leq -1 \end{array} \right\} \text{Df, } (-\infty, -1] \cup [5, +\infty)$

ب) $\sqrt{4 - |2-u|} \rightarrow 4 - |2-u| \geq 0 \rightarrow 4 \geq |2-u| \rightarrow 4 \geq 2-u$
 $-4 \leq 2-u$

$\rightarrow \left. \begin{array}{l} u \geq -2 \\ u \leq 6 \end{array} \right\} \text{Df, } [-2, 6]$

الف) $y, \sqrt{1 - u|u|} \rightarrow 1 - u|u| \geq 0 \rightarrow 1 \geq u|u| \rightarrow \text{Df, } (-\infty, 1]$

ب) $y, \frac{1}{\sqrt{3 - |u-1| - 1}} \rightarrow 3 - |u-1| - 1 \geq 0 \rightarrow 2 \geq |u-1|$

صدرت سوال را اشتباه نوشتی! $\sqrt{3 - |u-1|} - 1 \geq 0 \rightarrow \sqrt{3 - |u-1|} - 1 \neq 0$

$\rightarrow \left. \begin{array}{l} 2 \geq u-1 \rightarrow v \geq u \\ -2 \leq u-1 \rightarrow v \leq u \end{array} \right\} \text{Df, } (r, v)$

الف) $y, \frac{\sin^2 u - 1}{\cos u} \rightarrow \cos u \neq 0 \rightarrow \text{Df, } R - \left\{k\pi + \frac{\pi}{2}\right\}$

ب) $y, \frac{\cos u}{r \cos u - 1} \rightarrow r \cos u - 1 \neq 0 \rightarrow r \cos u \neq 1$

$\rightarrow \cos u \neq \frac{1}{r} \rightarrow \text{Df, } R - \left\{r k \pi \pm \frac{\pi}{r}\right\}$

الف) $y, \frac{u+3}{|u+1| - |u+3|} \rightarrow (u+1)^2 \neq (u+3)^2 \rightarrow u^2 + 2u + 1 \neq u^2 + 6u + 9$

$\rightarrow 3u^2 - 2u - 8 \neq 0 \rightarrow u^2 - 2u - 2 \neq 0 \rightarrow (u-4)(u+2) \neq 0 \rightarrow u \neq 4, -2$
 $\rightarrow \text{Df, } R - \left\{4, -2\right\}$

$$\sqrt{n+1} - |n+1| \rightarrow |n+1| - |n+1| \geq 0 \rightarrow \text{مساوية}$$

$$n^2 - 2n - 1 \geq 0 \rightarrow n^2 - 2n - 2 \geq 0 \rightarrow (n-4)(n+2) \geq 0 \rightarrow n < \frac{1}{2}$$

$$\rightarrow \frac{n}{+} \frac{-2}{-} \frac{1}{+} \rightarrow Df: (-\infty, -\frac{1}{2}] \cup [1, +\infty)$$

$$f(n) = \sqrt{\log_{10} \log_{10} (n-1)} \rightarrow n-1 \geq 0, n > 1, n > \frac{1}{2}$$

$$\log_{10} \log_{10} (n-1) \geq 0 \rightarrow \log_{10} (n-1) \leq 1 \rightarrow (n-1) \leq 10 \rightarrow n \leq 11 \rightarrow n \leq 12$$

$$\rightarrow Df: (\frac{1}{2}, 12]$$

$$\log_{10}^a \rightarrow a > 0 \rightarrow \log_{10}^{n-1} > 0 \rightarrow n-1 > 1 \rightarrow n > 2$$

الف) $y = \log(x \cos x + 1) \rightarrow x \cos x + 1 > 0 \rightarrow x \cos x > -1$

$$\rightarrow \cos x > -\frac{1}{x} \rightarrow Df: [x \cos x - \frac{1}{x}, x \cos x + \frac{1}{x}]$$

$$-1) y = \sqrt{\log \frac{n-1}{n+1}} \rightarrow \frac{n-1}{n+1} > 0 \rightarrow \frac{n-1}{+} \frac{-1}{-} \frac{+1}{+} \rightarrow (-\infty, -1) \cup (1, +\infty)$$

$$\log_{10} \frac{n-1}{n+1} \geq 0 \rightarrow \frac{n-1}{n+1} \geq 1 \rightarrow \frac{n-1}{n+1} - 1 \geq 0 \rightarrow \frac{n-1-n-1}{n+1} \geq 0$$

$$\rightarrow \frac{-2}{n+1} \geq 0 \rightarrow \frac{n}{+} \frac{-1}{-} \rightarrow (-\infty, -1) \rightarrow Df: (-\infty, -1)$$

(۱) چون دامنه تک بازه است پس عبارت نمی تواند یک سهم باشد و باید یک خط باشد!

$$a - 2 = 0 \rightarrow a = 2 \rightarrow f(x) = \sqrt{2x + b} \quad D_f = [3, +\infty) \rightarrow f(3) + b = 0 \rightarrow \boxed{b = -4}$$

۴-ب) $3 - |n - 5| \geq 0 \rightarrow |n - 5| \leq 3 \rightarrow -3 \leq n - 5 \leq 3 \rightarrow 2 \leq n \leq 8$

$$\sqrt{3 - |n - 5|} - 1 \neq 0 \rightarrow \sqrt{3 - |n - 5|} \neq 1 \rightarrow 3 - |n - 5| \neq 1 \rightarrow |n - 5| \neq 2 \rightarrow n \neq 3, 7$$

$$D_f = [2, 8] - \{3, 7\} = [2, 3) \cup (3, 7) \cup (7, 8]$$

۹) $\log_{1/5} \log_a^{2n-1} \rightarrow 2n-1 > 0 \rightarrow n > \frac{1}{2}$

$$\log_a^{2n-1} > 0 \rightarrow 2n-1 > 0 \rightarrow 2n-1 > 1 \rightarrow n > 1$$

$$\log_{1/5} \log_a^{2n-1} \geq 0 \xrightarrow[\text{منتهی به ۰!}]{\text{منتهی به ۰!}} \log_a^{2n-1} \leq 1/5 \rightarrow \log_a^{2n-1} \leq 1 \rightarrow 2n-1 \leq 5 \rightarrow 2n \leq 6 \rightarrow n \leq 3$$

$$\hookrightarrow D_f = (1, 3]$$