

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

$$\rightarrow rx + b \geq 0 \rightarrow rx \geq -b \rightarrow x \geq \frac{-b}{r} \rightarrow x \geq \frac{b}{r} \rightarrow \frac{b}{r} \leq \frac{b}{r} \rightarrow b, r$$

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

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

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

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

$$\xrightarrow{\text{صفر}} 4 - x^2 \geq 0 \rightarrow 4 \geq x^2 \rightarrow D: [-2, 2]$$

$$\xrightarrow{\text{صفر}} [x] + [-x] + 1 \neq 0 \rightarrow \begin{cases} \text{عدد صحیح} = 0 + 1 = 1 \checkmark \\ \text{عدد گویا} = -1 + 1 = 0 \times \end{cases}$$

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

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

$$\rightarrow \frac{x}{-} \quad \frac{-3}{+} \quad \frac{0}{+} \quad \frac{+}{+} \rightarrow Df: [-3, +\infty)$$

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

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

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

الف) $\sqrt{|u-2|} - 3 \rightarrow |u-2| - 9 \geq 0 \rightarrow |u-2| \geq 3 \rightarrow \begin{matrix} u-2 \geq 3 \\ u-2 \leq -3 \end{matrix}$ - 4

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

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

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

الف) $y, \sqrt{1 - u|u|} \rightarrow 1 - u|u| \geq 0 \rightarrow 1 \geq u|u| \rightarrow \text{Df, } (-\infty, 1]$ - 6

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

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

الف) $y, \frac{\sin^2 u - 1}{\cos u} \rightarrow \cos u \neq 0 \rightarrow \text{Df, } \mathbb{R} - \left\{k\pi + \frac{\pi}{2}\right\}$ - 7

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

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

الف) $y, \frac{u+3}{|u+1| - |u+3|} \rightarrow (r u + 1)^r \neq (u+3)^r \rightarrow r u^r + r u + 1 \neq u^r + 9 u + 9$ - 8

$\rightarrow r u^r - r u - 1 \neq 0 \rightarrow u^r - r u - r \neq 0 \rightarrow (u-9)(u+3) \neq 0 \rightarrow u \neq \frac{9}{r}, -3$
 $\rightarrow \text{Df, } \mathbb{R} - \left\{r, \frac{-r}{r}\right\}$

$$\sqrt{r(n+1) - |n+1|} \rightarrow r(n+1) - |n+1| \geq 0 \rightarrow \text{ما ننزل بالـ} \rightarrow$$

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

$$\rightarrow \frac{n}{+} \frac{-1}{-} \frac{1}{+} \rightarrow Df_s \left(-\infty, -\frac{1}{r} \right] \cup \left[r, +\infty \right)$$

$$f(n) = \sqrt{\log_{\Delta}^{(n-1)} \log_{\Delta}^{(n-1)}} \rightarrow r(n-1) \geq 0 \rightarrow r(n) > 1 \rightarrow n > \frac{1}{r}$$

$$\log_{\Delta}^{(n-1)} \geq 0 \rightarrow \log_{\Delta}^{(n-1)} \leq 1 \rightarrow (n-1) \leq \Delta \rightarrow r(n) \leq 4 \rightarrow n \leq r$$

$$\rightarrow Df_s \left(\frac{1}{r}, r \right]$$

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الف) $y_s \log(r \cos n + 1) \rightarrow r \cos n + 1 \geq 0 \rightarrow r \cos n \geq -1$

$$\rightarrow \cos n \geq -\frac{1}{r} \rightarrow Df_s \left[r(n) - \frac{r\pi}{r}, r(n) + \frac{r\pi}{r} \right]$$

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$$-1) y_s \sqrt{\log \frac{n-1}{n+1}} \rightarrow \frac{n-1}{n+1} \geq 0 \rightarrow \frac{n-1}{+} \frac{-1}{-} \frac{+1}{+} \rightarrow \underline{(-\infty, -1) \cup (1, +\infty)}$$

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

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