

$$n \begin{cases} y-1 & y > 0 \rightarrow y > 0 & y-1 > -1 \Rightarrow n > -1 \\ -y^2 & y > 1 \rightarrow y > 1 \rightarrow y^2 > -y^2 < -1 \rightarrow n < -1 \end{cases}$$

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

$$\begin{array}{ccccccc} -2 & -1 & 0 & 1 & 2 & 3 & 4 \\ \hline - & + & - & + & - & - & + \end{array}$$

$$D_f = (-\infty, -2] \cup [0, 1) \cup [4, +\infty)$$

ریشه ها: $\frac{1}{n}$ و $-\frac{1}{n}$ و $\frac{1}{n}$ و $-\frac{1}{n}$ و $\frac{1}{n}$ و $-\frac{1}{n}$ و $\frac{1}{n}$ و $-\frac{1}{n}$

$$\frac{n f(n-1)}{f(n)} \gg 0$$

$$\frac{2n^2 - 3n + 1}{n^3 - \varepsilon n}$$

$$n(n+1)(n-1)$$

$$\begin{array}{ccc} -2 & 0 & 1 \\ \hline - & + & - \end{array}$$

الف) $R - \{0, 1\}$
 ب) $(-\infty, 0) \cup (1, +\infty)$

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

$$\begin{array}{ccc} -1 & 1 & 2 \\ \hline - & + & + \end{array}$$

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

$\varepsilon - \varepsilon \in [n] \neq 0 \quad 1 \in [n] \neq \varepsilon \rightarrow [n] \neq 1 \quad 1, 2 - n < 3 \rightarrow -1 \geq n > -3$

$D_f = \mathbb{R} - (-3, 1)$

$$\sqrt{\frac{n(n+1)(n-1)}{\sqrt{|n|+n}}}$$

$|n| \neq -n \rightarrow n \in (0, +\infty)$

① و ② $\rightarrow D_f = [1, +\infty)$

① $n \neq 1 \rightarrow$

$|n-1| \geq n^2, n^2 - |n-1| \leq 0$

$\begin{cases} n > 1 & n \leq n+1 \rightarrow \Delta < 0 \\ n < 1 & n^2 + n - 1 \end{cases}$

$-1 \mid (n+1)(n-1) \leq 0$

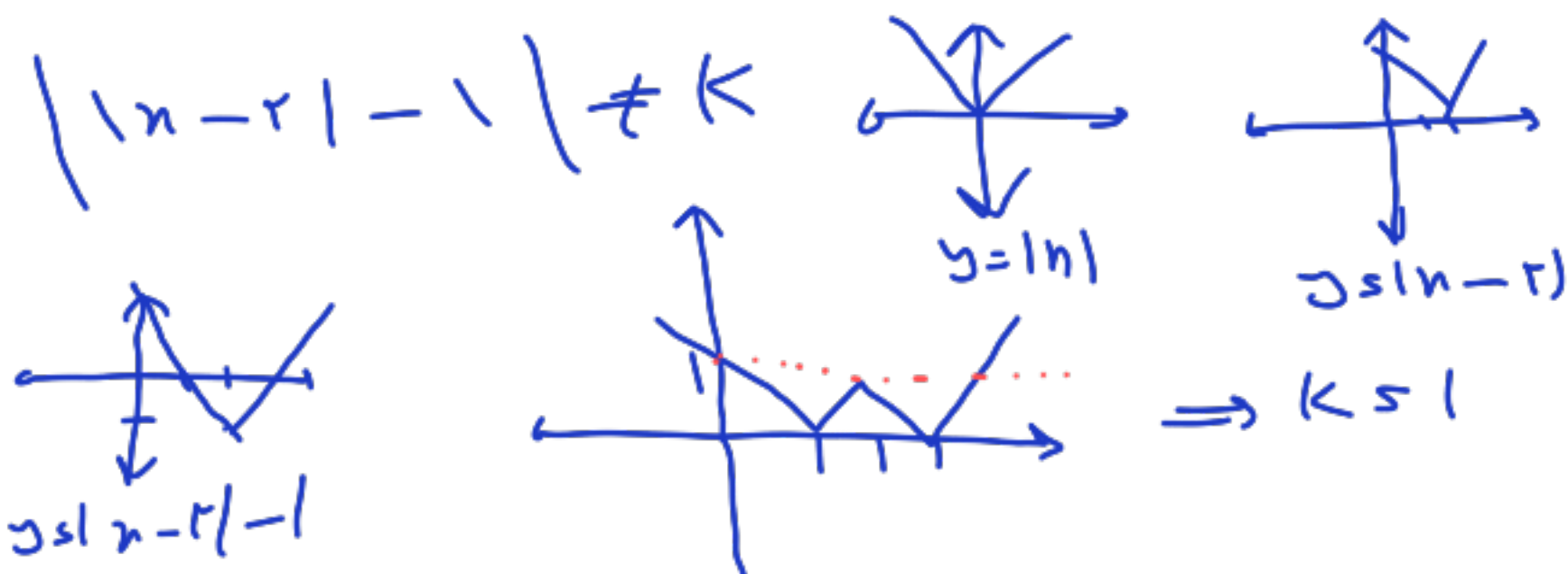
$\begin{array}{ccc} + & - & + \end{array} \rightarrow D_f = (-1, 1) - \{-1\}$

$$\underbrace{(n-r)}_{n \neq r} \underbrace{\sum_{r \leq n \leq r} n-r}_{\geq 0} \geq 0 \rightarrow \begin{array}{c} r \quad r \\ + \quad | \quad 0 \quad | \quad + \end{array} \rightarrow D_f = \mathbb{R}$$

$$|n-1| \sum_{r \leq n \leq r} (n-r) \geq 0$$

$$\begin{array}{c} 1 \quad r \quad r \\ - \quad | \quad - \quad | \quad + \end{array} \rightarrow D_f \subseteq \{1\} \cup [r, +\infty)$$

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$$f(n) = \frac{n^2 + rn + r}{\frac{n+1}{n-1}} \rightarrow \frac{n+1}{n-1} \neq 0 \Rightarrow n \neq 1, -1, n^2 + rn + r \neq 0$$

$$(n+1)(n+r) \neq 0 \Rightarrow \begin{cases} n \neq -1 \\ n \neq -r \end{cases}$$

$$\textcircled{1} \cap \textcircled{2} \rightarrow D_f \subseteq \mathbb{R} - \{-r, 1, -1\} \Rightarrow n \leq r \Rightarrow n^2 - 4n + 4 = 0$$

$$(n-r)^2 = 0 \rightarrow n = r$$

لأنه إذا كان $n = r$ فإن $f(n) = 0$

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$$n+1 \neq 1 \Rightarrow n \neq 0$$

$$n+1 > 0 \Rightarrow n > -1$$

$$\log \frac{1}{r} \leq n > 0, n \neq 1$$

إذا كان n بين صفر و 1 فإنه يجب أن يكون $n > 0$

$$0 < n < 1$$



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$$f(n) \rightarrow D_f = [-\infty, r]$$

$$-\infty < rn^2 - 1 \leq r \rightarrow -\sum_{r \leq n \leq r} rn^2 \leq r \rightarrow n^2 \leq \frac{r}{r} \rightarrow -\frac{r}{r} \leq n \leq \frac{r}{r}$$

$$D_{f(rn^2-1)} = \left[-\frac{r}{r}, \frac{r}{r}\right]$$