

الف) $\frac{n+3}{(n-1)(n^2+n-3)} = \frac{n+3}{(n-1)(n-1)(n+3)} \Rightarrow \mathbb{D} = \mathbb{R} - \{1, -3\}$ ①

$\Rightarrow \frac{n+3}{(n-1)(n+1)(n+3)} \Rightarrow \mathbb{D} = \mathbb{R} - \{-1, -\frac{1}{2}, -3\}$

ان) $\frac{n+3}{(n-1)(n^2-n+1)}$ $\Rightarrow \mathbb{D} = \mathbb{R} - \{1\}$ ②

$\Rightarrow \sqrt{\frac{n+3}{(n-1)(n^2-n+1)}} \Rightarrow \frac{-2}{x^2-3} \neq \mathbb{D} = (-\infty, 3] \cup (1, +\infty)$

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

$\mathbb{D} = \mathbb{R} - \{-5, 0, 2, \infty\}$

$\frac{2}{n^2+n} = \frac{2}{n(n+1)} \quad \frac{2}{n^2-n+1} = \frac{2}{(n-1/2)^2+3/4}$
 $\Rightarrow n \neq 0, n \neq -1, n \neq 1, n > 1$

ان) $\frac{n+3}{|n+1|-|n+3|}$

$\mathbb{D} = \mathbb{R} - \{-\frac{4}{3}, 2\}$

$\frac{-3}{-n+1} \quad \frac{-1}{-n+1} \quad \frac{1}{n-1}$
 $\Rightarrow n \neq 1, n \neq 2$

$\Rightarrow |n+1| - |n+3| \geq 0 \quad |n+1| \geq |n+3|$

$n \leq -1 \Rightarrow n^2 - 2n - 1 \geq 0 \quad (n-1)(n+3) > 0$

$\mathbb{D} = (-\infty, -\frac{4}{3}] \cup [2, +\infty)$

$\Leftarrow$

ان) $\log_r \frac{1-\log_r n}{n} > 0 \quad \log_r n < 1 \quad n < r$ ③
 $0 < n < r \Rightarrow \mathbb{D} = (0, r)$

$\log_r \frac{1-\log_r n}{n} > 0 \quad \log_r n < 1 \Rightarrow n > \frac{1}{r} \quad (1 \pm)$
 $\mathbb{D} = n > \frac{1}{r} \Rightarrow \mathbb{D} = (\frac{1}{r}, +\infty)$

$f(n) = \sqrt{\log \frac{1}{f}}^{(n+1)} \rightarrow n-1 > \dots \quad n > 5$
 $\log \frac{1}{f} > \dots \Rightarrow n-1 > 1 \quad n > 2$
 $\log \frac{1}{f} > \dots \Rightarrow \log \frac{1}{f} \leq 1 \quad n-1 \leq 0$
 $I \cap II \cap III \Rightarrow 1 < n \leq 2 \quad D = \{1, 2\}$
 $n \leq 2$

2) $\log(2 \cdot 5n+1) \rightarrow 2 \cdot 5n+1 > \dots \quad \cos n > -\frac{1}{f}$
 $D = (2kn - \frac{2n}{f}, 2kn + \frac{2n}{f})$

$y = \sqrt{\log \frac{n-1}{n+1}} \rightarrow \frac{n-1}{n+1} > \dots \quad \frac{-1}{f} > \dots$
 $\log \frac{n-1}{n+1} > \dots \quad \frac{n-1}{n+1} > 1 \quad \frac{-1}{n+1} > \dots$
 $I \cap II \Rightarrow D = (-\infty, +\infty)$

$a = -2 \quad f(n) = \sqrt{-2nb} \quad \text{مربع } a \text{ با } b \text{ متی شود}$

$-2n < b \Rightarrow n < \frac{b}{2} \quad \} \Rightarrow \frac{b}{2} < 3 \quad (b < 6)$
 $D = (-\infty, 3]$

$n^2 + 2m + n^2 = m^2 \Rightarrow \dots$
 $a > \dots \quad a < \dots \Rightarrow f-1 + 2m^2 \leq \dots \quad fm^2 - 4 \leq \dots \quad m^2 - 1 \leq \dots$
 $1 - (-1) = 2$

$\sqrt{2n^2} \Rightarrow \dots \quad -2 \leq n \leq 2 \quad (I)$

$\{n\} + \{-n\} = 1 \rightarrow \dots \quad n \in \mathbb{Z} \quad (II)$

$(I \cap II) \Rightarrow D = \{-2, -1, 0, 1, 2\}$

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