

الف) $y = \sqrt{\frac{n^2 - 7n}{n^2 - n}}$ $\frac{n^2 - 7n}{n^2 - n} \geq 0 \Rightarrow n(n-7) \geq 0$ $n \neq 1$ $D_f = (-1, 0) \cup (0, 1) \cup [7, +\infty)$

ب) $y = \sqrt{\frac{n^2 - n^2}{n^2 - n}}$ $\frac{n^2 - n^2}{n^2 - n} \geq 0 \Rightarrow n^2(n^2 - 1) \geq 0$ $n \neq \pm 1$ $D_f = (-\infty, -1) \cup (-1, 0) \cup (0, 1) \cup (1, +\infty)$

الف) $y = \frac{n+1}{\sqrt{n+|n|}}$ $|n| > -n$ $D_f = \mathbb{R}^+$

ب) $y = \frac{1}{\sqrt{n|n|}}$ $n|n| > 0$ $D_f = \mathbb{R}^+$

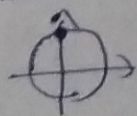
الف) $y = \sqrt{2 - [n]}$ $2 - [n] \geq 0$ $[n] \leq 2$ $n < 3$ $D_f = (-\infty, 3)$

ب) $y = \frac{1}{\sqrt{2 - [n]}}$ $2 - [n] > 0$ $[n] < 2$ $n < 2$ $D_f = (-\infty, 2)$

الف) $y = \sqrt{[n - \frac{1}{r}] + [n + \frac{1}{r}]}$ $[n - \frac{1}{r}] + [n + \frac{1}{r} + 1] \geq 0 \Rightarrow [n - \frac{1}{r}] + [n - \frac{1}{r} + 1] \geq 0$ $2[n - \frac{1}{r}] \geq -1$ $[n - \frac{1}{r}] \geq -\frac{1}{2}$ $n - \frac{1}{r} \geq 0$ $n \geq \frac{1}{r}$ $D_f = [\frac{1}{r}, +\infty)$

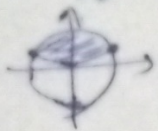
ب) $y = \sqrt{[n - \frac{1}{r}] + [-n + \frac{1}{r}]}$ $[n - \frac{1}{r}] + [-n + \frac{1}{r}] \geq 0 \Rightarrow \begin{cases} a \in \mathbb{Z} & [a] + [-a] = 0 \\ a \notin \mathbb{Z} & [a] + [-a] = -1 \end{cases}$ $n + \frac{1}{r} \in \mathbb{Z}$ $D_f = \{n | n = k + \frac{1}{r}, k \in \mathbb{Z}\}$

الف) $y = \frac{r}{\sin^{r-1} n}$ $\sin^{r-1} n \neq 0$ $\sin n \neq 1$ $D_f = \mathbb{R} - \{2k\pi + \frac{\pi}{r}\}$

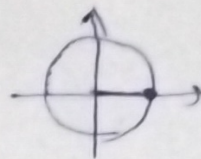


ب) $y = \frac{r}{r \sin^{r-1} n}$ $r \sin^{r-1} n \neq 0$ $\sin n \neq \pm \frac{1}{r}$ $\frac{1}{r} \times \frac{\sqrt{r}}{\sqrt{r}} = \frac{\sqrt{r}}{r}$ $D_f = \mathbb{R} - \{2k\pi + \frac{\pi}{r}, 2k\pi + \frac{\pi}{r}\}$

الف) $y = \sqrt{r \sin n - 1}$ $r \sin n - 1 \geq 0$ $\sin n \geq \frac{1}{r}$ $D_f = [rk\pi + \frac{\pi}{r}, rk\pi + \frac{3\pi}{r}]$



ب) $y = \sqrt{\cos n - 1}$ $\cos n - 1 \geq 0$ $\cos n \geq 1$ $D_f = [rk\pi]$

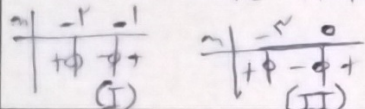


الف) $\cos y = |n| - 2$ $-1 \leq |n| - 2 \leq 1 \Rightarrow 1 \leq |n| \leq 3$

$1 \leq n \leq 3 \cap -3 \leq n \leq -1 \Rightarrow D_f = [-3, -1] \cup [1, 3]$

تدريجاً
تدريجاً

ب) $y = \arcsin(n^2 + m + 1)$ $-1 \leq n^2 + m + 1 \leq 1$ $\begin{cases} n^2 + m + 1 \geq -1 \Rightarrow n^2 + m + 2 \geq 0 \Rightarrow (n+1)(n+2) \geq 0 \\ n^2 + m + 1 \leq 1 \Rightarrow n^2 + m \leq 0 \Rightarrow m \leq -n^2 \end{cases}$



$D_f = (I) \cap (II) \Rightarrow D_f = [-\infty, -2] \cup [2, \infty]$

الف) $y = \sqrt{r \log_p(n-2)}$

$\begin{cases} n-2 > 0 \\ n > 2 \end{cases}$

$\Rightarrow (2, \infty)$

$r \log_p(n-2) \geq 0 \Rightarrow \log_p(n-2) \geq 0 \Rightarrow n-2 \geq 1 \Rightarrow n \geq 3$

ب) $y = \log(n^2 - n)$ $n^2 - n > 0 \Rightarrow n(n-1) > 0$

$D_f = (-\infty, 0) \cup (1, \infty)$

$D_f = (-1, 0) \cup (1, \infty)$

الف) $y = \frac{r}{r^n + 1}$ $r^n + 1 \neq 0$ $r^n \neq -1$ $n \in \mathbb{R}$ $D_f = \mathbb{R}$

ب) $y = \frac{r}{r^n - 1}$ $r^n - 1 \neq 0$ $r^n \neq 1$ $n \neq 0$ $D_f = \mathbb{R} - \{0\}$

ج) $y = \frac{r}{r^n - 2}$ $r^n - 2 \neq 0$ $r^n \neq 2$ $n \neq \log_r 2$ $D_f = \mathbb{R} - \{\log_r 2\}$

د) $y = \frac{r}{r^n - r}$ $r^n - r \neq 0$ $r^n \neq r$ $n \neq \log_r r$ $D_f = \mathbb{R} - \{\log_r r\}$

الف) $y = (r^n + 1)!$ $r^n + 1 \in \mathbb{W}$ $r^n \in \mathbb{W} + 1$ $n \in \frac{\mathbb{W} + 1}{r}$

$D_f = \{n \mid n = \frac{k-1}{r}, k \in \mathbb{W}\}$

ب) $y = (\frac{r^n - r}{r^n - r})!$ $\frac{r^n - r}{r^n - r} \in \mathbb{W}$ $n = -\frac{\infty + 1}{r - r}$ $D_f = \{n \mid n = \frac{rk + 1}{rk - r}, k \in \mathbb{W}\}$