

الف)  $y = \sqrt{\frac{n^2 - 4n}{n^3 - n}} \Rightarrow \frac{n(n-4)}{n(n-1)(n+1)} \geq 0$   $\frac{-1}{-} \frac{0}{+} \frac{1}{+} \frac{4}{-}$   $D_f = (-1, 1) \cup [4, +\infty) - \{0\}$

ب)  $y = \sqrt{\frac{n^2 - n^3}{n^3 - n}} \Rightarrow \frac{n^2(n-1)(n+1)}{n^3(n-1)(n+1)} = n^{-1} + \dots \Rightarrow D_f = \mathbb{R} - \{-1, 0, 1\}$

الف)  $y = \frac{n+1}{\sqrt{n+|n|}}$   $n+|n| \geq 0 \Rightarrow n \geq 0$   $D_f = (0, +\infty)$

ب)  $y = \frac{1}{\sqrt{n|n|}}$   $n|n| > 0$   $n \neq 0$   $n > 0$   $D_f = (0, +\infty)$

الف)  $y = \sqrt{x - [x]} = x - [x] \geq 0$   $D_f = (-\infty, 1)$

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

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

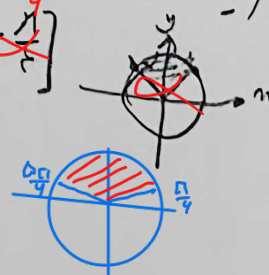
ب)  $\sqrt{[n - \frac{1}{r}] + [-n + \frac{1}{r}]} \xrightarrow{\text{مربوعه}} \begin{cases} \in \mathbb{Z} \\ \notin \mathbb{Z} - 1 \end{cases}$   $n - \frac{1}{r} \in \mathbb{Z}$   $D_f = \{\frac{1}{r} + k \mid k \in \mathbb{Z}\}$

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

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

الف)  $y = \sqrt{r \sin n - 1} \Rightarrow r \sin n - 1 \geq 0$   $\sin n \geq \frac{1}{r}$   $D_f = \left[ 2k\pi + \frac{\pi}{4}, 2k\pi + \frac{3\pi}{4} \right]$

ب)  $y = \sqrt{\cos n - 1} \Rightarrow \cos n \geq 1$   $D_f = \{2k\pi\}$



الف)  $\cos y = |n| - 2$   $-1 \leq |n| - 2 \leq 1$   $\Rightarrow |n| - 2 \geq -1 \Rightarrow |n| \geq 1$   $|n| - 2 \leq 1 \Rightarrow |n| \leq 3$   $D_f = [-3, -1] \cup [1, 3]$

ب)  $y = \arcsin(n^r + 2m + 1)$   $n^r + 2m + 1 \geq -1$   $n^r + 2m + 1 \leq 1 \Rightarrow (n+1)(n-1) \geq \frac{-2}{+} - \frac{-1}{+}$   
 $n^r + 2m + 1 \leq 1$   $n^r + 2m \leq 0$   $\frac{-2}{+} - \frac{-1}{+}$   
 $D_y = [-2, -1] \cup [-1, 0]$

الف)  $y = \sqrt{2 - \log_2(n-2)}$   $(n-2) > 0$   $n > 2$   $2 - \log_2(n-2) \geq 0$   $\log_2(n-2) \leq 2$   $n-2 \leq 4 \Rightarrow n \leq 6$   $D_f = (2, 6]$

ب)  $y = \log(n^2 - n)$   $n^2 - n > 0$   $n(n-1)(n+1) > 0$   $D_f = (-1, 0) \cup (1, +\infty)$

الف)  $y = \frac{2}{x^n + 1} \Rightarrow x^n + 1 \neq 0$   $x^n \neq -1$   $D_f = \mathbb{R}$

ب)  $y = \frac{2}{x^n - 1} \Rightarrow x^n - 1 \neq 0$   $x^n \neq 1$   $D_f = \mathbb{R} - \{0\}$

ج)  $y = \frac{2}{x^n - 2} \Rightarrow x^n - 2 \neq 0$   $x^n \neq 2$   $D_f = \mathbb{R} - \{\sqrt[n]{2}\}$

د)  $y = \frac{2}{x^n - 2} \Rightarrow x^n - 2 \neq 0$   $x^n \neq 2$   $D_f = \mathbb{R} - \{\log_2 2\}$

الف)  $y = (n+1)!$   $n+1 \in \mathbb{N}$   $n \in \frac{\mathbb{N}-1}{1}$   $D_f = \left\{ n \mid n = \frac{k-1}{1}, k \in \mathbb{N} \right\}$

ب)  $y = \left( \frac{n-2}{n-2} \right)!$   $\Rightarrow \frac{n-2}{n-2} \in \mathbb{N} \Rightarrow n-2 \in \mathbb{N}$   $n-2 \in \mathbb{N}$   $n \in \frac{\mathbb{N}-2}{1}$

$D_f = \left\{ n \mid n = \frac{k-2}{1}, k \in \mathbb{N} \right\}$