

الف) $y = \sqrt{\frac{n^2 - 1}{n^2 - n}}$

(۲) ✓

$\frac{n^2 - 1}{n^2 - n} \geq 0 \Rightarrow n(n-1) \geq 0$
 $n \geq 1$

$\frac{-1}{0} \leq \frac{1}{0} \leq \frac{1}{0}$

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

ب) $y = \sqrt{\frac{n^2 - 1}{n^2 - n}}$

$\frac{n^2 - 1}{n^2 - n} \geq 0 \Rightarrow n^2(n^2 - 1) \geq 0$
 $n \geq 1$

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

الف) $y = \frac{n+1}{\sqrt{n+|n|}}$

(۲) ✓

$|n| > -n \quad D_f = \mathbb{R}^+$

$y = \frac{n+1}{\sqrt{n+|n|}}$

ب) $y = \frac{1}{\sqrt{n+|n|}}$

$n+|n| \geq 0 \quad D_f = \mathbb{R}^+$

الف) $y = \sqrt{2 - [n]}$

(۲) ✓

$2 - [n] \geq 0 \quad [n] \leq 2 \quad D_f = (-\infty, 2)$
 $n < 2$

ب) $y = \frac{1}{\sqrt{2 - [n]}}$

$2 - [n] > 0 \quad [n] < 2 \quad D_f = (-\infty, 2)$
 $n < 2$

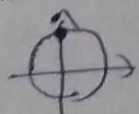
الف) $y = \sqrt{[n - \frac{1}{r}] + [n + \frac{1}{r}]}$ $[n - \frac{1}{r}] + [n + \frac{1}{r} + 1] \geq 0 \Rightarrow [n - \frac{1}{r}] + [n - \frac{1}{r} + 1] \geq 0$

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

(۲) ✓

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

الف) $y = \frac{r}{\sin^{r-1} n}$

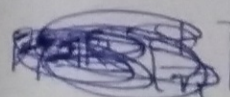


$\sin^{r-1} n \neq 0 \quad \sin n \neq 1 \quad D_f = \mathbb{R} - \{2k\pi + \frac{\pi}{2}\}$

(۱,۵)

ب) $y = \frac{r}{\sin^{r-1} n}$

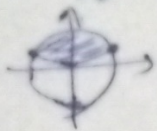
$\sin^{r-1} n \neq 0 \quad \sin n \neq \pm \frac{1}{\sqrt{r}}$
 $\frac{1}{\sqrt{r}} \times \frac{\sqrt{r}}{\sqrt{r}} \pm \frac{\sqrt{r}}{\sqrt{r}}$



$D_f = \mathbb{R} - \{2k\pi + \frac{\pi}{2}, 2k\pi + \frac{3\pi}{2}\}$

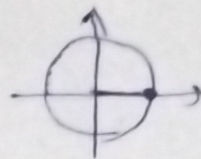
$kn \pm \frac{n}{r}$

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



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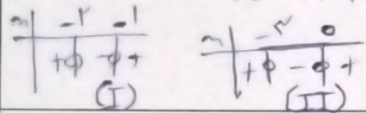
الف) $\cos y = |n| - 2$ $-1 \leq |n| - 2 \leq 1 \Rightarrow 1 \leq |n| \leq 3 \Rightarrow n \leq -1$ or $n \geq 1$

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

تدوین

Ⓟ ✓

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



$D_f = (I) \cap (II) \Rightarrow D_f = [-2, -1] \cup [-1, 0]$

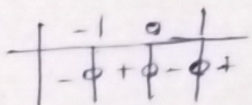
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الف) $y = \sqrt{r \log_r(n-2)}$ $\begin{cases} n-2 > 0 \Rightarrow n > 2 \\ r \log_r(n-2) \geq 0 \Rightarrow \log_r(n-2) \leq 2 \Rightarrow n-2 \leq r^2 \Rightarrow n \leq r^2 + 2 \end{cases}$ $\Rightarrow (2, 11]$

$r \log_r(n-2) \geq 0 \Rightarrow \log_r(n-2) \leq 2$ $n-2 \leq 9$ $n \leq 11$

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



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

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

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

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

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

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