

الف) $y = \frac{n+3}{2n^3+3n^2-11n+3}$ ب) $y = \frac{n+3}{2n^3+9n^2+10n+3}$	$\frac{-2n^3+3n^2-11n+3}{2n^3-2n^2} \quad \frac{n-1}{2n^2+5n-3}$ $\frac{-5n^2-11n+3}{-5n^2-5n} \quad (n-\frac{1}{5})(n+3)$ $\frac{-3n+3}{-3n+3} \quad 0$ $(n+\frac{1}{5})(n+3)$	$y = \frac{n+3}{(n-\frac{1}{5})(n+3)(n-1)}$ $D_f = \mathbb{R} - \{-3, \frac{1}{5}, 1\}$ $D_f = \mathbb{R} - \{-1, -\frac{1}{5}, -3\}$	۱
الف) $y = \frac{n+3}{n^3-2n^2+2n-1}$ ب) $y = \sqrt{\frac{n+3}{n^3-2n^2+2n-1}}$ $(n-1)(n^2-n+1)$ $\frac{-3}{+} \quad \frac{1}{-}$	$\frac{-n^3-2n^2+2n-1}{-n^3-n^2} \quad \frac{n-1}{n^2-n+1}$ $\frac{-n^2+2n-1}{-n^2+n} \quad \Delta < 0$ $\frac{-n-1}{n-1} \quad 0$	$D_f = \mathbb{R} - \{1\}$ $D_f = (-\infty, -3] \cup (1, +\infty)$	۲
$y = \frac{2}{n^2-5(n-1)-2n+5}$ $n \geq 1 \Rightarrow n^2-5n+10 \geq 0 \Rightarrow (n-2)(n-5) \geq 0 \Rightarrow n \geq 5$ $n < 1 \Rightarrow n^2+3n \geq 0 \Rightarrow n(n+3) \geq 0 \Rightarrow n \geq 0, -3$		$D_f = \mathbb{R} - \{-3, 0, 2, 5\}$	۳
الف) $y = \sqrt{[-n]-2}$ ب) $y = \frac{5n^2+4}{[n]^2-2[n]-3}$ $[n] = 3 \Rightarrow [3, 4), [n] = -1 \Rightarrow [-1, 0)$	$[-n]-2 \geq 0 \Rightarrow [-n] \geq 2 \Rightarrow -n \geq 2 \Rightarrow n \leq -2$ $[n] = t \Rightarrow t^2-2t-3 \geq 0 \Rightarrow (t-3)(t+1) \leq 0 \Rightarrow t \in [-1, 3]$ $D_f = \mathbb{R} - [-1, 0) \cup [3, 4)$	$D_f = (-\infty, -2]$	۴
الف) $y = \sqrt{\frac{[n-\frac{1}{p}]+[n+\frac{p}{p}]}{[n+\frac{p}{p}-1]}}$ ب) $\sqrt{\frac{[n-\frac{1}{p}]+[\frac{1}{p}-n]}{[a] \quad [-a]}}$	$2[n+\frac{p}{p}] \geq 1 \Rightarrow [n+\frac{p}{p}] \geq \frac{1}{2} \Rightarrow n+\frac{p}{p} \geq 1 \Rightarrow n \geq \frac{1}{p}$ $a \in \mathbb{Z} \Rightarrow n-\frac{1}{p} \in \mathbb{Z} \Rightarrow n \in \mathbb{Z} + \frac{1}{p}$ $D_f = \{n \mid n = k + \frac{1}{p}, k \in \mathbb{Z}\}$	$D_f = [\frac{1}{p}, +\infty)$	۵

$$\text{الف) } y = \frac{\cot x + 1}{\tan x + 1}$$

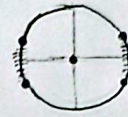
$$\begin{aligned} \sin x &\neq 0 \\ \cos x &\neq 0 \\ \tan x &\neq -1 \end{aligned}$$



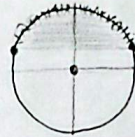
$$D_f = \mathbb{R} - \left\{ \frac{k\pi}{2}, k\pi - \frac{\pi}{4} \right\}$$

$$\text{ب) } y = \sqrt{1 - \frac{1}{x} \sin x} \Rightarrow 1 \geq \frac{1}{x} \sin x \Rightarrow \frac{1}{x} \geq \sin x \Rightarrow \frac{1}{x} \geq \sin x \geq -\frac{1}{x}$$

$$D_f = \left[k\pi - \frac{\pi}{4}, k\pi + \frac{\pi}{4} \right]$$

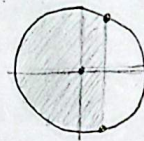


$$\text{الف) } y = \sqrt{x \sin x - 1} \Rightarrow x \sin x \geq 1 \Rightarrow \sin x \geq \frac{1}{x}$$



$$D_f = \left[2k\pi + \frac{\pi}{4}, 2k\pi + \frac{5\pi}{4} \right]$$

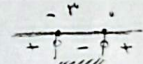
$$\text{ب) } y = \sqrt{1 - x \cos x} \Rightarrow \frac{1}{x} \geq \cos x$$



$$D_f = \mathbb{R} - \left[2k\pi - \frac{\pi}{2}, 2k\pi + 2k\pi + \frac{\pi}{2} \right]$$

$$\text{الف) } \arcsin(x^2 + 2n + 1)$$

$$-1 \leq x^2 + 2n + 1 \leq 1 \Rightarrow x^2 + 2n \leq 0 \Rightarrow x(x + 2) \leq 0$$



$$D_f = [-2, 0] \cup [0, 2]$$

$$0 \leq x^2 + 2n + 1 \Rightarrow 0 \leq (n + 1)(n + 2) \Rightarrow \frac{-2}{-1} \leq n \leq \frac{-1}{-2}$$

$$\text{ب) } \cos y = \sqrt{\omega - \frac{1}{x}} \Rightarrow \omega - \frac{1}{x} \leq 1 \Rightarrow \frac{1}{x} \geq \omega \Rightarrow x \leq \frac{1}{\omega}$$

$$D_f = [1, \omega]$$

$$\text{الف) } y = \log_x(1 - \log_x^n)$$

$$\begin{aligned} x > 0 \\ 1 - \log_x^n > 0 &\Rightarrow 1 > \log_x^n \Rightarrow x > n \end{aligned} \quad \left\{ \begin{aligned} 0 < x < 1 \\ 1 < x < \infty \end{aligned} \right. \quad D_f = (0, 1) \cup (1, \infty)$$

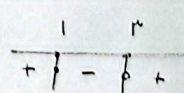
$$\text{ب) } y = \log_x(1 - \log_{\frac{1}{x}}^n)$$

$$\begin{aligned} x > 0 \\ 1 > \log_{\frac{1}{x}}^n &\Rightarrow \frac{1}{x} < n \end{aligned} \quad \left\{ \begin{aligned} 0 < x < \frac{1}{n} \\ \frac{1}{n} < x < \infty \end{aligned} \right. \quad D_f = \left(\frac{1}{n}, \infty \right)$$

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

$$x^{2n-2} \geq 1 \Rightarrow x \geq 1$$

$$x^{2n-2} \geq 1 \Rightarrow x^{2n-2} - 1 \geq 0 \Rightarrow (x-1)(x^{2n-3} + x^{2n-4} + \dots + 1) \geq 0$$



$$D_f = [1, \infty)$$

$$\text{ب) } y = \left(\frac{x_n + a}{x_n + b} \right)!$$

$$\frac{x_n + a}{x_n + b} \in \mathbb{N} \Rightarrow x \in -\frac{bw - a}{bw - b}$$

$$D_f = \left\{ x \mid x = \frac{a - bk}{bk - b}, k \in \mathbb{N} \right\}$$