

الف) $\frac{x+3}{2x^2+3x^2-8x+3} = \frac{x+3}{(x-1)(2x^2+5x-3)}$ $\Rightarrow$ $\{x, x = -3, 1, \frac{1}{2}, -3\}$

$D = \mathbb{R} - \{-3, \frac{1}{2}, 1\}$

ب) $\frac{x+3}{2x^2+9x^2+10x+3} = \frac{x+3}{(x+1)(2x^2+7x+3)}$ $\Rightarrow$ $\{x, x = -3, -1, -\frac{1}{2}, -3\}$

$D = \mathbb{R} - \{-3, -1, -\frac{1}{2}\}$

الف) $\frac{x+3}{x^2-2x^2+2x-1} = \frac{x+3}{(x-1)(x^2-x+1)}$ $\Rightarrow$ $\{x, x = -3, 1\}$

$D = \mathbb{R} - \{-3, 1\}$

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

$y = \frac{2}{x^2-5|x-1|-2x+5} = 0 \Rightarrow x^2-2x+5 = 5|x-1|$

$\begin{cases} -x^2+2x-5 = 5x-5 \rightarrow x^2+3x=0 \rightarrow x(x+3) \\ x^2-2x+5 = 5x-5 \rightarrow x^2-7x+10=0 \end{cases}$

$D = \mathbb{R} - \{0, -3, -2, -5\}$

الف) $y = \sqrt{[-x]-2}$ $[-x]-2 \geq 0 \Rightarrow [-x] \geq 2 \Rightarrow -x \geq 2 \Rightarrow x \leq -2$

$D = (-\infty, -2]$

ب) $y = \frac{5x^2+4}{[x]^2-2[x]-3}$ $\Rightarrow$ $x^2-2x-3 \geq 0$

$D = \mathbb{R} - (-\infty, -1) \cup (0, 3) \cup [4, \infty)$

الف) $\sqrt{[x-\frac{1}{\mu}] + [x+\frac{2}{\mu}]} \geq 0 \Rightarrow [x-\frac{1}{\mu}] + 1 \geq 0$

$[x-\frac{1}{\mu}] \geq -1 \Rightarrow x-\frac{1}{\mu} \geq -1$

ب) $y = \sqrt{[x-\frac{1}{\mu}] + [\frac{1}{\mu}-x]} \geq 0 \Rightarrow$

$x \geq -\frac{1}{\mu}$

$[x] + [-x] \geq 0$ $x \in \mathbb{Z} \rightarrow 0$ $x \notin \mathbb{Z} \rightarrow -1$ $\Rightarrow D = \mathbb{Z}$

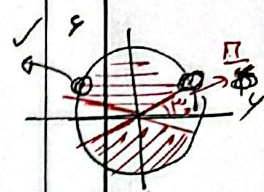
$$\text{الف) } y = \frac{\cot n + 1}{\tan n + 1}$$

$$\tan n + 1 \neq 0 \rightarrow \tan n \neq -1$$

$$D = \mathbb{R} - \left\{ k\pi - \frac{\pi}{4} \right\}$$

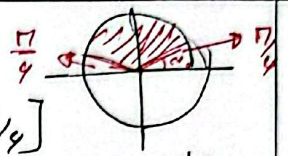
$$\text{ب) } y = \sqrt{1 - k \sin^2 n} \geq 0 \rightarrow \sin^2 n \leq \frac{1}{k} \rightarrow \sin n \geq \frac{1}{\sqrt{k}}$$

$$D = \mathbb{R} - \left(k\pi - \frac{\pi}{4}, k\pi + \frac{\pi}{4} \right)$$



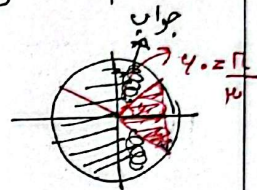
$$\text{الف) } y = \sqrt{k \sin n - 1} \geq 0 \rightarrow \sin n \geq \frac{1}{k}$$

$$D = \left[k\pi + \frac{\pi}{6}, k\pi + \frac{5\pi}{6} \right]$$



$$\text{ب) } y = \sqrt{1 - k \cos n} \geq 0 \rightarrow \cos n \leq \frac{1}{k}$$

$$D = \mathbb{R} - \left(k\pi - \frac{\pi}{3}, k\pi + \frac{\pi}{3} \right)$$



$$\text{الف) } y = \arcsin(n^2 + 3n + 1)$$

$$-1 \leq n^2 + 3n + 1 \leq 1 \quad \left\{ \begin{array}{l} n(n+3) \leq 0 \\ n^2 + 3n + 2 \geq 0 \\ (n+1)(n+2) \geq 0 \end{array} \right.$$

$$\left. \begin{array}{l} -3 \leq n \leq 0 \\ n \leq -2 \text{ or } n \geq -1 \end{array} \right\} D = [-3, -1] \cup [-1, 0]$$

$$\text{ب) } y = \sqrt{a - 2x}$$

$$0 \leq a - 2x \leq 1 \rightarrow \left. \begin{array}{l} x \leq \frac{a}{2} \\ x \geq \frac{a-1}{2} \end{array} \right\} D = \left[\frac{a-1}{2}, \frac{a}{2} \right]$$

$$\text{الف) } y = \log_p(1 - \log_p x)$$

$$1 - \log_p x > 0 \rightarrow \log_p x < 1$$

$$D = (-\infty, p)$$

$$\boxed{p > x}$$

$$\text{ب) } \log_p(1 - \log_p x) \rightarrow 1 - \log_p x > 0 \rightarrow \log_p x < 1 \rightarrow \boxed{\frac{1}{p} > x}$$

$$D = \left(\frac{1}{p}, \infty \right)$$

$$\text{الف) } y = \sqrt{p^{kx-n^2} - 1} \geq 0 \rightarrow p^{kx-n^2} - 1 \geq 0 \rightarrow p^{kx-n^2} \geq 1$$

$$\rightarrow kx - n^2 \geq 0 \rightarrow n^2 \leq kx \rightarrow \frac{n^2}{k} \leq x \rightarrow D = (-\infty, \frac{n^2}{k}] \cup [\frac{n^2}{k}, \infty)$$

$$\text{ب) } \left(\frac{p^{n+\omega}}{p^{n+\kappa}} \right)! \rightarrow \text{مربع} \quad p^{n+\omega} = k(p^{n+\kappa})$$

$$p^{n+\kappa} = 0 \rightarrow n = -\kappa$$

$$(p - p\kappa)n = p\kappa - \omega \rightarrow n = \frac{p\kappa - \omega}{-p\kappa + p}$$

$$\left\{ n \mid \frac{\omega - p\kappa}{p\kappa - p} = n, \quad \kappa \in \mathbb{N} \right\}$$