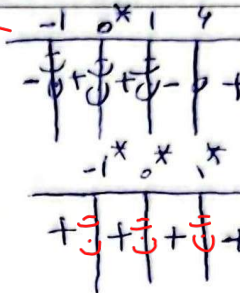
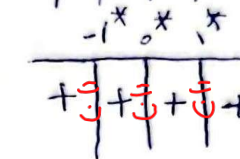


الف) $y = \sqrt{\frac{x^2 - 4x}{x^2 - x}} \Rightarrow \frac{x^2 - 4x}{x^2 - x} \geq 0 \Rightarrow \frac{x(x-4)}{x(x-1)(x-1)} \Rightarrow$  $D_f = (-1, 0) \cup (0, 1) \cup [4, +\infty)$

ب) $y = \sqrt{\frac{x^2 - x}{x^2 - x}} \Rightarrow \frac{x^2 - x}{x^2 - x} \geq 0 \Rightarrow \frac{x(x-1)(x-1)}{x(x-1)(x-1)} \Rightarrow$  $D_f = \mathbb{R} - \{1, -1, 0\}$

الف) $y = \frac{x+1}{\sqrt{x+|x|}} \Rightarrow x+|x| > 0 \Rightarrow D_f = \mathbb{R}^+$

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

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

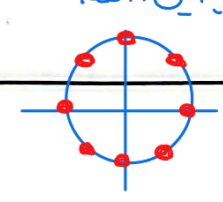
ب) $y = \frac{1}{\sqrt{2 - [x]}} \Rightarrow 2 - [x] > 0 \Rightarrow [x] < 2 \Rightarrow D_f = (-\infty, 2)$

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

ب) $y = \sqrt{[x - \frac{1}{x}] + [-x + \frac{1}{x}]} \Rightarrow$ if $\begin{cases} x \in \mathbb{Z} \rightarrow 0 \\ x + \frac{1}{x} \notin \mathbb{Z} \rightarrow -1 \end{cases} \Rightarrow D_f = \{x \mid x = k + \frac{1}{x}, k \in \mathbb{Z}\}$

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

ب) $y = \frac{x}{x \sin x - 1} \Rightarrow x \sin x \neq 1 \Rightarrow \sin x \neq \frac{1}{x} \Rightarrow \sin x \neq \pm \frac{1}{x} \Rightarrow$
 $D_f = \mathbb{R} - \{\frac{k\pi}{x}\}$



الف) $y = \sqrt{2 \sin x - 1} \Rightarrow 2 \sin x \geq 1 \Rightarrow \sin x \geq \frac{1}{2} \Rightarrow D_f = \left[k\pi + \frac{\pi}{6}, k\pi + \frac{5\pi}{6} \right]$

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

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

ب) $y = \arcsin(x^2 + x + 1) \Rightarrow -1 \leq x^2 + x + 1 \leq 1 \Rightarrow 0 \leq x^2 + x \leq 0 \Rightarrow x(x+1) \leq 0 \Rightarrow x \in [-1, 0] \Rightarrow D_f = [-1, 0]$

الف) $y = \sqrt{2 - \log(x-2)} \Rightarrow \log(x-2) \leq 2 \Rightarrow x-2 \leq 9 \Rightarrow x \leq 11 \Rightarrow D_f = (2, 11]$

ب) $y = \log(x^2 - x) \Rightarrow x^2 - x > 0 \Rightarrow x(x-1) > 0 \Rightarrow x < 0 \text{ or } x > 1 \Rightarrow D_f = (-\infty, 0) \cup (1, \infty)$

الف) $y = \frac{x}{x^2 + 1} \Rightarrow x \neq -1 \Rightarrow D_f = \mathbb{R} \Rightarrow$ بفطرية x هي مربع منفي فني سرد

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

ج) $y = \frac{x}{x^2 - 2} \Rightarrow x \neq \sqrt{2} \Rightarrow x \neq \log_{\sqrt{2}} 2 \Rightarrow D_f = \mathbb{R} - \{\log_{\sqrt{2}} 2\}$

د) $y = \frac{x}{x^2 - 2} \Rightarrow x \neq \sqrt{2} \Rightarrow x \neq \log_{\sqrt{2}} 2 \Rightarrow D_f = \mathbb{R} - \{\log_{\sqrt{2}} 2\}$

الف) $y = (x+1)!$ $\Rightarrow x+1 \in \mathbb{N} \Rightarrow x \in \mathbb{N} - 1 \Rightarrow D_f = \{x \mid x = \frac{k-1}{2}, k \in \mathbb{N}\}$

ب) $y = \left(\frac{x-2}{x-5} \right)!$ $\Rightarrow \frac{x-2}{x-5} \in \mathbb{N} \Rightarrow x-2 \in \mathbb{N} \cdot (x-5) \Rightarrow x-2 \in \mathbb{N} \cdot (x-5) \Rightarrow x \in \frac{x-5}{x-2} \Rightarrow D_f = \{x \mid x = \frac{x-5}{x-2}, k \in \mathbb{N}\}$