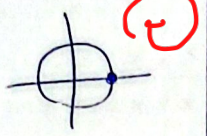
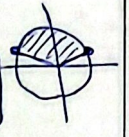


(ب) $y = \sqrt{\frac{x^6 - x^3}{x^3 - x}}$ $\frac{x^3(x+1)(x-1)}{x(x+1)(x-1)} \geq 0$ $D_f = \mathbb{R} - \{-1, 0, 1\}$ (ب) ✓	(الف) $y = \sqrt{\frac{x^2 - 4x}{x^3 - x}}$ $\frac{x(x-4)}{x(x+1)(x-1)} \geq 0$ $D_f = (-1, 1) - \{0\} \cup [4, +\infty)$
(ب) $y = \frac{1}{\sqrt{x x }}$ $x x > 0 \Rightarrow \begin{matrix} \nearrow + \checkmark \\ \rightarrow 0 \times \\ \searrow - \times \end{matrix}$ $D_f = \mathbb{R}^+$ (ب) ✓	(الف) $y = \frac{x+1}{\sqrt{x+ x }}$ $x+ x > 0 \rightarrow x > -x$ $D_f = \mathbb{R}^+$
(ب) $y = \frac{1}{\sqrt{2-[x]}}$ $2-[x] > 0 \rightarrow [x] < 2 \Rightarrow x < 2$ $D_f = (-\infty, 2)$ (ب) ✓	(الف) $y = \sqrt{2-[x]}$ $2-[x] \geq 0 \Rightarrow [x] \leq 2 \rightarrow x < 3$ $D_f = (-\infty, 3)$
(ب) $y = \sqrt{[x - \frac{1}{3}] + [-x + \frac{1}{3}]}$ $y = [x] + [-x] \leq 0$ $\Rightarrow x - \frac{1}{3} \in \mathbb{Z}$ $D_f = \{x \mid x = k + \frac{1}{3}, k \in \mathbb{Z}\}$ (ب) ✓	(الف) $y = \sqrt{[x - \frac{1}{3}] + [x + \frac{2}{3}]}$ $[x + \frac{2}{3} - 1] + [x + \frac{2}{3}] \geq 0$ $\rightarrow 2[x + \frac{2}{3}] \geq 1 \Rightarrow x + \frac{2}{3} \geq 1$ $\Rightarrow x \geq \frac{1}{3}$ $D_f = [\frac{1}{3}, +\infty)$
(ب) $y = \frac{r}{r \sin^2 \alpha - 1}$ $r \sin^2 \alpha - 1 \neq 0 \rightarrow \sin \alpha \neq \pm \frac{\sqrt{2}}{2}$ $D_f = \mathbb{R} - \left\{ \frac{k\pi}{4} + \frac{\pi}{4} \right\}$ (ب) ✓	(الف) $y = \frac{r}{\sin \alpha - 1}$ $\rightarrow \sin \alpha \neq 1$ $D_f = \mathbb{R} - \left\{ 2k\pi + \frac{\pi}{2} \right\}$

(ب) $y = \sqrt{\cos x - 1}$ $\cos x - 1 \geq 0 \rightarrow \cos x \geq 1$ $D_f = \{2k\pi\}$ 	(الف) $y = \sqrt{2\sin x - 1}$ $2\sin x - 1 \geq 0 \rightarrow \sin x \geq \frac{1}{2}$ $D_f = [2k\pi + \frac{\pi}{6}, 2k\pi + \frac{5\pi}{6}]$ 	٦
(ب) $y = \arcsin(x^2 + 3x + 1)$ $-1 \leq x^2 + 3x + 1 \leq 1$ $\begin{cases} x^2 + 3x + 1 \geq -1 \Rightarrow (x+1)(x+3) \geq 0 \\ x^2 + 3x + 1 \leq 1 \Rightarrow x(x+3) \leq 0 \end{cases}$ $D_f = [-3, -2] \cup [-1, 0]$ باید به علامت دقت کرد (باید به علامت دقت کرد)	(الف) $\cos y = x - 3$ $-1 \leq x - 3 \leq 1 \rightarrow 2 \leq x \leq 4$ $\rightarrow x \geq 2 \text{ و } x \leq -2$ $\rightarrow -4 \leq x \leq -2$ $D_f = [-4, -2] \cup [2, 4]$	٧
(ب) $y = \log(x^3 - x)$ $x^3 - x > 0 \rightarrow x(x+1)(x-1) > 0$ $D_f = (-1, 0) \cup (1, +\infty)$	(الف) $y = \sqrt{2 - \log_3(x-2)}$ $x-2 > 0 \rightarrow x > 2$ $2 - \log_3(x-2) \geq 0 \rightarrow \log_3(x-2) \leq 2$ $\Rightarrow x \leq 11$ $D_f = (2, 11]$	٨
(ب) $y = \frac{3}{x^2 - 1}$ $x \neq \pm 1$ $D_f = \mathbb{R} - \{0\}$	(الف) $y = \frac{x}{x^2 + 1}$ $x^2 \neq -1 \rightarrow D_f = \mathbb{R}$	٩
(ب) $y = \frac{x}{x^2 - 3}$ $x \neq \pm \sqrt{3} \rightarrow D_f = \mathbb{R} - \{\log_3 3\}$	(ج) $y = \frac{x}{x^2 - 2}$ $x \neq \pm \sqrt{2} \rightarrow 2^{x^2} \neq 2 \Rightarrow D_f = \mathbb{R} - \{\frac{1}{2}\}$	٩
(ب) $y = \left(\frac{3x-2}{2x-5}\right)!$ $\frac{3x-2}{2x-5} \in \mathbb{W} \rightarrow 3x-2 = 2x-5 \Rightarrow x = \frac{3-5}{3-2} = -2$ $D_f = \{x x = \frac{3-5k}{3-2k}, k \in \mathbb{W}\}$	(الف) $y = (x+1)!$ $x+1 \in \mathbb{W} \rightarrow x \in \frac{\mathbb{W}-1}{1}$ $D_f = \{x x = \frac{k-1}{1}, k \in \mathbb{W}\}$	١٠