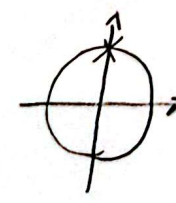
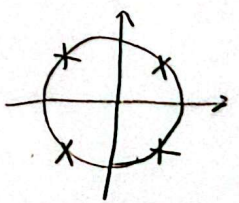
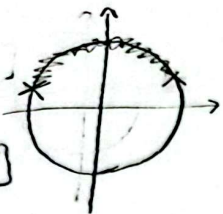
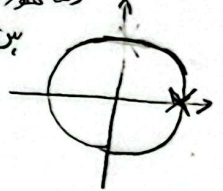


الف) $\frac{x^2-4x}{x^2-x} \geq 0 \rightarrow x(x-4) \geq 0$ $\frac{x^2-4x}{x^2-x} \rightarrow x(x-1)$ $f(x) = 0^*, 4, \pm 1$ $\begin{array}{c ccc} & -1 & 0 & 1 & 4 \end{array}$ $\begin{array}{c} + \\ - \\ + \\ - \\ + \end{array}$ $D_f: (-1, 1) \cup (4, +\infty) - \{0\}$	ب) $\frac{x^3-x^2}{x^2-x} \geq 0 \rightarrow x^2(x-1) \geq 0$ $\frac{x^3-x^2}{x^2-x} \rightarrow x(x-1)$ $f(x) = 0, \pm 1^*$ $\begin{array}{c ccc} & -1 & 0 & 1 & \end{array}$ $\begin{array}{c} + \\ - \\ + \\ - \end{array}$ $D_f = \mathbb{R} - \{0, \pm 1\}$	1
الف) $D_f = \mathbb{R}^+$ (الف) $\frac{x}{x+1} \geq 0$	ب) $D_f = \mathbb{R}^+$ $\frac{x}{x+1} \geq 0$	2
الف) $2 - [x] \geq 0$ $[x] \leq 2 \quad D_f: (-\infty, 3)$	ب) $2 - [x] > 0$ $[x] < 2 \quad D_f = (-\infty, 2)$	3
الف) $[x - \frac{1}{x}] + [x + \frac{1}{x}] \geq 0 \Rightarrow$ $[x - \frac{1}{x}] - 1 + [x + \frac{1}{x}] \geq 0 \Rightarrow [x + \frac{1}{x}] \geq \frac{1}{x}$ $\Rightarrow x + \frac{1}{x} \geq 1 \Rightarrow x \geq \frac{1}{x}$ $D_f = [\frac{1}{x}, +\infty)$	ب) $[x - \frac{1}{x}] + [-x + \frac{1}{x}] \geq 0 \Rightarrow [a] + [-a] = 0$ $[a] + [-a] = -1$ $x - \frac{1}{x} \in \mathbb{Z} \Rightarrow D_f$ $D_f = \{x x = k + \frac{1}{x}, k \in \mathbb{Z}\}$	4
الف) $\sin x \neq 1$ $D_f: \mathbb{R} - \{2k\pi + \frac{\pi}{2}\}$ 	ب) $\sqrt{\sin^2 x} \neq 1 \Rightarrow \sin x \neq \pm \frac{\sqrt{y}}{y}$ $D_f = \mathbb{R} - \{\frac{k\pi}{y} + \frac{\pi}{2}\}$ 	5

الف) $2\sin x - 1 \geq 0 \Rightarrow \sin x \geq \frac{1}{2}$ ب) $\cos x \geq 1$ $-1, 1 \leq \cos x \leq 1$ $D_f = \left[2k\pi + \frac{\pi}{6}, 2k\pi + \frac{5\pi}{6} \right]$ $D_f = \{2k\pi\}$  	6
الف) $-1 \leq x - 3 \leq 1$ ب) $-1 \leq x^2 + 3x + 1 \leq 1$ $2 \leq x \leq 4 \Rightarrow 2 \leq x \leq 4$ $-4 \leq x \leq -2$ $D_f = [2, 4] \cup [-4, -2]$ $-4 \leq x(x+3) \leq 0 \Rightarrow x^2 + 3x + 1 \geq 0$ $x(x+3) \leq 0$ $\frac{-3}{+} \frac{-1}{-}$ $\frac{-3}{+} \frac{0}{+}$ $D_f = [-3, -1] \cup [-1, 0]$	7
الف) $x - 2 > 0 \Rightarrow x > 2$ ب) $x(x^2 - 1) > 0$ $2 - \log_p^{(x-2)} > 0 \Rightarrow \log_p^{(x-2)} < 2$ $\Rightarrow x - 2 < 4 \Rightarrow x < 6$ $D_f = (2, 6]$ $f(x) = 0, \pm 1$ $\frac{-1}{-} \frac{0}{+} \frac{1}{-}$ $D_f = (-1, 0) \cup (1, +\infty)$	8
الف) $\mathbb{R}$ ب) $\epsilon^x \neq 1$ $D_f = \mathbb{R} - \{0\}$ 2) $\epsilon^x \neq 2$ $D_f = \mathbb{R} - \{\log_\epsilon 2\}$ 3) $\epsilon^x \neq 3$ $D_f = \mathbb{R} - \{\log_\epsilon 3\}$	9
الف) $\epsilon x + 1 \in \mathbb{W} \Rightarrow x \in \frac{\mathbb{W} - 1}{\epsilon}$ ب) $\frac{3x - 2}{3x - 5} \in \mathbb{W} \Rightarrow 3x - 2 \in \mathbb{W}(3x - 5)$ $D_f = \left\{ x \mid x = \frac{k - 1}{\epsilon}, k \in \mathbb{W} \right\}$ $\rightarrow x(3 - 3\mathbb{W}) \in -5\mathbb{W} + 2 \rightarrow x = \frac{-5\mathbb{W} + 2}{-3\mathbb{W} + 3}$ $\Rightarrow D_f = \left\{ x \mid x = \frac{2 - 5k}{3 - 3k}, k \in \mathbb{W} \right\}$	10