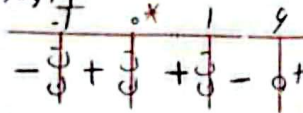
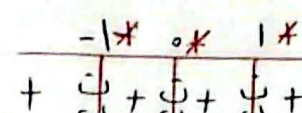
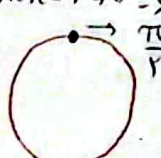
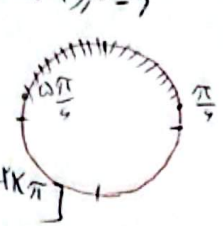


الف) $y = \sqrt{\frac{x^2-4x}{x^2-x}} \Rightarrow \frac{x^2-4x}{x^2-x} \geq 0, x^2-x \neq 0 \Rightarrow$ $x^2-x \neq 0 \Rightarrow x \neq \{0, 1\}, \frac{x(x-4)}{x(x-1)} \geq 0 \Rightarrow x \in \{x x < 0 \text{ or } 1 < x < 4\}$  $D = (-\infty, 0) \cup (1, 4) \cup (4, +\infty)$	ب) $y = \sqrt{\frac{x^2-x^3}{x^3-x}} \Rightarrow \frac{x^2-x^3}{x^3-x} \geq 0, x^3-x \neq 0 \Rightarrow$ $x^2 \neq x \Rightarrow x \neq \{0, 1\}, \frac{x^2(x-1)}{x(x-1)(x+1)} \geq 0 \Rightarrow x \in \{x x < -1 \text{ or } 0 < x < 1\}$  $D = (-\infty, -1) \cup (0, 1)$
الف) $\frac{x+1}{\sqrt{x+1}} \Rightarrow x+1 \neq 0, x+1 \geq 0 \Rightarrow$ $x+1 \geq 0 \Rightarrow D = [0, +\infty)$ (مخرج صفر) $\rightarrow$ (مخرج منفی) $\rightarrow$ (صفر)	ب) $\frac{1}{\sqrt{x x }} \Rightarrow x x > 0$ $-x^2 \leq x^2 \Rightarrow x^2 > 0, -x^2 < 0$ $D = (0, +\infty)$
الف) $y = \sqrt{2-[x]} \Rightarrow 2-[x] \geq 0 \Rightarrow$ $[x] \leq 2 \Rightarrow x \in (-\infty, 3)$ $D = (-\infty, 3)$	ب) $\frac{1}{\sqrt{2-[x]}} \Rightarrow 2-[x] > 0 \Rightarrow$ $[x] < 2 \Rightarrow x \in (-\infty, 2)$ $D = (-\infty, 2)$
الف) $y = \sqrt{[x-\frac{1}{3}]} + [2+\frac{x}{3}] \Rightarrow$ $[x-\frac{1}{3}] + [2+\frac{x}{3}] \geq 0 \Rightarrow 1 + [x-\frac{1}{3}] + [2+\frac{x}{3}] \geq 0$ (مجموعه اعداد صحیح) $D = [\frac{1}{3}, +\infty)$ $2[x+\frac{2}{3}] \geq 1, [x+\frac{2}{3}] \geq \frac{1}{2} \Rightarrow$ $[x+\frac{2}{3}] \geq 1 \Rightarrow x \geq \frac{1}{3}$	ب) $y = \sqrt{[x-\frac{1}{3}]} + [-x+\frac{1}{3}] \Rightarrow$ $[x-\frac{1}{3}] - [x-\frac{1}{3}] \geq 0 \Rightarrow x \in \mathbb{Z} \Rightarrow$ $D = \mathbb{Z}$
الف) $y = \frac{x}{\sin x-1} \Rightarrow \sin x-1 \neq 0 \Rightarrow$ $\sin x \neq 1 \Rightarrow x \neq \frac{\pi}{2}$  $D = \mathbb{R} - \left\{ \frac{\pi}{2} + 2k\pi \right\}$	ب) $\frac{x}{x \sin^2 x - 1} \Rightarrow x \sin^2 x - 1 \neq 0$ $x \sin^2 x \neq 1 \Rightarrow \sin^2 x \neq \frac{1}{x} \Rightarrow \sin x \neq \pm \sqrt{\frac{1}{x}}$ $D = \mathbb{R} - \left\{ \frac{\pi}{2} + \frac{k\pi}{2} \right\}$

الف) $y = \sqrt{r \sin x - 1} \Rightarrow r \sin x - 1 \geq 0 \Rightarrow$ $r \sin x \geq 1 \Rightarrow \sin x \geq \frac{1}{r}$ $D = \left[\frac{\pi}{4} + 2k\pi, \frac{3\pi}{4} + 2k\pi \right]$ 	ب) $y = \sqrt{\cos x - 1} \Rightarrow \cos x - 1 \geq 0 \Rightarrow$ $\cos x \geq 1 \Rightarrow$ $D = \{2k\pi\}$	6
الف) $\cos y = x - 3 \Rightarrow -1 \leq x - 3 \leq 1$ $x - 3 \leq 1 \Rightarrow x - 3 \leq 1 \wedge x - 3 \geq -1$ $x \leq 4 \wedge x \geq 2$ $D = [-4, -2] \cup [2, 4]$	ب) $y = \arcsin(x^r + r^{n+1})$ $-1 \leq x^r + r^{n+1} \leq 1$ $x^r + r^{n+1} \leq 1 \Rightarrow x^r \leq 1 - r^{n+1}$ $x \leq (1 - r^{n+1})^{1/r}$ $x^r + r^{n+1} \geq -1 \Rightarrow x^r \geq -1 - r^{n+1}$ $x \geq (-1 - r^{n+1})^{1/r}$ $D = [-r^{n+1}, -1] \cup [1, r^{n+1}]$	7
الف) $\sqrt{r - \log_r(n - r)} \Rightarrow n - r \geq 0 \Rightarrow$ $n \geq r \Rightarrow r - \log_r(n - r) \geq 0 \Rightarrow \log_r(n - r) \leq r$ $n - r \leq r^r \Rightarrow n \leq r^r + r$ $D = (r, 11]$	ب) $y = \log_{10}(x^r - n) \Rightarrow x^r - n > 0 \Rightarrow$ $x^r > n \Rightarrow x > n^{1/r}$ $x > 1 \Rightarrow D = (1, \infty)$	8
الف) $\frac{r}{\varepsilon^{n+1}} \varepsilon^n + 1 \neq 0 \Rightarrow \varepsilon^n \neq -1 \Rightarrow$ $D = \mathbb{R}$	ب) $\frac{r}{\varepsilon^{n+1}} \Rightarrow \varepsilon^n - 1 \neq 0 \Rightarrow \varepsilon^n \neq 1 \Rightarrow$ $n \neq 0 \Rightarrow D = \mathbb{R} - \{0\}$	9
ج) $\frac{r}{\varepsilon^{n+1}} \Rightarrow \varepsilon^n - r \neq 0 \Rightarrow \varepsilon^n \neq r \Rightarrow$ $n \neq \log_r r \Rightarrow D = \mathbb{R} - \{1\}$	د) $\frac{r}{\varepsilon^{n+1}} \Rightarrow \varepsilon^n - r \neq 0 \Rightarrow \varepsilon^n \neq r \Rightarrow$ $n \neq \log_r r \Rightarrow D = \mathbb{R} - \{1\}$	10
الف) $y = (r^n + 1)! \Rightarrow r^n + 1 \in \mathbb{W} \Rightarrow$ $r^n \in \mathbb{W} - 1 \Rightarrow n \in \frac{\mathbb{W} - 1}{r}$ $D = \left\{ \frac{k-1}{r} \mid k \in \mathbb{W} \right\}$	ب) $\left(\frac{r^n - r}{r^n - r} \right)! \Rightarrow n = -\frac{-\omega W + r}{rW - r} \Rightarrow$ $D = \left\{ \frac{-\omega k + r}{r k - r} \mid k \in \mathbb{W} \right\}$	11