

الف) $y = \frac{x+3}{(x-1)(x-3)(x-\frac{1}{3})}$ $x \in \mathbb{R} - \{1, 3, \frac{1}{3}\}$

ب) $y = \frac{x+3}{(x+1)(x+3)(x+\frac{1}{3})}$ $x \in \mathbb{R} - \{-1, -3, -\frac{1}{3}\}$

الف) $y = \frac{x+3}{x^3 - 2x^2 + 2x - 1} \rightarrow \frac{x+3}{(x^3 - x + 1)(x-1)}$ $x \in \mathbb{R} - \{1\}$

ب) $y = \sqrt{\frac{x+3}{x^3 - 2x^2 + 2x - 1}} \rightarrow \sqrt{\frac{x+3}{(x^3 - x + 1)(x-1)}} + \frac{3}{x-1} + \frac{1}{x-1} + \frac{1}{x-1}$ $x \in (-\infty, -3] \cup (1, +\infty)$

if $x \geq 1$
 $y = \frac{2}{x^3 - 7x + 10} \sim \frac{2}{(x-2)(x-1)}$ $x \in ([1, +\infty)) \cap (\mathbb{R} - \{2, 1\}) \rightarrow x \in [1, +\infty) - \{2, 1\}$

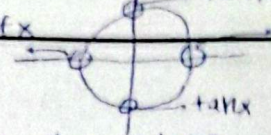
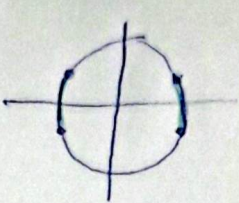
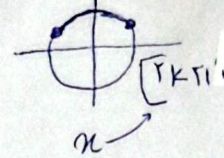
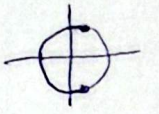
if $x < 1$
 $y = \frac{2}{x^3 + 3x} \rightarrow \frac{2}{x(x+3)}$ $x \in ((-\infty, 1) \cap (\mathbb{R} - \{0, -3\})) \rightarrow x \in (-\infty, 1) - \{0, -3\}$

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

ب) $y = \frac{5x^2 + 7}{[x]^2 - 2[x] - 3} \sim \frac{5x^2 + 7}{([x]-3)([x]+1)}$ $x \in \mathbb{R} - [3, 4) - [1, 0)$

الف) $y = \sqrt{[x - \frac{1}{x}] + [x + \frac{2}{x}]} \rightarrow [x + \frac{2}{x}] \geq \frac{1}{x} \rightarrow x + \frac{2}{x} \geq 1$ $x \geq \frac{1}{x}$

ب) $y = \sqrt{[x - \frac{1}{x}] + [\frac{1}{x} - x]} \rightarrow [z] + [-z] \geq 0$ $x - \frac{1}{x} \in \mathbb{Z}$
 $\{x \mid x = k, -k \leq z + \frac{1}{x}\}$

ا) $y = \frac{\cot x + 1}{\tan x + 1} \rightarrow \tan x + 1 \neq 0$ $\tan x \neq -1 \quad x \neq \left\{ \frac{3\pi}{4}, \frac{7\pi}{4} \right\}$ ب) $y = \sqrt{1 - \varepsilon \sin x} \rightarrow \sin x \leq \frac{1}{\varepsilon}$ $-\frac{1}{\varepsilon} \leq \sin x \leq \frac{1}{\varepsilon}$ $x \in [k\pi, (k\pi \pm \frac{\pi}{\varepsilon})]$	$\cot x$  $\tan x$ $x \in \mathbb{R} - \left\{ \frac{r\pi}{\varepsilon}, k\pi, k\pi + \frac{\pi}{\varepsilon}, k\pi + \frac{3\pi}{\varepsilon} \right\}$ $k \in \mathbb{Z}$ 
ا) $y = \sqrt{r \sin x - 1} \rightarrow \sin x \geq \frac{1}{r}$ ب) $y = \sqrt{1 - r \cos x} \rightarrow \cos x \leq \frac{1}{r}$	 $\left[\frac{r\pi}{\varepsilon}, \frac{r\pi}{\varepsilon} \pm \frac{\pi}{\varepsilon} \right]$  $\mathbb{R} - \left[\frac{r\pi}{\varepsilon}, \frac{r\pi}{\varepsilon} \pm \frac{\pi}{\varepsilon} \right]$
ا) $y = a x \sin(x^r + \frac{\pi}{r} + 1) \rightarrow -1 \leq x^r + \frac{\pi}{r} + 1 \leq 1 \rightarrow -1 \leq (x + \frac{\pi}{r})^r - \frac{a}{\varepsilon} \leq 1$ $\frac{1}{\varepsilon} \leq (x + \frac{\pi}{r})^r \leq \frac{a}{\varepsilon} \rightarrow \frac{1}{\varepsilon} \leq (x + \frac{\pi}{r}) \leq \frac{a}{\varepsilon} \rightarrow -1 \leq x \leq 0$ ب) $y = \cos y = \sqrt{a - r x} \rightarrow 0 \leq \sqrt{a - r x} \leq 1 \rightarrow (0 \leq a - r x \leq 1) \rightarrow x \leq x \leq \frac{a}{r}$	λ
ا) $y = \log_r (1 - \log_{\mu} x)$ $1 - \log_{\mu} x > 0 \rightarrow \log_{\mu} x < 1 \rightarrow x < \mu$ ب) $y = \log_r (1 - \log_{\frac{1}{\varepsilon}} x)$ $\log_{\frac{1}{\varepsilon}} x < 1 \rightarrow x > \frac{1}{\varepsilon}$	q
ا) $y = \sqrt{r^{\varepsilon x - x^r} - \lambda} \rightarrow r^{\varepsilon x - x^r} \geq \lambda \rightarrow \varepsilon x - x^r \geq \frac{1}{r} \rightarrow x^r - \varepsilon x + \frac{1}{r} \leq 0$ $1 \leq x \leq \frac{1}{\varepsilon}$ ب) $y = \left(\frac{r x + a}{r x + \varepsilon} \right)!$ $\{x \mid k \in \mathbb{Z}, x = \frac{-\varepsilon k + a}{r k - r}\}$	$1.$