

$$y = \sqrt{4-x} - \sqrt{x-2} \Rightarrow \begin{cases} x \leq 2 \\ x \geq -14 \end{cases} \Rightarrow x \in [-14, 2]$$

$$\sqrt{x-2} - \sqrt{x-2} \Rightarrow \begin{cases} x \leq 11 \\ x \geq 2 \end{cases} \Rightarrow x \in [2, 11]$$

$$\sqrt{4-2x^2} \Rightarrow x \leq \sqrt{2} \Rightarrow x \in (-\infty, \sqrt{2}]$$

$$\sqrt{x|x|+9} \Rightarrow x \in (-\infty, -2] \cup [2, +\infty)$$

$$\sqrt{\frac{|x|+1}{|x|-3}} \Rightarrow \mathbb{R} - [2] - [-2]$$

$$\sqrt{\frac{\sqrt{x}+1}{\sqrt{x}-2}} \Rightarrow \mathbb{R}^+ - [2]$$

$$\frac{\sqrt{2-|x|}}{|x|+2} \Rightarrow [-2, 2]$$

$$[-2, -1) \cup (-1, 1) \cup (1, 2]$$

$$\frac{x+1}{\sqrt{x+|x|}} \Rightarrow x \in \mathbb{R}^+$$

$$\frac{1}{\sqrt{x|x|}} \Rightarrow x \in \mathbb{R}^+$$

$$y = \sqrt{r - [x]} \quad r - [x] \geq 0 \quad [x] \leq r \quad (\text{الف})$$

$$r \geq [x] \quad x = (-\infty, r]$$

$$y = \frac{1}{\sqrt{r - [x]}} \quad r - [x] > 0 \quad x = (-\infty, r) \quad (\text{ب})$$

$$[x] < r$$

$$\sqrt{[x - \frac{1}{r}] + [x + \frac{r}{r}]} \Rightarrow \sqrt{[x + \frac{r}{r} - 1] + [x + \frac{r}{r}]} \Rightarrow \sqrt{[x + \frac{r}{r}] + [x + \frac{r}{r}] - 1} \quad (\text{الف})$$

$$\sqrt{r[x + \frac{r}{r}] - 1} \Rightarrow x = [\frac{1}{r}, +\infty)$$

$$\sqrt{[x - \frac{1}{r}] + [-x + \frac{1}{r}]} \Rightarrow \sqrt{[x - \frac{1}{r}] + [-(x - \frac{1}{r})]} \Rightarrow \sqrt{[t] + [-t]} \quad (\text{ب})$$

$$x - \frac{1}{r} = t \quad t \in \mathbb{Z} \Rightarrow x - \frac{1}{r} \in \mathbb{Z} \Rightarrow x = \mathbb{Z} + \frac{1}{r}$$

$$y = \frac{1}{r \sin^2 x - 1} \Rightarrow r \sin^2 x - 1 \neq 0 \Rightarrow r \sin^2 x \neq 1 \quad (\text{الف})$$

$$\Rightarrow \sin^2 x \neq \frac{1}{r} \quad \sin x \neq \pm \frac{\sqrt{r}}{r} \quad \sin x = \mathbb{R} - \left[\frac{K\pi}{r} + \frac{\pi}{r} \right]$$

$$\frac{\cot x + 1}{\tan x + 1} \Rightarrow \sin x, \cos x \neq 0 \quad \tan x \neq -1 \quad (\text{ب})$$

$$\tan x = \mathbb{R} - [-1] \quad x = [K\pi - \frac{\pi}{4}]$$

$$y = \frac{1}{x[x]} \Rightarrow x[x] \neq 0 \Rightarrow [x] \neq -x \Rightarrow x = \mathbb{R} - \{0, 1\} \quad (\text{الف})$$

$$y = \frac{1}{\sqrt{-x[x]}} \Rightarrow -x[x] > 0 \Rightarrow [x] > x \quad (\text{ب})$$

$$x = \mathbb{R}^- - \mathbb{Z}$$

$$y = \sqrt{r \sin x - 1} \Rightarrow r \sin x - 1 \geq 0 \Rightarrow r \sin x \geq 1 \quad (\text{الف})$$

$$\sin x \geq \frac{1}{r} \quad x \in \left[K\pi + \frac{\pi}{r}, K\pi + \frac{\pi}{r} \right]$$

$$\sqrt{1 - r \cos x} \geq 0 \Rightarrow r \cos x \leq 1$$

$$\cos x \leq \frac{1}{r} \quad x \in \left[K\pi + \frac{\pi}{r}, K\pi + \frac{\pi}{r} \right] \quad (\text{ب})$$