

الف) $y = \sqrt{4-x} \Rightarrow \begin{cases} 4-x \geq 0 \rightarrow 4 \geq x \\ 4-x \geq 0 \rightarrow 4 \geq \sqrt{4-x} \rightarrow 16 \geq 4-x \rightarrow 14 \geq -x \rightarrow -14 \leq x \end{cases} \Rightarrow D_f = [-14, 4]$

ب) $y = \sqrt{3-x-2} \Rightarrow \begin{cases} x-2 \geq 0 \rightarrow x \geq 2 \\ 3-\sqrt{x-2} \geq 0 \rightarrow 3 \geq \sqrt{x-2} \rightarrow 9 \geq x-2 \rightarrow 11 \geq x \end{cases} \Rightarrow D_f = [2, 11]$

الف) $y = \sqrt{4-2x^2} \rightarrow 4-2x^2 \geq 0 \rightarrow 4 \geq 2x^2 \rightarrow 2 \geq x^2 \rightarrow -\sqrt{2} \leq x \leq \sqrt{2} \Rightarrow D_f = [-\sqrt{2}, \sqrt{2}]$

ب) $y = \sqrt{3|x|-9} = \frac{-3}{+} \frac{3}{-} \rightarrow D_f = (-\infty, -3] \cup [3, +\infty)$

الف) $y = \sqrt{\frac{|x|+1}{|x|-3}} \rightarrow \frac{|x|+1}{|x|-3} \geq 0 \rightarrow |x|-3 \neq 0 \rightarrow |x| \neq 3 \rightarrow x \neq \pm 3 \rightarrow D_f = (-\infty, -3) \cup (3, +\infty)$

ب) $y = \sqrt{\frac{\sqrt{x}+1}{\sqrt{x}-3}} \rightarrow \begin{cases} \sqrt{x} \geq 0 \rightarrow x \geq 0 \\ \sqrt{x}-3 \neq 0 \rightarrow \sqrt{x} \neq 3 \rightarrow x \neq 9 \end{cases} \Rightarrow D_f = [0, +\infty) - \{9\}$

الف) $y = \frac{\sqrt{3-|x|}}{|x|+2} \rightarrow 3-|x| \geq 0 \rightarrow 3 \geq |x| \rightarrow -3 \leq x \leq 3 \Rightarrow D_f = [-3, 3]$

ب) $y = \frac{\sqrt{4-x^2}}{|x|-1} \rightarrow \begin{cases} 4-x^2 \geq 0 \rightarrow x^2 \leq 4 \rightarrow -2 \leq x \leq 2 \\ |x|-1 \neq 0 \rightarrow |x| \neq 1 \rightarrow x \neq \pm 1 \end{cases} \Rightarrow D_f = [-2, 2] - \{-1, 1\}$

الف) $\frac{x+1}{\sqrt{x+|x|}} = x+|x| > 0 \rightarrow D_f = (0, +\infty)$

ب) $\frac{1}{\sqrt{x|x|}} = x|x| > 0 \rightarrow D_f = (0, +\infty)$

الف) $y = \sqrt{r - [x]} \Rightarrow r - [x] \geq 0 \rightarrow r \geq [x] \xrightarrow{\text{مثال}} D_f = (-\infty, r)$

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

الف) $y = \frac{1}{x[x]} \Rightarrow x[x] \neq 0 \rightarrow D_f = \mathbb{R} - [0, 1) \subseteq (-\infty, 0) \cup [1, +\infty)$

ب) $y = \frac{1}{\sqrt{-x[x]}} \Rightarrow -x[x] > 0 \rightarrow D_f = \emptyset$

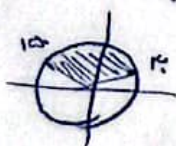
الف) $y = \sqrt{\left[x - \frac{1}{r}\right] + \left[x + \frac{r}{r}\right]} = D_f = \left[\frac{1}{r}, +\infty\right)$

ب) $y = \sqrt{\left[x - \frac{1}{r}\right] + \left[-x + \frac{1}{r}\right]} = D_f = \{x/x = k + \frac{1}{r}, k \in \mathbb{Z}\}$

الف) $\frac{1}{r \sin^2 x - 1} \Rightarrow r \sin^2 x - 1 \neq 0 \rightarrow r \sin^2 x \neq 1 \rightarrow \sin^2 x \neq \frac{1}{r} \rightarrow \sin x \neq \pm \frac{1}{\sqrt{r}} \rightarrow$
 $D_f = \mathbb{R} - \left\{k\pi \pm \frac{\arcsin(1/\sqrt{r})}{1}\right\}$

ب) $\frac{\cot x + 1}{\tan x + 1} \Rightarrow \frac{\cos x + 1}{\sin x + 1} \Rightarrow \sin x \neq 0$
 $\frac{\tan x + 1}{\tan x + 1} \Rightarrow \tan x + 1 \neq 0 \rightarrow \tan x \neq -1 \rightarrow \left\{k\pi - \frac{\pi}{4}\right\}$
 $D_f = \mathbb{R} - \{k\pi\} \cup \left\{k\pi - \frac{\pi}{4}\right\} \cup \left\{k\pi + \frac{3\pi}{4}\right\}$

الف) $y = \sqrt{r \sin x - 1} \Rightarrow r \sin x \geq 1 \rightarrow \sin x \geq \frac{1}{r} \rightarrow D_f = \mathbb{R} - \left[k\pi + \frac{\pi}{6}, k\pi + \frac{5\pi}{6}\right]$



ب) $y = \sqrt{1 - r \cos x} = 1 - r \cos x \geq 0 \rightarrow 1 \geq r \cos x \rightarrow \frac{1}{r} \geq \cos x \rightarrow D_f = \left[k\pi + \frac{\pi}{3}, k\pi + \frac{5\pi}{3}\right]$

