

الف)  $\begin{cases} 2-x \geq 0 \rightarrow x \leq 2 \\ 9-\sqrt{2-x} \geq 0 \rightarrow 19 \geq 2-x \rightarrow 17 \leq x \end{cases} \rightarrow -14 \leq x \leq 17$   
 $D_f = [-14, 2]$

ب)  $\begin{cases} x-2 \geq 0 \rightarrow x \geq 2 \\ 1-\sqrt{x-2} \geq 0 \rightarrow \sqrt{x-2} \leq 1 \rightarrow x-2 \leq 1 \rightarrow x \leq 3 \end{cases} \rightarrow [2, 3]$

الف)  $\begin{cases} 5-x^2 \geq 0 \rightarrow -2 \leq x \leq 2 \\ -\sqrt{2} \leq x \leq \sqrt{2} \end{cases} \rightarrow [-\sqrt{2}, \sqrt{2}]$

ب)  $|x| \geq 3 \rightarrow x \leq -3 \text{ or } x \geq 3$   
 $D = (-\infty, -3] \cup [3, +\infty)$

الف)  $|x| - 3 \neq 0 \rightarrow |x| \neq 3 \rightarrow x \neq \pm 3$   
 $D = \mathbb{R} - \{-3, 3\}$

ب)  $\begin{cases} x \geq 0 \\ x \neq 9 \rightarrow \sqrt{x} - 3 = 0 \end{cases} \rightarrow [0, 9) \cup (9, +\infty)$

الف)  $\begin{cases} 3-|x| \geq 0 \rightarrow |x| \leq 3 \rightarrow -3 \leq x \leq 3 \\ \text{مخرج منفرجه} \end{cases} \rightarrow [-3, 3]$

ب)  $\begin{cases} 4-x^2 \geq 0 \rightarrow x^2 \leq 4 \rightarrow -2 \leq x \leq 2 \\ x-1 \neq 0 \rightarrow |x| \neq 1 \rightarrow x \neq \pm 1 \end{cases} \rightarrow [-2, -1) \cup (-1, 1) \cup (1, 2]$

الف)  $\begin{cases} x+|x| \geq 0 \\ x \neq |x| \neq 0 \end{cases} \rightarrow x \geq 0 \rightarrow [0, +\infty)$

ب)  $x|x| \geq 0 \rightarrow |x| = x - \sqrt{x \cdot x} = \sqrt{x^2} = |x| = x$   
 $x \geq 0 \rightarrow D_f = [0, +\infty)$

الف)  $2 - [x] \geq 0 \rightarrow 2 \geq [x] \rightarrow (-\infty, 2)$

ب)  $\sqrt{2 - [x]} > 0 \rightarrow 2 - [x] > 0 \rightarrow 2 > [x]$   
 $(-\infty, 2)$

الف)  $x[x] > 0 \rightarrow$    $D_f = (-\infty, -1) \cup [1, \infty)$

ب)  $-x[x] > 0 \rightarrow x[x] < 0 \rightarrow \emptyset$

الف)  $[x + \frac{1}{p} - 1] + [x + \frac{1}{p}] > 0 \rightarrow x[x + \frac{1}{p}] \geq 1$   
 $D_f = [\frac{1}{p} + \infty) \leftarrow [x + \frac{1}{p}] \geq \frac{1}{p}$

ب)  $x - \frac{1}{p} \in \mathbb{Z} \rightarrow D_f = \{x \mid x = k + \frac{1}{p}, k \in \mathbb{Z}\}$

الف)  $2 \sin^2 x \neq 1 \rightarrow \sin^2 x \neq \frac{1}{2} \rightarrow \sin x \neq \pm \frac{1}{\sqrt{2}}$   
 $D_f = \mathbb{R} - \{k\pi + \frac{\pi}{4}, k \in \mathbb{Z}\}$  

ب)  $\tan x + 1 \neq 0 \rightarrow \tan x \neq -1 \rightarrow$    
 $D_f = \mathbb{R} - \{k\pi - \frac{\pi}{4}, k \in \mathbb{Z}\}$

الف)  $2 \sin x - 1 \geq 0 \rightarrow 2 \sin x \geq 1 \rightarrow \sin x \geq \frac{1}{2}$   
 $D_f = [k\pi + \frac{\pi}{6}, k\pi + \frac{5\pi}{6}]$  

ب)  $1 - 2 \cos x \geq 0 \rightarrow 1 \geq 2 \cos x \rightarrow \frac{1}{2} \geq \cos x$   
 $D_f = [k\pi - \frac{\pi}{3}, k\pi + \frac{\pi}{3}]$  