

الف) $y = \sqrt{4 - \sqrt{2-x}} \rightarrow \begin{cases} 2-x \geq 0 \Rightarrow \boxed{2 \geq x} \text{ ①} \\ 4 - \sqrt{2-x} \geq 0 \Rightarrow 4 \geq \sqrt{2-x} \xrightarrow{\text{بجوان}} 14 \geq 2-x \\ x \geq -12 \text{ ②} \end{cases} D_f = 1 \cap 2 = [-12, 2]$

ب) $y = \sqrt{3 - \sqrt{x-2}} \rightarrow \begin{cases} x-2 \geq 0 \Rightarrow \boxed{x \geq 2} \text{ ①} \\ 3 - \sqrt{x-2} \geq 0 \Rightarrow 3 \geq \sqrt{x-2} \xrightarrow{\text{بجوان}} 9 \geq x-2 \\ 11 \geq x \text{ ②} \end{cases} D_f = 1 \cap 2 = [2, 11]$

الف) $y = \sqrt{4 - 2x^2} \rightarrow 4 - 2x^2 \geq 0 \Rightarrow 4 \geq 2x^2 \Rightarrow \frac{4}{2} \geq x^2 \Rightarrow 2 \geq x^2 \rightarrow \boxed{\sqrt{2} \geq x}$ سوال 2
 $D_f = \mathbb{R} - (-\infty, \sqrt{2}]$

ب) $y = \sqrt{3|x|-9} \rightarrow \begin{cases} 3|x|-9 \geq 0 \Rightarrow 3|x| \geq 9 \\ |x| \geq 3 \end{cases} \rightarrow \begin{cases} \boxed{x \geq 3} \text{ ①} \\ \boxed{x \leq -3} \text{ ②} \end{cases} D_f = [-3, 3]$

الف) $y = \sqrt[3]{\frac{|x|+1}{|x|-3}}$ $\Rightarrow |x|-3 \neq 0 \Rightarrow |x| \neq \pm 3$ $D_f = \mathbb{R} - [\pm 3]$ سوال 3

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

الف) $y = \frac{\sqrt{3-|x|}}{|x|+2}$ $\begin{cases} 3-|x| \geq 0 \rightarrow 3 \geq |x| \Rightarrow |x| \leq 3 \rightarrow \boxed{-3 \leq x \leq 3} \\ |x|+2 \neq 0 \rightarrow \boxed{|x| \neq -2} \text{ ②} \end{cases} D_f = \text{①} \cap \text{②} = [-3, 3] - [\pm 2]$ سوال 4
 $\hookrightarrow x \neq \pm 2$

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

الف) $y = \frac{x+1}{\sqrt{x+|x|}}$ $x+|x| > 0 \Rightarrow |x| > -x$ $D_f = \mathbb{R}^+$

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

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

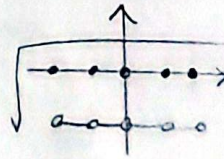
ب) $y = \frac{1}{\sqrt{2-x}}$ $2-x > 0 \Rightarrow 2 > x \rightarrow x < 2$ $D_f = (-\infty, 2)$

الف) $y = \frac{1}{x[x]}$ $x[x] > 0 \Rightarrow$ $\begin{matrix} \text{مقادیر } x \text{ و } [x] \text{ هر دو علامت های} \\ \text{متناسب دارند پس ضرب آن ها} \\ \text{در هم مثبت است} \end{matrix} \Rightarrow D_f = \mathbb{R}$

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

الف) $y = \sqrt{[x - \frac{1}{p}] + [x + \frac{p}{p}]}$ $[x - \frac{1}{p}] + [x + \frac{p}{p}] \geq 0 \rightarrow [x - \frac{1}{p} + 1] + [x + \frac{p}{p}] \geq 1$ سوال 8

$[x + \frac{p}{p}] + [x + \frac{p}{p}] \geq 1 \rightarrow 2[x + \frac{p}{p}] \geq 1 \rightarrow [x + \frac{p}{p}] \geq \frac{1}{2} \Rightarrow x + \frac{p}{p} \geq \frac{1}{2}$
 $x \geq \frac{1}{2} - \frac{p}{p} = \frac{1-p}{2}$
 $D_f = [\frac{1-p}{2}, +\infty)$

ب) $y = \sqrt{[x - \frac{1}{p}] + [-x + \frac{1}{p}]}$ $y = [x] + [-x]$ 
 $\hookrightarrow \sqrt{[x - \frac{1}{p}] + [-(x - \frac{1}{p})]} \rightarrow a \in \mathbb{Z} \quad [a] + [-a] = 0 \Rightarrow x - \frac{1}{p} \in \mathbb{Z}$
 $\hookrightarrow a \notin \mathbb{Z} \quad [a] + [-a] = -1$

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

الف) $y = \sqrt{2 \sin x - 1}$ $2 \sin x - 1 \geq 0$
 $2 \sin x \geq 1 \rightarrow \sin x \geq \frac{1}{2}$ سوال 10

$D_f = \mathbb{R} - \{2k\pi + \frac{\pi}{4}, 2k\pi + \frac{3\pi}{4}\}$

ب) $y = \sqrt{1 - 2 \cos x}$ $1 - 2 \cos x \geq 0$
 $1 \geq 2 \cos x \rightarrow \frac{1}{2} \geq \cos x$
 $D_f = \mathbb{R} - \{2k\pi + \frac{\pi}{3}, 2k\pi + \frac{5\pi}{3}\}$

الف) $y = \frac{1}{2 \sin^2 x - 1}$ $2 \sin^2 x - 1 \neq 0$
 $2 \sin^2 x \neq 1$
 $\sin^2 x \neq \frac{1}{2} \rightarrow \sin x \neq \pm \frac{1}{\sqrt{2}}$
 $\sin x \neq \pm \frac{1}{\sqrt{2}}$

ب) $y = \frac{\cos x + 1}{\tan x + 1}$ $\tan x + 1 \neq 0$
 $\tan x \neq -1$

$D_f = \mathbb{R} - \{2k\pi + \frac{3\pi}{4}, 2k\pi + \frac{7\pi}{4}\}$