

$$\text{الف) } y = \sqrt{4 - \sqrt{2-x}} \leadsto 2-x \geq 0 \rightarrow x \leq 2, 4 - \sqrt{2-x} \geq 0 \rightarrow 2-x \leq 16 \rightarrow x \geq -14 \Rightarrow -14 \leq x \leq 2 \\ \hookrightarrow D_f = [-14, 2]$$

$$\text{ب) } y = \sqrt{3 - \sqrt{x-2}} \leadsto x-2 \geq 0 \rightarrow x \geq 2, 3 - \sqrt{x-2} \geq 0 \rightarrow 9 \geq x-2 \rightarrow x \leq 11 \Rightarrow 2 \leq x \leq 11 \\ \hookrightarrow D_f = [2, 11]$$

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

$$\text{ب) } y = \sqrt{3|x|-9} \leadsto 3|x|-9 \geq 0 \rightarrow |x| \geq 3 \Rightarrow x \geq 3, x \leq -3 \leadsto D_f = (-\infty, -3] \cup [3, +\infty)$$

$$\text{الف) } y = 3\sqrt{\frac{|x|+1}{|x|-3}} \leadsto |x|-3 \neq 0 \leadsto |x| \neq 3 \rightarrow x \neq \pm 3 \rightarrow D_f = \mathbb{R} - \{\pm 3\}$$

$$\text{ب) } y = \sqrt{\frac{\sqrt{x}+1}{\sqrt{x}-3}} \leadsto x \geq 0, \sqrt{x}-3 \neq 0 \rightarrow x \neq 9 \leadsto D_f = [0, 9) \cup (9, +\infty) \\ \hookrightarrow [0, +\infty) - \{9\}$$

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

$$\text{ب) } \frac{\sqrt{4-x^2}}{|x|-1} \leadsto |x|-1 \neq 0 \rightarrow |x| \neq 1 \rightarrow x \neq \pm 1, 4-x^2 \geq 0 \rightarrow x^2 \leq 4 \rightarrow -2 \leq x \leq 2 \Rightarrow D_f = [-2, 2] - \{\pm 1\} \\ \hookrightarrow D_f = [-2, -1) \cup (-1, 1) \cup (1, 2]$$

$$\text{الف) } y = \frac{x+1}{\sqrt{x+|x|}} \leadsto x+|x| > 0 \begin{cases} x > 0 \rightarrow x+|x| > 0 \checkmark \\ x = 0 \rightarrow \text{غرض ق} \\ x < 0 \rightarrow \text{غرض ق} \end{cases} \Rightarrow D_f = (0, +\infty), x > 0 \rightarrow D_f = \mathbb{R}^+$$

$$\text{ب) } \frac{1}{\sqrt{x|x|}} \leadsto x|x| > 0 \begin{cases} x > 0 \rightarrow x^2 > 0 \checkmark \\ x = 0 \rightarrow \text{غرض ق} \\ x < 0 \rightarrow -x^2 < 0 \text{ غرض ق} \end{cases} \Rightarrow D_f = (0, +\infty), x > 0 \rightarrow D_f = \mathbb{R}^+$$



الف)  $y = \sqrt{2-x} \leadsto 2-x \geq 0 \leadsto x \leq 2 \Rightarrow x < 3 \leadsto D_f = (-\infty, 3)$

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

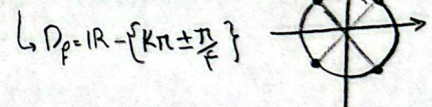
الف)  $y = \frac{1}{x[x]}$   
 $\leadsto x[x] \neq 0 \leadsto D_f = \mathbb{R} - \{0\}$   
 $\begin{matrix} x > 0 \checkmark \\ x < 0 \checkmark \\ x = 0 \times \text{ممنوع} \end{matrix}$

ب)  $y = \frac{1}{\sqrt{-x[x]}}$   
 $\leadsto -x[x] > 0 \Rightarrow D_f = \emptyset$   
 $\begin{matrix} x < 0 \times \\ x = 0 \times \\ x > 0 \times \end{matrix}$   
 \*  $-x[x]$  مختلف العلامت حسب  $x$  در هر صورت  $x < 0$   
 و اگر  $x > 0$  ممنوع

الف)  $y = \sqrt{[x-\frac{1}{p}] + [x+\frac{p}{p}]} \leadsto [x-\frac{1}{p}] + [x+\frac{p}{p}] \geq 0 \leadsto [x-\frac{1}{p}+1] + [x+\frac{p}{p}] \geq 1 \leadsto$   
 $\leadsto 2[x+\frac{p}{p}] \geq 1 \leadsto [x+\frac{p}{p}] \geq \frac{1}{2} \Rightarrow [x+\frac{p}{p}] \geq 1 \rightarrow x \geq \frac{1}{p}, D_f = [\frac{1}{p}, +\infty)$

ب)  $y = \sqrt{[x-\frac{1}{p}] + [-x+\frac{1}{p}]} \leadsto [x-\frac{1}{p}] + [-x+\frac{1}{p}] \geq 0 \leadsto [a] + [-a] \geq 0$   
 $\begin{matrix} a \in \mathbb{Z} \Rightarrow 0 \\ \forall a \notin \mathbb{Z} = x \neq 1 \end{matrix}$   
 $\leadsto x - \frac{1}{p} \in \mathbb{Z} \leadsto x \in \mathbb{Z} + \frac{1}{p} \Rightarrow D_f = \{x \mid x = k + \frac{1}{p}, k \in \mathbb{Z}\}$

الف)  $y = \frac{1}{\sqrt{\sin^2 x - 1}} \leadsto \sqrt{\sin^2 x - 1} \neq 0 \leadsto \sin x \neq \pm \frac{\sqrt{2}}{2} \Rightarrow D_f = \mathbb{R} - \{ \frac{k\pi}{2} + \frac{\pi}{4} \}$

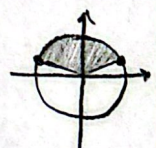


ب)  $y = \frac{\cot x + 1}{\tan x + 1} \leadsto \sin x, \cos x \neq 0, \tan x \neq -1 \Rightarrow D_f = \mathbb{R} - \{ \frac{k\pi}{2}, k\pi - \frac{\pi}{4} \}$

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



الف)  $y = \sqrt{\sin x - 1} \leadsto \sin x - 1 \geq 0 \leadsto \sin x \geq 1 \Rightarrow D_f = [2k\pi + \frac{\pi}{2}, 2k\pi + \frac{5\pi}{2}]$



ب)  $y = \sqrt{1 - 2\cos x} \leadsto 1 - 2\cos x \geq 0 \leadsto \cos x \leq \frac{1}{2} \Rightarrow D_f = [2k\pi + \frac{2\pi}{3}, 2k\pi - \frac{2\pi}{3}]$

