

الف) $y = \sqrt{4-x} \Rightarrow \begin{cases} 4-x \geq 0 \rightarrow x \leq 4 \\ 4-\sqrt{4-x} \geq 0 \rightarrow 4 \geq \sqrt{4-x} \rightarrow 16 \geq 4-x \rightarrow x \geq -12 \end{cases}$

$-12 \leq x \leq 4 \rightarrow D_f = [-12, 4]$

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

$2 \leq x \leq 11 \rightarrow D_f = [2, 11]$

الف) $y = \sqrt{4-x^2} \Rightarrow 4-x^2 \geq 0 \rightarrow \frac{4}{x} \geq \frac{x^2}{x} \rightarrow 4 \geq x^2 \rightarrow -\sqrt{4} \leq x \leq \sqrt{4}$

$D_f = [-2, 2]$

ب) $y = \sqrt{3|x|-9} \Rightarrow 3|x|-9 \geq 0 \rightarrow 3|x| \geq 9 \rightarrow |x| \geq 3 \rightarrow x = \pm 3$

$\begin{array}{c} -3 \quad 3 \\ + \quad | \quad - \quad | \quad + \end{array} \quad D_f = (-\infty, -3] \cup [3, +\infty)$

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

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

$D_f = [0, +\infty) - \{9\}$

الف) $y = \frac{\sqrt{3-|x|}}{|x|+2} \Rightarrow \begin{cases} 3-|x| \geq 0 \rightarrow 3 \geq |x| \rightarrow -3 \leq x \leq 3 \\ \text{مخرج هیچگاه صفر نمی شود} \end{cases}$

$D_f = [-3, 3]$

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

الف) $y = \frac{x+1}{\sqrt{x+|x|}} \Rightarrow x+|x| > 0 \rightarrow |x| > -x \rightarrow D_f = (0, +\infty)$
 همواره بزرگتر است

ب) $y = \frac{1}{\sqrt{x|x|}} \Rightarrow x|x| > 0$

$\rightarrow D_f = (0, +\infty)$

$$\text{الف) } y = \sqrt{2 - [x]} \Rightarrow 2 - [x] \geq 0 \rightarrow 2 \geq [x] \rightarrow \boxed{3 > x}$$

$$D_f = (-\infty, 3)$$

(2) ✓

$$\text{ب) } y = \frac{1}{\sqrt{2 - [x]}} \Rightarrow 2 - [x] > 0 \rightarrow [x] < 2 \rightarrow x < 2$$

$$D_f = (-\infty, 2)$$

$$\text{الف) } y = \frac{1}{x[x]} \Rightarrow x[x] \neq 0 \rightarrow \left\{ \begin{array}{l} x = 0 \\ [x] = 0 \rightarrow 0, 1, 2, \dots \end{array} \right\} \Rightarrow D_f = \mathbb{R} - [0, 1)$$

$$\text{ب) } y = \frac{1}{\sqrt{-x[x]}} \Rightarrow -x[x] > 0 \rightarrow x[x] < 0 \left\{ \begin{array}{l} x = 0 \\ [x] = 0 \end{array} \right. \left. \begin{array}{l} \text{ولی چون صفر خارج نمی تونه صفر باشه چون} \\ \text{تعریف نشده صفره، پس دامنه} \end{array} \right\}$$

$$D_f = \emptyset$$

(2) ✓

$$\text{الف) } y = \sqrt{\left[x - \frac{1}{x}\right] + \left[x + \frac{2}{x}\right]} \Rightarrow \sqrt{\left[x - \frac{1}{x}\right] + 1 + \left[x + \frac{2}{x}\right]} \rightarrow \sqrt{\left[x + 1 - \frac{1}{x}\right] + \left[x + \frac{2}{x}\right]}$$

$$\rightarrow \left[x + \frac{2}{x}\right] + \left[x + \frac{2}{x}\right] \geq 0 \rightarrow 2\left[x + \frac{2}{x}\right] \geq 0 \rightarrow \left[x + \frac{2}{x}\right] \geq 0 \rightarrow x + \frac{2}{x} \geq 1 \rightarrow x \geq \frac{1}{x}$$

$$D_f = \left[\frac{1}{x}, +\infty\right)$$

$$\text{ب) } y = \sqrt{\left[x - \frac{1}{x}\right] + \left[-x + \frac{1}{x}\right]} \Rightarrow \sqrt{\left[x - \frac{1}{x}\right] + \left[-\left(x - \frac{1}{x}\right)\right]}$$

$$D_f = \{x | x = k + \frac{1}{x}, k \in \mathbb{Z}\}$$

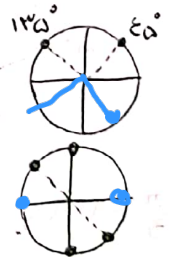
$$\leftarrow \left(x - \frac{1}{x}\right) \in \mathbb{Z} \leftarrow$$

$$\left\{ \begin{array}{l} a \in \mathbb{Z} \rightarrow [a] + [-a] = 0 \\ a \notin \mathbb{Z} \rightarrow [a] + [-a] = -1 \end{array} \right.$$

$$\text{الف) } y = \frac{1}{x \sin^2 x - 1} \Rightarrow x \sin^2 x \neq 1 \rightarrow \sin^2 x \neq \frac{1}{x} \rightarrow \sin x \neq \frac{1 \times \sqrt{x}}{\sqrt{x} \times \sqrt{x}} \rightarrow \pm \frac{\sqrt{x}}{x} \rightarrow \pm \frac{1}{\sqrt{x}} \rightarrow \pm \frac{1}{\sqrt{x}} \in \omega, 13\omega$$

ج. س. ا
sin

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



$$\text{ب) } y = \frac{\cot x + 1}{\tan x + 1} \Rightarrow \left\{ \begin{array}{l} \tan x + 1 \neq 0 \rightarrow \tan x \neq -1 \rightarrow x \neq k\pi + \frac{3\pi}{4} \\ \cos x \neq 0 \rightarrow x \neq k\pi + \frac{\pi}{2} \end{array} \right.$$

sin x
cos x ≠ 0

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

$$\text{الف) } y = \sqrt{x \sin x - 1} \Rightarrow x \sin x - 1 \geq 0 \rightarrow x \sin x \geq 1 \rightarrow \sin x \geq \frac{1}{x}$$

$$D_f = \left[k\pi + \frac{\pi}{2}, k\pi + \pi - \frac{\pi}{2} \right]$$

(1, VD)

$$\text{ب) } y = \sqrt{1 - x \cos x} \Rightarrow 1 - x \cos x \geq 0 \rightarrow 1 \geq x \cos x \rightarrow \frac{1}{x} \geq \cos x$$

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

