

$$\text{الف) } y = \sqrt{4 - \sqrt{2-x}} \geq 0 \quad \sqrt{2-x} \geq 0 \rightarrow x \leq 2 \rightarrow 4 - \sqrt{2-x} \geq 0 \quad (1, 2.5)$$

$$4 \geq \sqrt{2-x} \rightarrow 16 \geq 2-x \rightarrow x \geq -14 \quad D_f = (-\infty, -14] \cup [2, +\infty)$$

$$D_f = [-14, 2]$$

$$\Rightarrow y = \sqrt{3 - \sqrt{x-2}} \geq 0 \rightarrow x \geq 2 \rightarrow 3 - \sqrt{x-2} \geq 0 \rightarrow 3 \geq \sqrt{x-2}$$

$$\rightarrow 9 \geq x-2 \rightarrow x \leq 11 \rightarrow D_f = (-\infty, 2] \cup [11, +\infty) \rightarrow D_f = [2, 11]$$

$$\text{الف) } \sqrt{4-2x^2} \geq 0 \quad 2(2-x^2)$$

$$4 \geq 2x^2 \rightarrow 2 \geq x^2 \rightarrow -\sqrt{2} \leq x \leq \sqrt{2} \rightarrow [-\sqrt{2}, \sqrt{2}]$$

$$-R \leq x \leq R \rightarrow [-R, R]$$

$$\Rightarrow y = \sqrt{3|x|-9} \geq 0 \quad 3|x| \geq 9 \rightarrow |x| \geq \frac{9}{3} \quad |x| \geq 3$$

$$D_f = (-\infty, -3] \cup [3, +\infty)$$

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

$$|x|-3 \geq 0 \rightarrow |x| \geq 3 \quad D_f = R - \{\pm 3\}$$

$$\sqrt{n} \neq 1 \rightarrow n \neq 1$$

$$\Rightarrow y = \sqrt[3]{\sqrt{x}+1} \geq 0 \rightarrow \sqrt{x} \geq -1$$

$$\sqrt{\sqrt{x}} = 3 \geq 0 \rightarrow \sqrt{x} \geq 3 \Rightarrow D_f = (-\infty, -1] \cup (3, +\infty)$$

$$\sqrt{n} \rightarrow n \geq 0 \quad D_f = [0, +\infty) - \{9\}$$

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

$$|x|+2 > 0 \rightarrow |x| > -2 \quad D_f = [-3, 3]$$

$$\Rightarrow y = \sqrt{4-x^2} \geq 0 \rightarrow (2-x)(2+x) \geq 0$$

$$|x|-1 \geq 0 \rightarrow |x| \geq 1 \Rightarrow D_f = (-\infty, -2] \cup (-1, 1) \cup [2, +\infty)$$

$$D_f = [-2, 2] - \{\pm 1\}$$

$$\text{الف) } y = \frac{x+1}{\sqrt{x}+|x|} \geq 0 \rightarrow x \geq 1$$

$$\sqrt{x}+|x| > 0 \rightarrow D_y = (0, +\infty)$$

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

الف) $y = \sqrt{2 - [x]} > 0 \rightarrow [x] \leq 2$ $Df = (-\infty, 2]$ $(-\infty, 2)$

1, 2

$\Rightarrow y = \frac{1}{\sqrt{2 - [x]} > 0 \rightarrow [x] < 2$ $Df = (-\infty, 2)$ ✓

الف) $y = \frac{1}{x[x]} > 0 \rightarrow \begin{matrix} \mathbb{R} - \{0\} \\ [x] \neq 0 \\ x \neq [0, 1) \end{matrix}$ $Df = (-\infty, -1] \cup [1, +\infty)$
 $Df = \mathbb{R} - [0, 1)$

1 ✓

ب) $y = \frac{1}{\sqrt{-4x}} > 0 \rightarrow [1, +\infty)$ $x[n] < 0$ غرضين $\rightarrow Dy = \emptyset$

الف) $y = \sqrt{[x - \frac{1}{n}] + [x + \frac{1}{n}]} = \sqrt{[x - \frac{1}{n}] + [-(x - \frac{1}{n})]} \rightarrow \begin{cases} a \in \mathbb{Z} [a] + [-a] = 0 \\ a \notin \mathbb{Z} [a] + [-a] = -1 \end{cases}$ -1
 $\Rightarrow x - \frac{1}{n} \in \mathbb{Z} \checkmark \{x | n = k + \frac{1}{n}, k \in \mathbb{Z}\}$ حاجباً نوشتیم بعد از آن

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الف) ✗

الف) $y = \frac{1}{\sqrt{\sin^2 x - 1}} \neq 0 \rightarrow \sqrt{\sin^2 x} \neq 1 \rightarrow \sin^2 x \neq \frac{1}{4} \rightarrow \sin x \neq \pm \frac{1}{2} \rightarrow$
 $\frac{\pi}{6}, \frac{5\pi}{6}, \frac{3\pi}{2}, \frac{7\pi}{6}$ $Dy = \mathbb{R} - \{\frac{k\pi}{4} + \frac{\pi}{4}\}$ 1

ب) $y = \frac{\cot^2 x + 1}{\tan x + 1} = \frac{\frac{\cos^2 x}{\sin^2 x} + \frac{\sin^2 x}{\sin^2 x}}{\frac{\sin x}{\cos x} + \frac{\cos x}{\cos x}} = \frac{\frac{\cos^2 x + \sin^2 x}{\sin^2 x}}{\frac{\sin x + \cos x}{\cos x}} = \frac{\cos^2 x}{\sin x (\sin x + \cos x)} \neq 0$
 $Df = k\pi, k\pi + \pi$ $Dy = \mathbb{R} - \{\frac{k\pi}{4}, k\pi - \frac{\pi}{4}\}$ $\cos x$

$y = \sqrt{2 \sin x - 1} \geq 0 \rightarrow 2 \sin x \geq 1 \rightarrow \sin x \geq \frac{1}{2}$ $\frac{\pi}{6}, \frac{5\pi}{6}$ 1, 2
 $\rightarrow Df = \{k\pi + \frac{\pi}{6} \leq x < k\pi + \frac{5\pi}{6}\}$ ✓

ب) $y = \sqrt{1 - 2 \cos x} \geq 0$ $2 \cos x \leq 1 \rightarrow \cos x \leq \frac{1}{2}$ $Df = \{k\pi \pm \frac{\pi}{3}\}$ $\frac{\pi}{3}, \frac{5\pi}{3}$
 $Df = [k\pi + \frac{\pi}{3}, k\pi + \frac{5\pi}{3}]$