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الف) $y = \sqrt{4-x} \cdot \sqrt{2-x}$ $4-\sqrt{2-x} \geq 0 \Rightarrow \sqrt{2-x} \leq 4 \Rightarrow 2-x \leq 14$ $x \leq 2$ I $x \geq -14$ II $D_f = [-14, 2]$	ب) $y = \sqrt{3-x} \cdot \sqrt{x-2}$ $x-2 \geq 0 \rightarrow x \geq 2$ I $3-\sqrt{x-2} \geq 0 \rightarrow x-2 \leq 9 \rightarrow x \leq 11$ II $D_f = I \cap II = [2, 11]$	۱
الف) $y = \sqrt{4-2x^2}$ $4-2x^2 \geq 0 \Rightarrow 2x^2 \leq 4 \Rightarrow x^2 \leq 2 \Rightarrow -\sqrt{2} \leq x \leq \sqrt{2}$ $D_f = [-\sqrt{2}, \sqrt{2}]$	ب) $y = \sqrt{3 x -9}$ $3 x -9 \geq 0 \Rightarrow 3 x \geq 9 \Rightarrow$ $ x \geq 3 \Rightarrow \begin{cases} x \geq 3 \\ x \leq -3 \end{cases}$ $D_f = (+\infty, 3] \cup [-3, -\infty)$	۲
الف) $y = \sqrt[3]{\frac{ x +1}{ x -3}}$ $ x \neq 3 \Rightarrow x \neq \pm 3$ $D_f = \mathbb{R} - \{\pm 3\}$	ب) $y = \sqrt[3]{\frac{\sqrt{x+1}}{\sqrt{x-3}}}$ $\sqrt{n} \rightarrow n \geq 0$ $\sqrt{x} \neq 3 \Rightarrow x \neq 9$ $D_f = \mathbb{R} - \{9\}$ $D_f \subset [0, +\infty) - \{9\}$	۳
الف) $y = \frac{\sqrt{3- x }}{ x +2}$ $3- x \geq 0 \Rightarrow 3 \geq x \Rightarrow -3 \leq x \leq 3$ I $ x +2 \neq 0 \Rightarrow x \neq -2$ II $D_f = I \cap II = [-3, 3]$	ب) $y = \frac{\sqrt{4-x^2}}{ x -1}$ $4-x^2 \geq 0 \Rightarrow 4 \geq x^2 \Rightarrow -2 \leq x \leq 2$ I $ x -1 \neq 0 \Rightarrow x \neq 1 \Rightarrow x \neq \pm 1$ II $D_f = I \cap II = [-2, 2]$	۴
الف) $y = \frac{x+1}{\sqrt{x+ x }}$ $x+ x > 0 \Rightarrow x > -x$ $D_f = \mathbb{R}^+ = (0, +\infty)$	ب) $y = \frac{1}{\sqrt{x x }}$ $x x > 0$ $D_f = \mathbb{R}^+ = (0, +\infty)$	۵

الف) $y = \sqrt{2 - [x]}$ ✓ $2 - [x] \geq 0 \Rightarrow [x] \leq 2 \Rightarrow x < 3$ $D_f = [2, +\infty)$ دقت کن! ارفاق نکرد!	ب) $y = \frac{1}{\sqrt{2 - [x]}}$ $2 - [x] > 0 \Rightarrow [x] < 2 \Rightarrow x < 2$ $D_f = (-\infty, 2)$ ✓	۶
الف) $y = \frac{1}{\sqrt{x[x]}}$ صورت سوال را به ما ببین $x[x] \neq 0$ و $[x]$ هرگز مختلف علامت نیستند بنابراین: $D_f = \mathbb{R}^+ \neq (0, +\infty)$ $D_f \neq \emptyset$	ب) $y = \frac{1}{\sqrt{-x[x]}}$ $-x[x] > 0 \Rightarrow x[x] < 0$ $\begin{cases} x < 0 \\ [x] < 0 \Rightarrow x < 0 \end{cases}$ $D_f = \mathbb{Z} - [0, 1)$	۷
الف) $y = \sqrt{[x - \frac{1}{3}] + [x + \frac{2}{3}]}$ $D_f = [\frac{1}{3}, +\infty)$ $[x - \frac{1}{3}] + [x + \frac{2}{3}] \geq 0 \Rightarrow [x + \frac{2}{3} - 1] + [x + \frac{2}{3}] \geq 0$ $[x + \frac{2}{3}] - 1 + [x + \frac{2}{3}] \geq 0 \Rightarrow 2[x + \frac{2}{3}] \geq 1$ $[x + \frac{2}{3}] \geq \frac{1}{2} \Rightarrow x + \frac{2}{3} \geq 1 \Rightarrow x \geq \frac{1}{3}$	ب) $y = \sqrt{[x - \frac{1}{3}] + [-x + \frac{1}{3}]}$ $y = \sqrt{[x - \frac{1}{3}] + [-(x - \frac{1}{3})]}$ if $\rightarrow$ $\begin{cases} a \in \mathbb{Z} & [a] + [-a] = 0 \\ a \notin \mathbb{Z} & [a] + [-a] = -1 \end{cases} \Rightarrow$ $x - \frac{1}{3} \in \mathbb{Z} \Rightarrow D_f = \{x \mid x = k + \frac{1}{3}, k \in \mathbb{Z}\}$	۸
الف) $y = \frac{1}{2 \sin^2 x - 1}$ $2 \sin^2 x - 1 \neq 0 \Rightarrow 2 \sin^2 x \neq 1 \Rightarrow \sin^2 x \neq \frac{1}{2}$ $\sin x \neq \pm \sqrt{\frac{1}{2}} \Rightarrow \pm \frac{1}{\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}} = \pm \frac{1}{\sqrt{2}}$ $D_f = \mathbb{R} - \{ \frac{k\pi}{2} + \frac{\pi}{4} \} \cup \{ \frac{k\pi}{2} - \frac{\pi}{4} \}$	ب) $y = \frac{\cot x + 1}{\tan x + 1}$ $\begin{cases} \tan x + 1 \neq 0 \Rightarrow \tan x \neq -1 \Rightarrow x \neq k\pi - \frac{\pi}{4} \\ \cos x \neq 0 \Rightarrow x \neq k\pi + \frac{\pi}{2} \end{cases}$ $\cot, \tan$ بازه تعریف شود. $D_f = \mathbb{R} - \{ k\pi - \frac{\pi}{4}, k\pi + \frac{\pi}{2} \}$ $D_f \subset \mathbb{R} - \{ \frac{k\pi}{2}, \frac{k\pi}{2} + \frac{\pi}{4} \}$	۹
الف) $y = \sqrt{2 \sin x - 1}$ $2 \sin x - 1 \geq 0 \Rightarrow 2 \sin x \geq 1 \Rightarrow \sin x \geq \frac{1}{2}$ $2k\pi + \frac{\pi}{6} \leq x \leq 2k\pi + \frac{5\pi}{6}$ $D_f = [2k\pi + \frac{\pi}{6}, 2k\pi + \frac{5\pi}{6}]$ ✓	ب) $y = \sqrt{1 - 2 \cos x}$ $1 - 2 \cos x \geq 0 \rightarrow 2 \cos x \leq 1 \rightarrow \cos x \leq \frac{1}{2}$ $2k\pi + \frac{2\pi}{3} \leq x \leq 2k\pi - \frac{2\pi}{3}$ این بازه تعریف می‌شود. $D_f = [2k\pi + \frac{2\pi}{3}, 2k\pi - \frac{2\pi}{3}]$	۱۰