

الف) $y = \sqrt{4 - \sqrt{2-x}}$ $\Rightarrow$ ① $2-x > 0$ $(-\infty, 2]$ ② $4 - \sqrt{2-x} \geq 0$ $4 \geq \sqrt{2-x}$ $16 \geq 2-x$ $x \geq -14 \Rightarrow [-14, +\infty)$ ① $\cap$ ② $\Rightarrow (-\infty, 2] \cap [-14, +\infty) = [-14, 2]$ ب) $y = \sqrt{3 - \sqrt{x-2}}$ $\Rightarrow$ ① $x-2 \geq 0$ $x \geq 2 \Rightarrow [2, +\infty)$ ② $3 - \sqrt{x-2} \geq 0$ $3 \geq \sqrt{x-2}$ $9 \geq x-2$ $x \leq 11 \Rightarrow (-\infty, 11]$ ① $\cap$ ② $\Rightarrow [2, +\infty) \cap (-\infty, 11] = [2, 11]$	۱
الف) $y = \sqrt{4-2x^2}$ $\Rightarrow$ ① $4-2x^2 \geq 0$ $4 \geq 2x^2$ $\sqrt{2} \geq x \rightarrow (-\infty, \sqrt{2}] \cup [\sqrt{2}, +\infty)$ ② $4-2x^2 \geq 0$ $2 \geq x^2 \Rightarrow -\sqrt{2} \leq x \leq \sqrt{2}$ ① $\cap$ ② $\Rightarrow (-\infty, \sqrt{2}] \cap [-\sqrt{2}, +\infty) = [-\sqrt{2}, \sqrt{2}]$ ب) $y = \sqrt{3 x -9}$ $\Rightarrow$ ① $3 x -9 \geq 0$ $3 x \geq 9$ $x \geq 3 \Rightarrow x \geq 3 \rightarrow [3, +\infty)$ ② $3 x -9 \geq 0$ $x \geq 3 \Rightarrow x \leq -3 \rightarrow (-\infty, -3]$ ① $\cap$ ② $\Rightarrow [3, +\infty) \cap (-\infty, -3] = \emptyset$	۲
الف) $y = \sqrt[3]{\frac{ x +1}{ x -3}}$ $\Rightarrow$ ① $x -3 \neq 0$ $x \neq 3$ $x \neq \pm 3$ ب) $y = \sqrt[3]{\frac{\sqrt{x}+1}{\sqrt{x}-3}}$ $\Rightarrow$ ① $x \geq 0$ $\sqrt{x}-3 \neq 0$ $\sqrt{x} \neq 3$ $x \neq 9$	۳
الف) $y = \frac{\sqrt{3- x }}{ x +2}$ $\Rightarrow$ ① $3- x \geq 0$ $3 \geq x \Rightarrow x \in [-3, 3]$ ② $x +2 \neq 0$ $x \neq -2$ ① $\cap$ ② $\Rightarrow [-3, 3] \cap \mathbb{R} = [-3, 3]$ ب) $y = \frac{\sqrt{4-x^2}}{ x -1}$ $\Rightarrow$ ① $4-x^2 \geq 0$ $4 \geq x^2 \Rightarrow x \in [-2, 2]$ ② $x -1 \neq 0$ $x \neq 1 \Rightarrow x \neq \pm 1$ ① $\cap$ ② $\Rightarrow [-2, 2] \setminus \{-1, 1\} = [-2, -1) \cup (-1, 1) \cup (1, 2]$	۴
الف) $y = \frac{x+1}{\sqrt{x+ x }}$ $\Rightarrow$ ① $x+ x > 0$ $x > - x$ ب) $y = \frac{1}{\sqrt{x x }}$ $\Rightarrow$ ① $x x > 0$ $x > 0$	۵

الف) $y = \sqrt{2 - [x]} \Rightarrow 2 - [x] \geq 0 \Rightarrow [x] \leq 2 \Rightarrow Df = (-\infty, 3)$
 ب) $y = \frac{1}{\sqrt{2 - [x]}} \Rightarrow 2 - [x] > 0 \Rightarrow [x] < 2 \Rightarrow Df = (-\infty, 2)$

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الف) $y = \frac{1}{x[x]} \Rightarrow x[x] \neq 0 \Rightarrow x \neq 0$
 $x \neq -[x] \Rightarrow Df = (-\infty, 0) \cup (1, \infty) \cup (0, 1) \cup (0, \infty)$
 ب) $y = \frac{1}{\sqrt{-x[x]}} \Rightarrow -x[x] > 0 \Rightarrow Df = \emptyset$

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الف) $y = \sqrt{[x - \frac{1}{10}] + [x + \frac{2}{10}]} \Rightarrow [x - \frac{1}{10}] + [x + \frac{2}{10}] \geq 0$
 $Df = [\frac{1}{10}, +\infty)$
 ب) $y = \sqrt{[x - \frac{1}{10}] + [-x + \frac{1}{10}]} \Rightarrow [a \in \mathbb{Z} \mid [a] + [-a] = 0]$
 $\Rightarrow a = x - \frac{1}{10} \in \mathbb{Z} \Rightarrow Df = \{x \mid x = k + \frac{1}{10}, k \in \mathbb{Z}\}$

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الف) $y = \frac{1}{2 \sin^2 x - 1} \Rightarrow 2 \sin^2 x - 1 \neq 0 \Rightarrow \sin^2 x \neq \frac{1}{2} \Rightarrow \sin x \neq \pm \frac{1}{\sqrt{2}} \Rightarrow \sin x \neq \frac{k\pi + \frac{\pi}{4}}{2}$
 $Df = \mathbb{R} - \{k\pi, k\pi + \frac{\pi}{4}, k\pi + \frac{3\pi}{4}\}$
 ب) $\frac{\cot x + 1}{\tan x + 1} \Rightarrow \frac{\cos x + 1}{\sin x} \Rightarrow \cos x \neq 0 \Rightarrow x \neq k\pi + \frac{\pi}{2}$
 $Df = \mathbb{R} - \{k\pi + \frac{\pi}{2}\}$



الف) $y = \sqrt{2 \sin x - 1} \Rightarrow 2 \sin x - 1 \geq 0 \Rightarrow \sin x \geq \frac{1}{2} \Rightarrow Df = [2k\pi + \frac{\pi}{6}, 2k\pi + \frac{5\pi}{6}]$
 ب) $y = \sqrt{1 - 2 \cos x} \Rightarrow 1 - 2 \cos x \geq 0 \Rightarrow \cos x \leq \frac{1}{2} \Rightarrow Df = [2k\pi + \frac{2\pi}{3}, 2k\pi + \frac{4\pi}{3}]$

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