

الف) $2-x \geq 0 \Rightarrow x \leq 2$

$4 - \sqrt{2-x} \geq 0 \Rightarrow \sqrt{2-x} \leq 2 \Rightarrow 2-x \leq 4 \Rightarrow x \geq -2$

$D_f = [-2, 2]$ ✓

ب) $x-2 \geq 0 \Rightarrow x \geq 2$

$3 - \sqrt{x-2} \geq 0 \Rightarrow \sqrt{x-2} \leq 3 \Rightarrow x-2 \leq 9 \Rightarrow x \leq 11$

۲

الف) $4-2x^2 \geq 0 \Rightarrow 2x^2 \leq 4 \Rightarrow x^2 \leq 2 \Rightarrow -\sqrt{2} \leq x \leq \sqrt{2} \Rightarrow D_f = [-\sqrt{2}, \sqrt{2}]$ ✓

ب) $3|x|-9 \geq 0 \Rightarrow 3|x| \geq 9 \Rightarrow |x| \geq 3 \Rightarrow \begin{cases} x \geq 3 \\ x \leq -3 \end{cases}$

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

۲

الف) $|x|-3 \neq 0 \Rightarrow |x| \neq 3 \Rightarrow x \neq \pm 3 \Rightarrow D_f = \mathbb{R} - \{\pm 3\}$ ✓

ب) $x \geq 0$

$\sqrt{x-3} \neq 0 \Rightarrow \sqrt{x} \neq 3 \Rightarrow x \neq 9 \Rightarrow D_f = [0, +\infty) - \{9\}$ ✓

۲

الف) $3-|x| \geq 0 \Rightarrow |x| \leq 3$

$|x|+2 \neq 0 \Rightarrow |x| \neq -2$ همواره برقرار است $\Rightarrow -3 \leq x \leq 3 \Rightarrow D_f = [-3, 3]$ ✓

ب) $4-x^2 \geq 0 \Rightarrow x^2 \leq 4$

$|x|-1 \neq 0 \Rightarrow |x| \neq 1 \Rightarrow x \neq \pm 1 \Rightarrow D_f = [-2, 2] - \{\pm 1\}$ ✓

۲

الف) $x+|x| \geq 0 \Rightarrow |x| \geq -x \Rightarrow D_f = \mathbb{R}^+$ ✓

ب) $x|x| \geq 0 \Rightarrow D_f = \mathbb{R}^+$ ✓

۲

۵

الف) $2 - [x] \geq 0 \Rightarrow [x] \leq 2 \Rightarrow x < 3 \Rightarrow D_f = (-\infty, 3)$ ✓

ب) $2 - [x] > 0 \Rightarrow [x] < 2 \Rightarrow x < 2 \Rightarrow D_f = (-\infty, 2)$ ✓

٢

الف) $x[x] \neq 0 \Rightarrow D_f = \mathbb{R} - [0, 1)$ ✓

ب) $-x[x] > 0 \Rightarrow x[x] < 0 \xrightarrow[\text{مختلف العلامت مني باسند}]{\text{مركز } [x], x} D_f = \emptyset$ ✓

٢

الف) $[x - \frac{1}{p}] + [x + \frac{1}{p}] \geq 0 \Rightarrow [x + \frac{1}{p} - 1] + [x + \frac{1}{p}] \geq 0 \Rightarrow$

$[x + \frac{1}{p}] - 1 + [x + \frac{1}{p}] \geq 0 \Rightarrow 2[x + \frac{1}{p}] \geq 1 \Rightarrow [x + \frac{1}{p}] \geq \frac{1}{2}$

$\Rightarrow x + \frac{1}{p} \geq 1 \Rightarrow x \geq \frac{1}{p} \Rightarrow D_f = [\frac{1}{p}, +\infty)$ ✓

ب) $[x - \frac{1}{p}] + [-x + \frac{1}{p}] \geq 0 \Rightarrow \underbrace{[x - \frac{1}{p}]}_a + \underbrace{[-(x - \frac{1}{p})]}_a \geq 0 \Rightarrow$ if

$\begin{cases} a \in \mathbb{Z} \Rightarrow [a] + [-a] = 0 \\ a \notin \mathbb{Z} \Rightarrow [a] + [-a] = -1 \end{cases}$

$\Rightarrow \text{بما } x - \frac{1}{p} \in \mathbb{Z} \Rightarrow D_f = \{x \mid x = k + \frac{1}{p}, k \in \mathbb{Z}\}$ ✓

٢

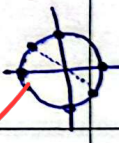
الف) $2 \sin^2 x - 1 \neq 0 \Rightarrow 2 \sin^2 x \neq 1 \Rightarrow \sin^2 x \neq \frac{1}{2} \Rightarrow \sin x \neq \pm \frac{\sqrt{2}}{2}$

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



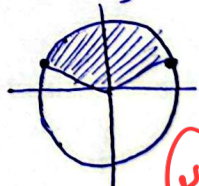
ب) $\left. \begin{aligned} \cot x &= \frac{\cos x}{\sin x} \\ \tan x &= \frac{\sin x}{\cos x} \end{aligned} \right\} \Rightarrow \begin{aligned} \sin x &\neq 0 \\ \cos x &\neq 0 \end{aligned}, \tan x \neq -1$

$D_f = \mathbb{R} - \left\{ \left\{ \frac{k\pi}{2} \right\} \cup \left\{ k\pi - \frac{\pi}{4} \right\} \right\}$ ✓



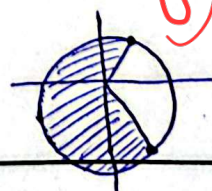
الف) $2 \sin x - 1 \geq 0 \Rightarrow 2 \sin x \geq 1 \Rightarrow \sin x \geq \frac{1}{2} \Rightarrow$

$D_f = \left[2k\pi + \frac{\pi}{6}, 2k\pi + \frac{5\pi}{6} \right]$ ✓



ب) $1 - 2 \cos x \geq 0 \Rightarrow 2 \cos x \leq 1 \Rightarrow \cos x \leq \frac{1}{2} \Rightarrow$

$D_f = \left[2k\pi + \frac{2\pi}{3}, 2k\pi + \frac{4\pi}{3} \right]$ ✓



٢