

$$\text{الف) } 2-x \geq 0 \rightarrow x \leq 2 \quad D_f = [-14, 2]$$

$$4 - \sqrt{2-x} \geq 0 \rightarrow \sqrt{2-x} \leq 4 \rightarrow 2-x \leq 16 \rightarrow x \geq -14$$

$$\text{ب) } x-2 \geq 0 \rightarrow x \geq 2 \quad D_f = [2, 11]$$

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

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

$$\text{ب) } 3|x|-9 \geq 0 \rightarrow 3|x| \geq 9 \rightarrow |x| \geq 3 \rightarrow \begin{matrix} x \geq 3 \\ x \leq -3 \end{matrix}$$

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

$$\text{الف) } |x| \neq 3 \rightarrow x \neq \pm 3 \quad D_f = \mathbb{R} - \{\pm 3\}$$

$$\text{ب) } x \geq 0 \wedge \sqrt{x} \neq 3 \rightarrow x \neq 9 \quad D_f = [0, +\infty) - \{9\}$$

$$\text{الف) } 3-|x| \geq 0 \rightarrow |x| \leq 3 \rightarrow -3 \leq x \leq 3 \quad D_f = [-3, 3]$$

$$|x|+2 \neq 0 \rightarrow |x| \neq -2 \checkmark$$

$$\text{ب) } |x|-1 \neq 0 \rightarrow |x| \neq 1 \rightarrow x \neq \pm 1 \quad D_f = [-2, 2] - \{\pm 1\}$$

$$4-x^2 \geq 0 \rightarrow -(x-2)(x+2) \geq 0$$

$$\begin{array}{c} -2 \quad 2 \\ -1 \quad + \quad - \end{array}$$

الف)

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

$$x+|x| > 0 \rightarrow -x < |x| \rightarrow \mathbb{R}^+$$

ب)

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

$$x|x| > 0 \rightarrow \mathbb{R}^+$$

الناسبي

$$\text{الف) } 2 - [x] \geq 0 \rightarrow [x] \leq 2 \quad D_f = (-\infty, 3)$$

$$\text{ب) } 2 - [x] > 0 \rightarrow [x] < 2 \quad D_f = (-\infty, 2)$$

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

$$\text{ب) } -x[x] > 0 \rightarrow D_f = \emptyset$$

$$\text{الف) } 2[x + \frac{1}{x}] \geq 1 \rightarrow [x + \frac{1}{x}] \geq \frac{1}{2} \rightarrow x + \frac{1}{x} \geq 1$$

$$[x - \frac{1}{x} + \frac{1}{x}] \quad D_f = [\frac{1}{2}, +\infty) \quad x \geq \frac{1}{2}$$

$$\text{ب) } [x - \frac{1}{x}] + [- (x - \frac{1}{x})] \geq 0 \rightarrow x - \frac{1}{x} \in \mathbb{Z}$$

$$x \in \mathbb{Z} + \frac{1}{x}$$

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

$$\text{الف) } 2 \sin^2 x \neq 1 \rightarrow \sin^2 x \neq \frac{1}{2} \rightarrow \sin x \neq \pm \frac{1}{\sqrt{2}} \quad D_f = \mathbb{R}$$

$$\text{ب) } \cos x \neq 0 \quad \tan x \neq -1 \rightarrow D_f = \mathbb{R} - \{k\pi, k\pi + \frac{\pi}{4}, k\pi + \frac{5\pi}{4}\}$$

$$\sin x \neq 0$$

$$\text{الف) } 2 \sin x \geq 1 \rightarrow \sin x \geq \frac{1}{2} \quad D_f = [2k\pi + \frac{\pi}{6}, 2k\pi + \frac{5\pi}{6}]$$

$$\text{ب) } 1 - 2 \cos x \geq 0 \rightarrow \cos x \leq \frac{1}{2} \quad D_f = [2k\pi + \frac{2\pi}{3}, 2k\pi + \frac{4\pi}{3}]$$