

الف (I) $2-x \geq 0 \Rightarrow 2 \geq x$ (II) $4-\sqrt{2-x} \geq 0 \Rightarrow 4 \geq \sqrt{2-x} \Rightarrow 16 \geq 2-x \Rightarrow 14 \geq -x = -14 \leq x$ $D_f = \{x \mid -14 \leq x \leq 2\} \Rightarrow D_f = [-14, 2]$ ب (I) $x-2 \geq 0 \Rightarrow x \geq 2$ (II) $3-\sqrt{x-2} \geq 0 \Rightarrow 3 \geq \sqrt{x-2} \Rightarrow 9 \geq x-2 \Rightarrow 11 \geq x \Rightarrow D_f = [2, 11]$	1
الف (I) $4-2x^2 \geq 0 \Rightarrow 4 \geq 2x^2 \Rightarrow 2 \geq x^2 \Rightarrow \sqrt{2} \geq x \geq -\sqrt{2}$ $D_f = \sqrt{2} \geq x \geq -\sqrt{2}$ یا $[-\sqrt{2}, \sqrt{2}]$ ب $3 x -9 \geq 0 \Rightarrow 3 x \geq 9 \Rightarrow x \geq 3 \Rightarrow -3 \geq x \geq 3 \Rightarrow$ $D_f = -3 \geq x \geq 3$ یا $(-\infty, -3] \cup [3, +\infty)$	2
الف $x -3 \neq 0 \Rightarrow x \neq 3 \Rightarrow x \neq 3, -3$ $D_f = \mathbb{R} - \{3, -3\}$ ب (I) $x \geq 0$ (II) $\sqrt{x}-3 \neq 0 \Rightarrow \sqrt{x} \neq 3 \Rightarrow x \neq 9 \Rightarrow D_f = [0, +\infty) - \{9\}$ یا $[0, 9) \cup (9, +\infty)$	3
الف (I) $3- x \geq 0 \Rightarrow 3 \geq x \Rightarrow 3 \geq x \geq -3$ (II) $x +2 \neq 0 \Rightarrow x \neq -2$ بدیهی و همواره برقرار است } $\Rightarrow D_f = [-3, 3]$ ب (I) $4-x^2 \geq 0 \Rightarrow 4 \geq x^2 \Rightarrow 2 \geq x \geq -2$ (II) $x -1 \neq 0 \Rightarrow x \neq 1 \Rightarrow x \neq -1, 1$ } $\Rightarrow D_f = [-2, 2] - \{-1, 1\}$ یا $[-2, -1) \cup (-1, 1) \cup (1, 2]$	4
الف $x+ x > 0 \Rightarrow x > -x$ بدیهی $\Rightarrow x > 0$ اگر $\Rightarrow \frac{x+ x }{2x} > 0$ $\oplus x+ x > 0$ همواره $\Rightarrow x > 0$ اگر $\Rightarrow \frac{x- x }{0} > 0$ $D_f = \mathbb{R}^+$ یا $(0, +\infty)$ ب $x x > 0 \Rightarrow$ اگر $x > 0 \Rightarrow x^2 > 0$ همواره برقرار است $\Rightarrow D_f = \mathbb{R}^+$ $\ominus x < 0 \Rightarrow x(x-x) > 0 \Rightarrow -x^2 > 0$ هیچگاه برقرار نیست	5

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

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

الف) $x[x] \neq 0 \Rightarrow x \neq 0$
 $[x] \neq 0 \Rightarrow x \neq [0, 1) \Rightarrow D_f = \mathbb{R} - [0, 1) \cup (1, +\infty)$

ب) $-x[x] > 0$
 اگر $x > 0 \Rightarrow -x \cdot x > 0 \Rightarrow -x^2 > 0$ نمی شود
 اگر $x = 0 \Rightarrow -0 \cdot 0 = 0 > 0$ نمی شود
 اگر $x < 0 \Rightarrow -x \cdot x > 0 \Rightarrow -x^2 > 0$ نمی شود
 $\Rightarrow D_f = \emptyset$

الف) $[x - \frac{1}{3}] + [x + \frac{2}{3}] \geq 0 \Rightarrow [x - \frac{1}{3}] + [x + \frac{2}{3}] - 1 \geq -1 \Rightarrow$
 $[x - \frac{1}{3}] + [x + \frac{2}{3} - \frac{1}{3}] \geq -1 \Rightarrow 2[x - \frac{1}{3}] \geq -1 \Rightarrow [x - \frac{1}{3}] \geq -\frac{1}{2} \Rightarrow$
 $x \geq \frac{1}{6} \Rightarrow D_f = [\frac{1}{6}, +\infty)$

$[x - \frac{1}{3}] + [-(x - \frac{1}{3})] \geq 0 \Rightarrow x - \frac{1}{3} \in \mathbb{Z} \Rightarrow$

$\Rightarrow D_f = \{x \mid x = k + \frac{1}{3} \text{ و } k \in \mathbb{Z}\}$

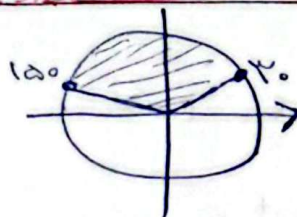
الف) $2 \sin^2 x - 1 \neq 0 \Rightarrow 2 \sin^2 x \neq 1 \Rightarrow \sin^2 x \neq \frac{1}{2} \Rightarrow \sin x \neq \frac{\sqrt{2}}{2}, -\frac{\sqrt{2}}{2}$

$\sin x$ ————— نباید این نقاط باشد  $\Rightarrow D_f = \mathbb{R} - \{ \frac{k\pi}{2} + \frac{\pi}{4}, \frac{k\pi}{2} - \frac{\pi}{4} \}$

الف) $\cot x \neq \text{تعریف نشده} \Rightarrow x \neq \{k\pi\}$
 $\tan x \neq \text{تعریف نشده} \Rightarrow x \neq \{k\pi - \frac{\pi}{2}, k\pi + \frac{\pi}{2}\} \Rightarrow D_f = \mathbb{R} - \{k\pi, k\pi - \frac{\pi}{2}, k\pi + \frac{\pi}{2}\}$

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

$D_f = [2k\pi + \frac{\pi}{6}, 2k\pi + \frac{5\pi}{6}] \mid k \in \mathbb{Z}$



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

$D_f = [2k\pi + \frac{2\pi}{3}, 2k\pi + \frac{4\pi}{3}] \mid k \in \mathbb{Z}$

