

الف) $\begin{cases} 2-x > 0 \rightarrow x < 2 \text{ (1)} \\ 4 - \sqrt{2-x} > 0 \rightarrow 2-x \leq 14 \rightarrow -14 \leq x \leq 2 \text{ (2)} \end{cases} \Rightarrow D_f = [-14, 2]$

۱

ب) $\begin{cases} x-2 > 0 \rightarrow x > 2 \text{ (1)} \\ 3 - \sqrt{x-2} > 0 \rightarrow \sqrt{x-2} \leq 3 \rightarrow x-2 \leq 9 \rightarrow x \leq 11 \text{ (2)} \end{cases} \Rightarrow D_f = [2, 11]$

الف) $4 - 2x^2 > 0 \rightarrow 4 > 2x^2 \rightarrow x^2 < 2 \rightarrow -\sqrt{2} < x < \sqrt{2} \rightarrow D_f = [-\sqrt{2}, \sqrt{2}]$

۲

ب) $3|x| - 9 > 0 \rightarrow 3|x| > 9 \rightarrow |x| > 3 \rightarrow x > 3 \text{ or } x < -3 \rightarrow D_f = (-\infty, -3] \cup [3, +\infty)$

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

۳

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

الف) $\begin{cases} 3 - |x| > 0 \rightarrow |x| < 3 \rightarrow -3 < x < 3 \\ |x+2| \neq 0 \rightarrow x \neq -2 \end{cases} \Rightarrow D_f = [-3, 3] - \{-2\}$

۴

ب) $\frac{\sqrt{(2-x)(2+x)}}{|x|-1} \geq 0 \Rightarrow \begin{cases} (2-x)(2+x) \geq 0 \\ |x|-1 \neq 0 \end{cases} \Rightarrow \begin{cases} x \in [-2, 2] \\ x \neq \pm 1 \end{cases} \Rightarrow D_f = [-2, 2] - \{\pm 1\}$

الف) $x + |x| > 0 \rightarrow |x| > -x \rightarrow D_f = (0, +\infty)$

۵

ب) $x|x| > 0 \rightarrow D_f = (0, +\infty)$

الف) $2 - [n] \geq 0 \rightarrow [n] \leq 2 \quad n < 3 \rightarrow D_f = (-\infty, 3)$

۶

ب) $2 - [n] > 0 \quad [n] < 2 \quad n < 2 \rightarrow D_f = (-\infty, 2)$

الف) $n[n] > 0 \rightarrow D_f = \mathbb{R} - \{0\}$
 $[n] \neq 0 \quad n \neq [0, 1)$ $D_f \subset \mathbb{R} - [0, 1)$

۷

ب) $-n[n] > 0 \rightarrow n[n] < 0 \rightarrow [n], n$ مخالف علامت $\rightarrow D_f = \emptyset$

الف) $[n + \frac{1}{n} - 1] + [n + \frac{1}{n}] \geq 0 \quad [n + \frac{1}{n}] - 1 + [n + \frac{1}{n}] \geq 0$
 $2[n + \frac{1}{n}] \geq 1 \rightarrow [n + \frac{1}{n}] \geq \frac{1}{2} \rightarrow n + \frac{1}{n} \geq 1 \rightarrow n \geq \frac{1}{n} \rightarrow D_f = [\frac{1}{n}, +\infty)$

ب) $\sqrt{[n - \frac{1}{n}] + [- (n - \frac{1}{n})]} \rightarrow \begin{cases} [a] + [-a] = 0 & a \in \mathbb{Z} \\ [a] + [-a] = -1 & a \notin \mathbb{Z} \end{cases} \Rightarrow n - \frac{1}{n} \in \mathbb{Z}$
 $D_f = \{n \mid n = k + \frac{1}{n}, k \in \mathbb{Z}\}$

۸

الف) $2 \sin^2 n - 1 \neq 0 \quad 2 \sin^2 n \neq 1 \quad \sin^2 n \neq \frac{1}{2} \xrightarrow{\text{اینجا دقت کن!}} D_f = \mathbb{R}$
 $\sin^2 n \neq \frac{1}{2} \rightarrow \sin n \neq \pm \frac{\sqrt{2}}{2} \rightarrow D_y = \mathbb{R} - \{ \frac{k\pi}{2} + \frac{\pi}{4} \}$

۹

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

الف) $2 \sin n - 1 \geq 0 \rightarrow 2 \sin n \geq 1 \rightarrow \sin n \geq \frac{1}{2}$ 

$D_f = [2k\pi + \frac{\pi}{6}, 2k\pi + \pi - \frac{\pi}{6}]$ $D_y = [2k\pi + \frac{\pi}{6}, 2k\pi + \frac{5\pi}{6}]$ ← این بازه تعریف نمی‌شود

۱۰

ب) $1 - 2 \cos n > 0 \rightarrow 2 \cos n < 1 \rightarrow \cos n < \frac{1}{2}$ 
 $D_f = [2k\pi + \frac{2\pi}{3}, 2k\pi + \frac{4\pi}{3}]$