

الف) $2-x \geq 0$ $x < 2$	$4 - \sqrt{2-x} \geq 0$ $\sqrt{2-x} < 4 \rightarrow 2-x < 14 \rightarrow x > -12$	$D_f = [-12, 2]$	۱
ب) $x-2 \geq 0$ $x \geq 2$	$2 - \sqrt{x-2} \geq 0$ $\sqrt{x-2} < 2 \rightarrow x-2 < 4 \rightarrow x < 6$	$D_f = [2, 6]$	۲
الف) $4 - x^2 \geq 0 \rightarrow x^2 < 4 \rightarrow x < 2 \rightarrow -\sqrt{2} < x < \sqrt{2} \rightarrow D_f = [-\sqrt{2}, \sqrt{2}]$	ب) $3 x - 9 \geq 0 \rightarrow 3 x \geq 9 \rightarrow x \geq 3 \rightarrow x \geq 3$ $x \leq -3$	$D_f = (-\infty, -3] \cup [3, +\infty)$	۳
الف) $ x \neq 3 \rightarrow x \neq \pm 3 \rightarrow D_f = \mathbb{R} - \{-3, +3\}$	ب) $\sqrt{x} \neq 3 \rightarrow x \neq 9, x \geq 0 \rightarrow D_f = [0, +\infty) - \{9\}$		۴
الف) $3 - x \geq 0 \rightarrow x \leq 3 \rightarrow -3 \leq x \leq 3$ همواره برقرار است چون $ x \neq -2$ هیچگاه جواب قدر مطلق منفی نمی شود.	ب) $ x \neq 1 \rightarrow x \neq \pm 1$ $4 - x^2 \geq 0 \rightarrow x^2 \leq 4 \rightarrow -2 \leq x \leq 2$	$D_f = [-2, 2] - \{\pm 1\}$	۵
الف) $x + x \geq 0 \rightarrow x \geq -x \rightarrow D_f = (0, +\infty) = \mathbb{R}^+$	ب) $x x \geq 0 \rightarrow D_f = (0, +\infty) = \mathbb{R}^+$		

$$\text{الف) } r - [x] > 0 \rightarrow [x] < r \rightarrow D_f = (-\infty, r)$$

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

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

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

$$\text{الف) } [x - \frac{1}{r}] + [x + \frac{r}{r}] > 0 \rightarrow [x + \frac{r}{r} - 1] + [x + \frac{r}{r}] > 0 \rightarrow r[x + \frac{r}{r}] > 1$$

$$[x + \frac{r}{r}] > \frac{1}{r} \rightarrow x + \frac{r}{r} > 1 \rightarrow x > \frac{1}{r} \rightarrow D_f = [\frac{1}{r}, +\infty)$$

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$$\text{ب) } \left[\left[x - \frac{1}{r} \right] + \left[-x + \frac{1}{r} \right] \right] \rightarrow \left[\left[x - \frac{1}{r} \right] + \left[-\left(x - \frac{1}{r} \right) \right] \right] \rightarrow x - \frac{1}{r} \in \mathbb{Z} \rightarrow x \in \mathbb{Z} + \frac{1}{r}$$

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

$$\text{الف) } r \sin^2 x - 1 \neq 0 \rightarrow r \sin^2 x \neq 1 \rightarrow \sin^2 x \neq \frac{1}{r} \rightarrow \sin x \neq \pm \frac{\sqrt{r}}{r} \rightarrow D_f = \mathbb{R} - \left\{ \frac{k\pi}{r} + \frac{\pi}{r} \right\}$$

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$$\text{ب) } \left. \begin{array}{l} \cot x = \frac{\cos x}{\sin x} \rightarrow \sin x \neq 0 \\ \tan x = \frac{\sin x}{\cos x} \rightarrow \cos x \neq 0 \\ \tan x \neq -1 \end{array} \right\} D_f = \mathbb{R} - \left\{ \frac{k\pi}{r}, k\pi - \frac{\pi}{r} \right\}$$

$$\text{الف) } r \sin x - 1 > 0 \rightarrow \sin x > \frac{1}{r} \rightarrow D_f = \left[2k\pi + \frac{\pi}{r}, 2k\pi + \frac{\pi}{r} \right]$$

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$$\text{ب) } 1 - r \cos x > 0 \rightarrow \cos x < \frac{1}{r} \rightarrow D_f = \left[2k\pi + \frac{\pi}{r}, 2k\pi + \frac{\pi}{r} \right]$$