

$$y = \sqrt{x - \sqrt{2-x}} \rightarrow x - \sqrt{2-x} \geq 0 \rightarrow x \geq \sqrt{2-x} \rightarrow 1 \geq 2-x \rightarrow x \geq -1 \quad (1)$$

$$x - x \geq 0 \rightarrow x \geq x \quad (2) \quad D_f = (1) \cup (2) = [-1, 2]$$

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$$y = \sqrt{2 - \sqrt{x-x}} \rightarrow 2 - \sqrt{x-x} \geq 0 \rightarrow 2 \geq \sqrt{x-x} \rightarrow 4 \geq x-x \rightarrow 1 \geq x \quad (1)$$

$$x-x \geq 0 \rightarrow x \geq x \quad (2) \quad D_f = (1) \cup (2) = [2, 1]$$

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$$y = \sqrt{x - 2x^2} \rightarrow x - 2x^2 \geq 0 \rightarrow x \geq 2x^2 \rightarrow x \geq x^2 \rightarrow \sqrt{x} \geq x \geq -\sqrt{x} \quad D_f = [\sqrt{x}, \sqrt{x}]$$

$$y = \sqrt{3|x| - 9} \rightarrow 3|x| - 9 \geq 0 \rightarrow 3|x| \geq 9 \rightarrow |x| \geq 3 \rightarrow -3 \geq x \geq 3 \quad D_f = (-\infty, -3] \cup [3, \infty)$$

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$$y = \sqrt{\frac{|x|+1}{|x|-2}} \rightarrow |x|-2 \neq 0 \rightarrow |x| \neq 2 \rightarrow D_f = \mathbb{R} - \{-2, 2\}$$

$$y = \sqrt{\frac{\sqrt{x}+1}{\sqrt{x}-2}} \rightarrow \sqrt{x}-2 \neq 0 \rightarrow \sqrt{x} \neq 2 \rightarrow x \neq 4 \rightarrow D_f = [0, \infty) \setminus \{4\}$$

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$$y = \frac{\sqrt{2-|x|}}{|x|+2} \rightarrow 2-|x| \geq 0 \quad 2 \geq |x| \quad 2 \geq x \geq -2 \quad D_f = [-2, 2]$$

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$$y = \frac{\sqrt{x-x^2}}{|x|-1} \rightarrow x-x^2 \geq 0 \rightarrow x \geq x^2 \rightarrow x \geq x \geq -x \rightarrow D_f = [-2, 2]$$

$$D_f = [-2, 2] - \{1, -1\}$$

$$y = \frac{x+1}{\sqrt{x+|x|}} \rightarrow x+|x| > 0 \quad D_f = \mathbb{R}^+$$

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0 + 0

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$$y = \frac{1}{\sqrt{x|x|}} \rightarrow x|x| > 0 \quad D_f = \mathbb{R}^+$$

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$$y = \sqrt{y - [x]} \rightarrow y - [x] \geq 0 \rightarrow y \geq [x] \rightarrow D_f = (-\infty, \infty)$$

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$$y = \frac{1}{\sqrt{y - [x]}} \rightarrow y - [x] > 0 \rightarrow y > [x] \rightarrow D_f = (-\infty, \infty)$$

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

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$$y = \frac{1}{\sqrt{-x[x]}} \rightarrow -x[x] > 0 \rightarrow D_f = \emptyset$$

به ازای هیچ مقداری مثبت نمی شود چون برآکت هر عدد با خود آن عدد علامت است

$$y = \sqrt{\left[x - \frac{1}{x}\right] + \left[x + \frac{1}{x}\right]} \rightarrow \left[x - \frac{1}{x}\right] + \left[x + \frac{1}{x}\right] \geq 0 \quad \left[x + \frac{1}{x} - 1\right] + \left[x + \frac{1}{x}\right] \geq 0$$

$$\left[x + \frac{1}{x} - 1\right] \geq 0 \quad \left[x + \frac{1}{x}\right] \geq 1 \quad \left[x + \frac{1}{x}\right] \geq \frac{1}{x} \quad D_f = \left[\frac{1}{x}, +\infty\right)$$

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$$y = \sqrt{\left[x - \frac{1}{x}\right] \left[-x + \frac{1}{x}\right]} \rightarrow \left[x - \frac{1}{x}\right] + \left[-x + \frac{1}{x}\right] \geq 0 \rightarrow [a] + [-a] \geq 0$$

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

$a \in \mathbb{Z}$ در این صورت رابطه برقرار است

$$y = \frac{1}{y \sin x - 1} \rightarrow y \sin x - 1 \neq 0 \rightarrow y \sin x \neq 1 \rightarrow \sin x \neq \pm \frac{1}{y}$$

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$$D_f = \mathbb{R} - \left\{k\pi \pm \frac{\pi}{y}\right\}$$

$$y = \frac{\cot x + 1}{\tan x + 1} \rightarrow \begin{cases} \sin x \neq 0 & D_f = \mathbb{R} - \{k\pi\} \\ \frac{\sin x}{\cos x} \neq -1 & D_f = \mathbb{R} - \left\{k\pi - \frac{\pi}{y}\right\} \\ \cos x \neq 0 & D_f = \mathbb{R} - \left\{k\pi + \frac{\pi}{y}\right\} \end{cases} \rightarrow D_f = \mathbb{R} - \left\{k\pi, k\pi - \frac{\pi}{y}, k\pi + \frac{\pi}{y}\right\}$$

$$y = \sqrt{y \sin x - 1} \rightarrow y \sin x - 1 \geq 0 \rightarrow \sin x \geq \frac{1}{y} \rightarrow D_f = \left[2k\pi + \frac{\pi}{y}, 2k\pi + \frac{3\pi}{y}\right]$$

$$y = \sqrt{1 - y \cos x} \rightarrow 1 - y \cos x \geq 0 \rightarrow \frac{1}{y} \geq \cos x \rightarrow D_f = \left[2k\pi + \frac{\pi}{y}, 2k\pi + \frac{2\pi}{y}\right]$$

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