

۱) $y = \sqrt{x^2 - 4x} / x^2 - x \rightarrow x^2 - 4x \geq 0 \rightarrow x(x-4) \geq 0$
 $D_f = (-1, 0) \cup (0, 1) \cup [4, +\infty)$

۲) $y = \sqrt{x^3 - x^2} / x^2 - x \rightarrow x^3 - x^2 \geq 0 \rightarrow x^2(x-1) \geq 0$
 $D_f = \mathbb{R} - \{0, \pm 1\}$

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۱) $y = x + 1 / \sqrt{x + |x|} \rightarrow x + |x| > 0 \rightarrow D_f = \mathbb{R}^+$

۲) $y = 1 / \sqrt{|x|} \rightarrow |x| > 0 \rightarrow D_f = \mathbb{R}^+$

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۱) $y = \sqrt{2 - [x]} \rightarrow 2 - [x] \geq 0 \rightarrow [x] \leq 2 \rightarrow D_f = (-\infty, 3)$

۲) $y = 1 / \sqrt{2 - [x]} \rightarrow 2 - [x] > 0 \rightarrow [x] < 2 \rightarrow D_f = (-\infty, 2)$

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۱) $y = \sqrt{[x - 1/2] + [x + 1/2]} \rightarrow [x - 1/2] + [x + 1/2] \geq 0 \rightarrow [x + 1/2] + [x + 1/2] \geq 1$
 $2[x + 1/2] \geq 1 \rightarrow [x + 1/2] \geq 1/2 \rightarrow x + 1/2 \geq 1 \rightarrow x \geq 1/2 \Rightarrow D_f = [1/2, +\infty)$

۲) $y = \sqrt{[x - 1/2] + [-x + 1/2]} \rightarrow [x - 1/2] + [-x + 1/2] \geq 0 \rightarrow x - 1/2 \in \mathbb{Z} \rightarrow x \in \mathbb{Z} + 1/2$
 $D_f = \{x | x = k + 1/2, k \in \mathbb{Z}\}$

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۱) $y = 2 / \sin x - 1 \rightarrow \sin x - 1 \neq 0 \rightarrow \sin x \neq 1 \rightarrow D_f = \mathbb{R} - \{2k\pi + \pi/2\}$

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۲) $y = 2 / \sin^2 x - 1 \rightarrow 2 \sin^2 x - 1 \neq 0 \rightarrow \sin^2 x \neq 1/2 \rightarrow \sin x \neq \pm \sqrt{1/2} = \pm \frac{\sqrt{2}}{2}$
 $D_f = \mathbb{R} - \{k\pi \pm \pi/4\}$



1) $y = \sqrt{2 \sin x - 1}$ $2 \sin x - 1 \geq 0 \rightarrow \sin x \geq \frac{1}{2} \rightarrow D_f = [\frac{\pi}{6} + 2k\pi, \frac{5\pi}{6} + 2k\pi]$

2) $y = \sqrt{\cos x - 1}$ $\cos x - 1 \geq 0 \rightarrow \cos x \geq 1 \rightarrow D_f = \{2k\pi\}$ 
 کینوس یسیرا فی فونہ یسہ فقط ۱ یایو یاسنہ

1) $\cos y = |x| - 3 \rightarrow -1 \leq |x| - 3 \leq 1 \rightarrow 2 \leq |x| \leq 4 \rightarrow \begin{cases} 2 \leq x \leq 4 \\ -4 \leq x \leq -2 \end{cases}$
 $D_f = [2, 4] \cup [-4, -2]$
 2) $y = \arcsin(x^2 + 3x + 1) \rightarrow -1 \leq x^2 + 3x + 1 \leq 1$
 $\begin{matrix} x & -2 & +1 \\ y & + & 0 & - & 0 & + \end{matrix} \quad \begin{matrix} x & -3 & 0 \\ y & + & 0 & - & 0 & + \end{matrix} \Rightarrow D_f = [-3, -2]$
 $x = (-\infty, -2] \cup [1, +\infty)$
 $x(x+3) \leq 0$
 $-3, 0 = \text{شبه}$

1) $y = \sqrt{2 - \log_3(x-2)}$ $2 - \log_3(x-2) \geq 0 \rightarrow \log_3(x-2) \leq 2 \rightarrow \log_3(x-2) \leq \log_3(11)$
 $\rightarrow x \leq 11$, $x-2 > 0 \rightarrow x > 2 \rightarrow D_f = (2, 11]$
 2) $y = \log(x^2 - x) \rightarrow x^2 - x > 0 \rightarrow x(x-1) > 0$
 $\begin{matrix} x & -1 & 0 & +1 \\ y & - & 0 & + \end{matrix}$
 $D_f = (-1, 0) \cup (1, +\infty)$

1) $y = \frac{1}{x^n + 1} \rightarrow x^n + 1 \neq 0 \rightarrow x^n \neq -1 \rightarrow D_f = \mathbb{R} - \{\log \frac{-1}{x}\}$
 2) $y = \frac{1}{x^n - 1} \rightarrow x^n - 1 \neq 0 \rightarrow x^n \neq 1 \rightarrow D_f = \mathbb{R} - \{\log \frac{1}{x}\}$
 3) $y = \frac{1}{x^n - 2} \rightarrow x^n - 2 \neq 0 \rightarrow x^n \neq 2 \rightarrow D_f = \mathbb{R} - \{\log \frac{2}{x}\}$
 4) $y = \frac{1}{x^n - 3} \rightarrow x^n - 3 \neq 0 \rightarrow x^n \neq 3 \rightarrow D_f = \mathbb{R} - \{\log \frac{3}{x}\}$

1) $y = (x+1)!$ $x+1 \in \mathbb{N} \rightarrow x \in \mathbb{N} - 1 \rightarrow x \in \mathbb{N} - 1$
 $D_f = \{x \mid x = k-1, k \in \mathbb{N}\}$
 2) $y = (\frac{x^n - 2}{x^n - 3})!$ $\frac{x^n - 2}{x^n - 3} \in \mathbb{N} \rightarrow x \in -\frac{2}{x^n - 3} \in \mathbb{N}$
 $D_f = \{x \mid x = \frac{2}{x^n - 3}, k \in \mathbb{N}\}$