

الف) $\frac{n+3}{2n^2+3n-1}$ $\rightarrow D_f = \mathbb{R} - \{-3, \frac{1}{2}, 1\}$
 $2n^2+3n-1 \rightarrow (n-1)(n-\frac{1}{2})(n+3)$

$\frac{2n^2+3n-1}{2n^2+3n-1} \mid \frac{n-1}{2n^2+3n-1}$
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ب) $\frac{n+3}{2n^2+9n^2+1 \cdot n+3} = \frac{n+1}{(n+1)(2n^2+7n+3)}$ $n = \frac{-7 \pm \sqrt{49-24}}{4}$
 $D_f = \mathbb{R} - \{-3, -1, -\frac{1}{2}\}$

$\frac{2n^2+9n^2+1 \cdot n+3}{2n^2+9n^2+1 \cdot n+3} \mid \frac{n+1}{2n^2+9n^2+1 \cdot n+3}$
 $\frac{2n^2+9n^2+1 \cdot n+3}{2n^2+9n^2+1 \cdot n+3} \mid \frac{n+1}{2n^2+9n^2+1 \cdot n+3}$
 $\frac{2n^2+9n^2+1 \cdot n+3}{2n^2+9n^2+1 \cdot n+3} \mid \frac{n+1}{2n^2+9n^2+1 \cdot n+3}$

الف) $\frac{n+3}{n^3-2n^2+2n-1} = \frac{n+3}{(n-1)(n^2-n+1)}$ $\rightarrow D_f = \mathbb{R} - \{1\}$
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$\frac{n^3-2n^2+2n-1}{n^3-2n^2+2n-1} \mid \frac{n-1}{n^3-2n^2+2n-1}$
 $\frac{n^3-2n^2+2n-1}{n^3-2n^2+2n-1} \mid \frac{n-1}{n^3-2n^2+2n-1}$
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ب) $\sqrt{\frac{n+3}{n^3-2n^2+2n-1}} \rightarrow \frac{n+3}{n^3-2n^2+2n-1} \geq 0$ $\mid + \phi - \frac{1}{0} + \rightarrow D_f = (-\infty, 1] \cup (1, +\infty)$
 $(n-1)(n^2-n+1)$

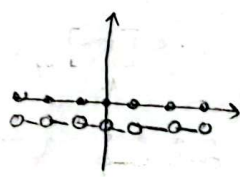
۲ $n > 1 \rightarrow n^2 - \omega n + \omega - 2n + \omega \Rightarrow \frac{n^2 - \omega n + 1}{(n-2)(n-\omega)}$
 $\mathbb{R} \rightarrow (1, +\infty) - \{2, \omega\}$
 $n \leq 1 \rightarrow n^2 + \omega n - \omega - 2n + \omega \Rightarrow \frac{n^2 + \omega n}{n(n+3)} \rightarrow -\frac{1}{3}$
 $\mathbb{R} \rightarrow (-\infty, 1] - \{-3\}$
 $D_f = \mathbb{R} - \{-3, 2, \omega\}$

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

ب) $y = \frac{\omega n^2 + 4}{[n]^2 - 2[n] - 3} \Rightarrow [n] \neq 3 \rightarrow [3, +\infty)$
 $[n]^2 - 2[n] - 3 = ([n]-3)([n]+1) \Rightarrow [n] \neq -1 \rightarrow [-1, 0)$
 $D_f = \mathbb{R} - [3, 4) \cup [-1, 0)$

الف) $\sqrt{\frac{[x-\frac{1}{3}]}{z} + \frac{[x+\frac{1}{3}]}{z+1}} \rightarrow [z] + [z+1] \geq 0 \rightarrow 2[z] \geq -1 \rightarrow [z] \geq -\frac{1}{2}$
 $z \rightarrow [0, +\infty) \rightarrow n = [-\frac{1}{2}, +\infty)$

ب) $\sqrt{[x-\frac{1}{3}] + \frac{[1-x]}{z}} \rightarrow [x-\frac{1}{3}] + \frac{[1-x]}{z} \geq 0$
 $\rightarrow D_f = \{n \mid n \in \mathbb{Z} - \frac{1}{3}\}$

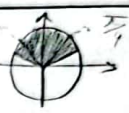


$$y = \frac{\cot x + 1}{\tan x + 1} \rightarrow \tan x \neq -1 \rightarrow D_f = \mathbb{R} - \{k\pi - \frac{\pi}{4}, k\pi, k\pi + \frac{\pi}{4}\}$$

من نظر کنیم که $\cot$ و $\tan$ در ابتدا با یک تعریف شدند پس هر جا که تعریف نمی شدند را حذف کردیم

$$y = \sqrt{1 - 4 \sin^2 x} \rightarrow 1 - 4 \sin^2 x \geq 0 \rightarrow \frac{1}{4} \geq \sin^2 x \rightarrow |\sin x| \leq \frac{1}{4} \rightarrow -\frac{1}{4} \leq \sin x \leq \frac{1}{4}$$


$$[k\pi - \frac{\pi}{4}, k\pi + \frac{\pi}{4}] = D_f$$

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


$$y = \sqrt{1 - 2 \cos x} \rightarrow 1 - 2 \cos x \geq 0 \rightarrow \cos x \leq \frac{1}{2} \rightarrow D_f = [2k\pi + \frac{\pi}{3}, 2k\pi + \frac{5\pi}{3}]$$


$$\arcsin(x^2 + 3x + 1) \rightarrow -1 \leq x^2 + 3x + 1 \leq 1 \rightarrow x^2 + 3x \leq 0 \rightarrow x(x+3) \leq 0 \rightarrow x \in [-3, 0]$$

$$\cap \rightarrow [-3, -2] \cup [-1, 0] = D_f$$

$$\cos y = \sqrt{5 - 2x} \rightarrow -1 \leq \sqrt{5 - 2x} \leq 1 \rightarrow 0 \leq \sqrt{5 - 2x} \leq 1 \rightarrow 0 \leq 5 - 2x \leq 1$$

$$\rightarrow \begin{cases} 5 - 2x \geq 0 \\ 5 - 2x \leq 1 \end{cases} \rightarrow \begin{cases} x \leq \frac{5}{2} \\ x \geq 2 \end{cases} \rightarrow D_f = [2, \frac{5}{2}]$$

$$y = \log_r(1 - \log_r x) \rightarrow x > 0 \rightarrow 1 - \log_r x > 0 \rightarrow \log_r x < 1 \rightarrow x < r \rightarrow D_f = (0, r)$$

$$y = \log_r(1 - \log_{\frac{1}{r}} x) \rightarrow x > 0 \rightarrow 1 - \log_{\frac{1}{r}} x > 0 \rightarrow \log_{\frac{1}{r}} x < 1 \rightarrow x < \frac{1}{r} \rightarrow D_f = (0, \frac{1}{r})$$

$$\sqrt{r^{2x} - 1} \rightarrow r^{2x} - 1 \geq 0 \rightarrow r^{2x} \geq 1 \rightarrow r^{2x} \geq r^0 \rightarrow 2x \geq 0 \rightarrow x \geq 0 \rightarrow D_f = [0, \infty)$$

$$\left(\frac{r^n + \omega}{r^n + \epsilon}\right)! \rightarrow n \neq -r \text{ / } \frac{r^n + \omega}{r^n + \epsilon} \in \mathbb{N} \rightarrow r^n x + \epsilon \omega = r^n + \omega$$

$$\rightarrow D_f = \left\{x \mid x = \frac{\omega - \epsilon k}{r k - r}, k \in \mathbb{N}\right\}$$