

$$D_f = 1R - \left\{ -\frac{3}{5}, \frac{1}{5}, 1 \right\}$$

$$D_f = IR - \left\{ -\frac{3}{2}, -\frac{1}{2}, -\frac{1}{2} \right\}$$

$$D_f = \mathbb{R} - \{1\}$$

1,2

$(1) \cap \pi \rightarrow \mathbb{R} - \{0, 1, 2\}$ (D)

ب) $[n] = t \Rightarrow t^2 - 2t - 3 \Rightarrow (t+1)(t-3) \neq 0 \Rightarrow t \neq -1, 3$
 $\Rightarrow [n] \neq -1, 3 \Rightarrow n \neq -1, 3 \Rightarrow D = \mathbb{R} - \{-1, 3\}$
 $[n] \neq -1 \rightarrow n \neq [-1, 0) \rightarrow D \neq \mathbb{R} - \{[-1, 0) \cup [3, 4)\}$
 $[n] \neq 3 \rightarrow n \neq [3, 4)$

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

$$\text{ب) } a = n - \frac{1}{p} \Rightarrow [a] + [-a] \geq 0 \Rightarrow \begin{cases} a \in \mathbb{Z} \Rightarrow [a] + [-a] = 0 \checkmark \\ a \notin \mathbb{Z} \Rightarrow [a] + [-a] = -1 \times \end{cases} \Rightarrow$$

$$y = \sqrt{[n - \frac{1}{p}] + [-(n - \frac{1}{p})]}$$

$$a \in \mathbb{Z} \Rightarrow n - \frac{1}{p} \in \mathbb{Z} \Rightarrow n \in \mathbb{Z} + \frac{1}{p} \rightarrow |D_f = \{n \mid n = k + \frac{1}{p}, k \in \mathbb{Z}\}|$$

الف) $\begin{cases} \tan n + 1 \neq 0 \Rightarrow \tan n \neq -1 \Rightarrow n \neq k\pi - \frac{\pi}{4} \\ \cos n \neq 0 \Rightarrow n \neq k\pi + \frac{\pi}{2} \end{cases} \Rightarrow D_f = \mathbb{R} - \left\{ k\pi - \frac{\pi}{4}, k\pi + \frac{\pi}{2} \right\}$

$\sin n \neq 0 \rightarrow n \neq k\pi$ (باید متغیر نبود)

ب) $1 - \sqrt{2} \sin^2 n \geq 0 \Rightarrow \sqrt{2} \sin^2 n \leq 1 \Rightarrow \sin^2 n \leq \frac{1}{2} \Rightarrow \frac{1}{\sqrt{2}} \leq \sin n \leq \frac{1}{\sqrt{2}}$

$D_f = \left\{ k\pi + \frac{\pi}{4} \right\}$

باید بازه اعصاب کن الان فقط اعصاب کن!

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

$\sqrt{2}k\pi + \frac{\pi}{4}, \sqrt{2}k\pi + \frac{3\pi}{4}, \sqrt{2}k\pi + \frac{5\pi}{4}, \sqrt{2}k\pi + \frac{7\pi}{4}$

الف) $\sqrt{2} \sin n - 1 \geq 0 \Rightarrow \sqrt{2} \sin n \geq 1 \Rightarrow \sin n \geq \frac{1}{\sqrt{2}} \Rightarrow D_f = [k\pi + \frac{\pi}{4}, k\pi + \frac{3\pi}{4}]$

ب) $1 - \sqrt{2} \cos n \geq 0 \Rightarrow \sqrt{2} \cos n \leq 1 \Rightarrow \cos n \leq \frac{1}{\sqrt{2}} \Rightarrow D_f = \mathbb{R} - (k\pi + \frac{\pi}{4}, k\pi + \frac{3\pi}{4})$

انتها بازه نباید از ابتدا آن نقطه تر باشد

الف) $\begin{cases} -1 \leq \lambda^2 + \mu_n + 1 \leq 1 \\ \lambda^2 + \mu_n + 1 \leq 1 \Rightarrow \mu_n \leq 0 \Rightarrow n(n+3) \leq 0 \Rightarrow n \in [-3, 0] \\ \lambda^2 + \mu_n + 1 \geq -1 \Rightarrow \mu_n \geq -2 \Rightarrow n(n+3) \geq -2 \Rightarrow n \in (-\infty, -2] \cup [0, \infty) \end{cases} \Rightarrow D_f = [-3, 0] \cap (-\infty, -2] \cup [0, \infty) = [-3, -2] \cup [0, \infty)$

ب) $\begin{cases} \omega - 2n \geq 0 \Rightarrow 2n \leq \omega \Rightarrow n \leq \frac{\omega}{2} \\ -1 \leq \sqrt{\omega - 2n} \leq 1 \Rightarrow \omega - 2n \leq 1 \Rightarrow 2n \geq \omega - 1 \Rightarrow n \geq \frac{\omega - 1}{2} \end{cases} \Rightarrow D_f = [\frac{\omega - 1}{2}, \frac{\omega}{2}]$

الف) $\begin{cases} n > 0 \\ 1 - \log_{\frac{1}{2}} n > 0 \Rightarrow \log_{\frac{1}{2}} n < 1 \Rightarrow n > 2 \end{cases} \Rightarrow D_f = (2, \infty)$

ب) $\begin{cases} n > 0 \\ 1 - \log_{\frac{1}{2}} \frac{n}{2} > 0 \Rightarrow \log_{\frac{1}{2}} \frac{n}{2} < 1 \Rightarrow \frac{n}{2} < 2 \Rightarrow n < 4 \end{cases} \Rightarrow D_f = (0, 4)$

الف) $\sqrt{2} \sqrt{n - n^2} - 1 \geq 0 \Rightarrow \sqrt{2} \sqrt{n - n^2} \geq 1 \Rightarrow \sqrt{2} \sqrt{n - n^2} \geq \sqrt{2} \Rightarrow \sqrt{n - n^2} \geq 1 \Rightarrow n - n^2 \geq 1 \Rightarrow n^2 - n + 1 \leq 0 \Rightarrow (n - 1)(n - 3) \leq 0 \Rightarrow D_f = [1, 3]$

ب) $\frac{\mu_{n+d}}{2n+k} \in W \Rightarrow \mu = -\frac{kW - d}{2W - k} \Rightarrow \mu = \frac{-kW + d}{2W - k} \Rightarrow D_f = \left\{ n \mid n = \frac{-kK + d}{2K - k}, k \in W \right\}$

$$۲- \text{ب}) \frac{x+3}{x^3 - 2x^2 + 2x - 1} \geq 0 \rightarrow \frac{x+3}{(x-1)(x^2 - x + 1)} \geq 0$$

(مضروب اولی: $x^2 - x + 1$) (مضروب دوم: $x-1$) (مضروب سوم: $x+3$)

ریشه ندارد! $\Delta < 0$

$$\frac{-3}{+} \quad \frac{1}{-} \quad \frac{1}{+} \rightarrow D_f = (-\infty, -3] \cup (1, +\infty)$$

$$۴- \text{ب}) [n]^2 - 2[n] - 3 = 0 \xrightarrow{[n]=t} t^2 - 2t - 3 = 0 \rightarrow (t-3)(t+1) = 0$$

$$t=3 \rightarrow [n]=3 \rightarrow n \in [3, 4)$$

$$t=-1 \rightarrow [n]=-1 \rightarrow n \in [-1, 0)$$

$$\rightarrow D_f = (-\infty, -1) \cup [3, 4) \cup [4, +\infty)$$

$$\mathbb{R} - \left\{ \frac{1}{2}, [3, 4) \cup [4, 5) \right\}$$

$$۵- \text{الف}) \left[n - \frac{1}{2} \right] + \left[n + \frac{2}{3} \right] \geq 0 \xrightarrow{+1} \left[n - \frac{1}{2} \right] + 1 + \left[n + \frac{2}{3} \right] \geq 1$$

$[n] + k = [n+k]$

$$\left[n + \frac{2}{3} \right] + \left[n + \frac{2}{3} \right] \geq 1 \rightarrow \left[n + \frac{2}{3} \right] \geq \frac{1}{2} \xrightarrow{\text{اولین عدد صحیح بزرگتر از } \frac{1}{2} \text{ برابر یک است!}} n + \frac{2}{3} \geq 1$$

$$n \geq \frac{1}{6} \rightarrow D_f = \left[\frac{1}{6}, +\infty \right)$$

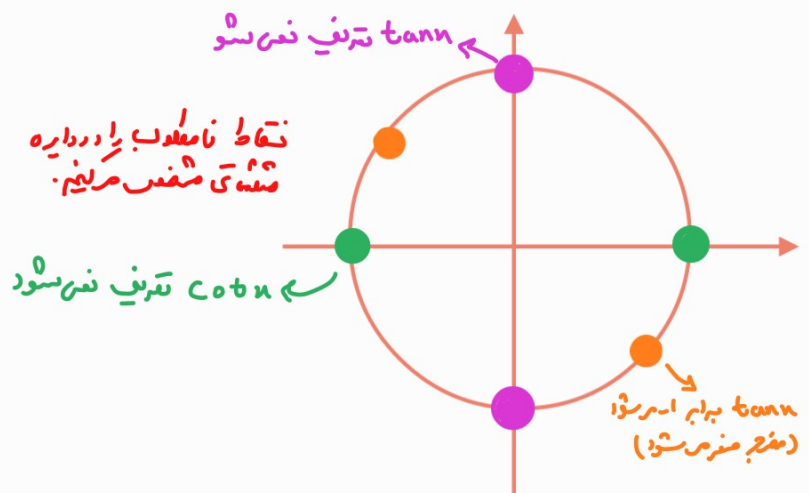
$$۹- \text{الف}) y = \frac{\cot x + 1}{\tan x + 1}$$

$$x \neq k\pi + \frac{\pi}{2}$$

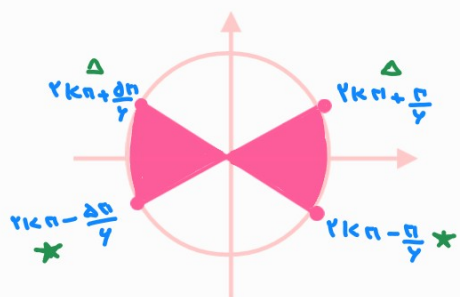
$$x \neq k\pi + \frac{\pi}{2} \cup x \neq k\pi$$

$$\rightarrow x \neq \frac{k\pi}{2}$$

$$\rightarrow D_f = \mathbb{R} - \left\{ \frac{k\pi}{2}, k\pi + \frac{\pi}{2} \right\}$$



$$4- \text{ب) } 1 - r \sin^n n \geq 0 \rightarrow r \sin^n n \leq 1 \rightarrow \sin^n n \leq \frac{1}{r} \rightarrow -\frac{1}{r} \leq \sin n \leq \frac{1}{r}$$



$$\rightarrow Df = [rkn - \frac{\pi}{y}, rkn + \frac{\pi}{y}]$$

$$5- \text{الف) } r \sin n - 1 \geq 0 \rightarrow \sin n \geq \frac{1}{r}$$

$$\rightarrow Df = [rkn + \frac{\pi}{y}, rkn + \frac{\pi}{y}]$$

$$5- \text{ب) } 1 - r \cos n \geq 0 \rightarrow \cos n \leq \frac{1}{r}$$

$$\rightarrow Df = [rkn + \frac{\pi}{y}, rkn + \frac{\pi}{y}]$$

$$6- \text{الف) } y = \log_r (1 - \log_r^n) \rightarrow \log_r^n \rightarrow n > 0$$

$$\hookrightarrow 1 - \log_r^n > 0 \rightarrow \log_r^n < 1 \rightarrow n < r$$

$$Df = (0, r)$$

$$6- \text{ب) } y = \log_r (1 - \log_r^n \frac{1}{r}) \rightarrow \log_r^n \frac{1}{r} \rightarrow n > 0$$

$$\hookrightarrow 1 - \log_r^n \frac{1}{r} > 0 \rightarrow \log_r^n \frac{1}{r} < 1 \xrightarrow{\text{منابع (1,0)}} n > \frac{1}{r}$$

$$Df = (\frac{1}{r}, +\infty)$$