

مخرج بخش پذیر بر (x-1) به طلیت جمع فرایب = ۰ → الف

$$\begin{array}{r} 2x^3 + 3x^2 - 11x + 3 \\ - 2x^3 + 2x^2 \\ \hline 5x^2 - 11x + 3 \\ - 5x^2 + 5x \\ \hline -6x + 3 \\ + 6x - 3 \\ \hline 0 \end{array} \quad \begin{array}{r} x-1 \\ 2x^2 + 5x - 3 \\ \hline 2x^2 + 5x - 3 \\ \hline 0 \end{array} \rightarrow x^2 + 5x - 4 = 0$$

$$(x+4)(x-1) = 0$$

$$(x+3) \rightarrow -3$$

$$y = \frac{(x+3)}{(x-1)(x+4)}$$

تقسیم به علت اوشن روی

$$D_f = R - \left\{ \frac{1}{4}, -\frac{3}{2}, -\frac{1}{3} \right\}$$

مخرج بخش پذیر بر (n-1) چون جمع فرایب = ۰ → ب

$$\begin{array}{r} 2n^3 + 9n^2 + 10n + 3 \\ - 2n^3 - 2n^2 \\ \hline 11n^2 + 10n + 3 \\ - 11n^2 - 11n \\ \hline n + 3 \\ - n - 3 \\ \hline 0 \end{array} \quad \begin{array}{r} n+1 \\ 2n^2 + 7n + 3 \\ \hline 2n^2 + 7n + 3 \\ \hline 0 \end{array} \rightarrow n^2 + 7n + 4$$

$$(n+1)(n+4)$$

$$\frac{-1}{2} \quad \frac{-4}{2} = -3$$

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

مخرج بخش پذیر بر (n-1) چون جمع فرایب = ۰ → الف

$$\begin{array}{r} n^3 - 2n^2 + 2n - 1 \\ - n^3 + n^2 \\ \hline -n^2 + 2n - 1 \\ + n^2 - n \\ \hline -n - 1 \\ - n - 1 \\ \hline 0 \end{array} \quad \begin{array}{r} n-1 \\ n^2 - n + 1 \\ \hline n^2 - n + 1 \\ \hline 0 \end{array} \rightarrow y = \frac{(n+3)}{(n-1)(n^2-n+1)}$$

$\Delta = b^2 - 4ac$

$$1 - 4 = -3$$

ریشه ندارد

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

تجزیه مطابق قیمت الف → ب

$$y = \sqrt{\frac{(n+3)}{(n-1)(n^2-n+1)}}$$

$$\begin{array}{c} -3 \\ + \quad - \quad + \end{array}$$

$$D_f = (-\infty, -3] \cup (1, +\infty)$$

حالات ۳ بررسی می کنیم

$$n \geq 1 \rightarrow n^2 - 5(n-1) - 2n + 5 = n^2 - 7n + 10 = 0$$

$$(n-5)(n-2) = 0 \rightarrow n=5, n=2$$

$$n=1 \rightarrow n^2 - 2n + 5 = 0$$

$$\Delta = b^2 - 4ac = 4 - 20 = -16$$

ریشه ندارد

$$n < 1 \rightarrow n^2 - 5(-n+1) - 2n + 5 = 0$$

$$n^2 + 5n - 5 - 2n + 5 = 0$$

$$n^2 + 3n = 0 \rightarrow n(n+3) = 0 \rightarrow n=0, n=-3$$

$$D_f = R - \{2, 5, 0, 3\}$$

الف → $[n] - 2 \geq 0$

$$[n] \geq 2 \rightarrow [2, +\infty)$$

$$D_f = [2, +\infty)$$

ب → مخرج: $[n]^2 - 2[n] - 3 = 0$

$$([n]-3)([n]+1) = 0$$

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

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

$$D_f = R - ([3, 4) \cup [-1, 0])$$

الف → $[n - \frac{1}{3}] + [n + \frac{2}{3}] \geq 0$

$$[n - \frac{1}{3} + 1] \geq 0 \rightarrow [n - \frac{1}{3}] \geq -\frac{1}{3}$$

$$2[n - \frac{1}{3}] \geq -1 \rightarrow [n - \frac{1}{3}] \geq -\frac{1}{2}$$

$$[n - \frac{1}{3}] \geq 0$$

$$n - \frac{1}{3} \geq 0 \rightarrow n \geq \frac{1}{3}$$

$$D_f = [\frac{1}{3}, +\infty)$$

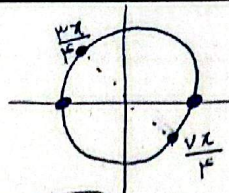
ب → $y = \sqrt{[n - \frac{1}{3}] + [-(n - \frac{1}{3})]}$

$$a \in \mathbb{Z} \rightarrow [a] + [-a] = 0 \rightarrow n - \frac{1}{3} \in \mathbb{Z}$$

$$a \notin \mathbb{Z} \rightarrow [a] + [-a] = -1$$

$$D_f = \{x | x = k + \frac{2}{3}, k \in \mathbb{Z}\}$$

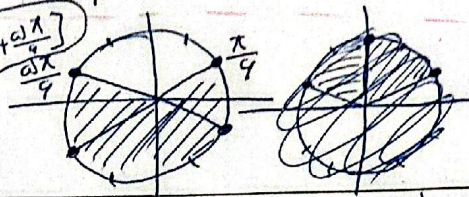
الف $\rightarrow \begin{cases} \tan u \neq -1 \\ \cot u = \frac{\cos u}{\sin u} \Rightarrow \sin u \neq 0 \end{cases}$



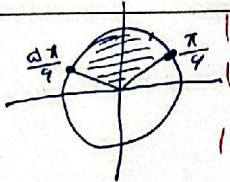
$D_f = R - \left\{ k\pi, k\pi - \frac{\pi}{4} \right\}$

ب $\rightarrow \begin{cases} 1 - \sqrt{r} \sin^2 u \geq 0 \\ 1 \geq \sqrt{r} \sin^2 u \\ \frac{1}{\sqrt{r}} \geq \sin^2 u \end{cases}$

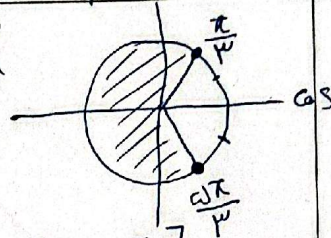
$D_f = R - \left[r\pi + \frac{\pi}{4}, r\pi + \frac{3\pi}{4} \right]$



الف $\rightarrow \begin{cases} r \sin u - 1 \geq 0 \\ r \sin u \geq 1 \\ \sin u \geq \frac{1}{r} \end{cases}$



ب $\rightarrow \begin{cases} 1 - r \cos u \geq 0 \\ 1 \geq r \cos u \\ \cos u \leq \frac{1}{r} \end{cases}$

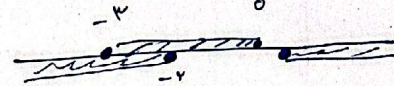
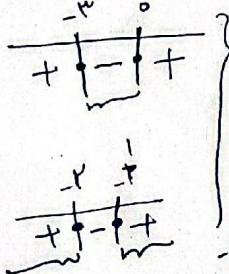


$D_f = \left[r\pi + \frac{\pi}{4}, r\pi + \frac{3\pi}{4} \right]$

$D_f = R - \left[r\pi - \frac{3\pi}{4}, r\pi + \frac{\pi}{4} \right]$

الف $\rightarrow -1 < n^r + m + 1 < 1$

$\begin{cases} n^r + m + 1 < 1 \rightarrow n^r + m \leq 0 \\ n^r + m + 1 > -1 \rightarrow n^r + m + r \geq 0 \end{cases}$



ب $\rightarrow \begin{cases} \omega - r m > 0 \rightarrow \omega \geq r m \rightarrow \frac{\omega}{r} \geq m \end{cases}$

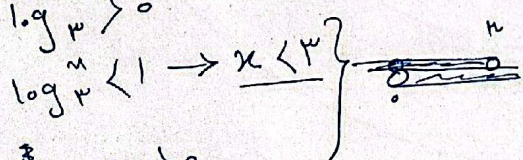
$D_f = \left[r, \frac{\omega}{r} \right]$

$D_f = (\text{نقطة محورية}) = [-r, -r]$

$D_f = \left[r, \frac{\omega}{r} \right]$

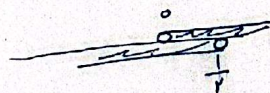
الف $\rightarrow$

$\begin{cases} 1 - \log \frac{n}{r} > 0 \\ \log \frac{n}{r} < 1 \end{cases}$



ب $\rightarrow 1 - \log \frac{n}{r} > 0$

$\begin{cases} \log \frac{n}{r} < 1 \\ n < \frac{1}{r} \end{cases}$



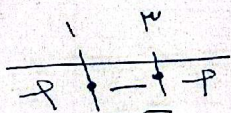
$\rightarrow \log \frac{n}{r} \rightarrow n > 0$

$D_f = (0, r)$

$D_f = (0, \frac{1}{r})$

الف $\rightarrow$

$\begin{cases} r^n (F-n) - 1 \geq 0 \\ r^n (E-n) \geq 1 \end{cases}$



$D_f = [1, r]$

$\frac{r^n + \omega}{r^n + \varepsilon} \in \omega$

$\begin{cases} r^n + \omega = r^n \omega + r^n \varepsilon \\ r^n - r^n \omega = \varepsilon \omega - \omega \\ r^n (1 - \omega) = \varepsilon \omega - \omega \end{cases}$

$\begin{cases} r^n (E-n) \geq 1 \\ \varepsilon n - n^r \geq r \rightarrow n^r - \varepsilon n + r \leq 0 \end{cases}$

$(n-1)(n-r) \leq 0$

$D_f = \left\{ n \mid n = \frac{r^n + \omega}{r^n + \varepsilon}, K \in \omega \right\}$