

تقسیم درجه اول بر درجه اول

الف) $y = \frac{n+3}{2n^3+3n^2-8n+3}$

مجموع ضرایب = ۰

$n+2 \Rightarrow n^2 - (n-1)(2n^2+5n-3)$

$(n^2+5n-6) = (n+6)(n-1) \Rightarrow n = \frac{4}{3} \text{ و } \frac{1}{3} = -\frac{2}{3}$

الف) $y = \frac{n+3}{n+3}$

$0 = \text{مجموع ضرایب} = n^3 - 2n^2 + 2n - 1$

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

$n=1 \Delta < 0 \Rightarrow \text{مجموع ضرایب}$

$D_f = \{R - \frac{1}{3} - \frac{1}{3} \frac{1}{3}\}$

$n \neq -\frac{1}{3} \text{ و } \frac{1}{3}$

$n \neq -\frac{1}{3} - \frac{1}{3} - 1$

$n = \frac{4}{3} \text{ و } \frac{1}{3} = -\frac{2}{3}$

$n^2+7n+9 = (n+4)(n+1) \Rightarrow n = \frac{4}{3} \text{ و } -\frac{1}{3}$

ب) $\frac{n+3}{2n^3+9n^2+6n+3}$

مجموع ضرایب توان زوج = مجموع ضرایب توان فرد

$D_f = \{R - \frac{1}{3} - \frac{1}{3} \frac{1}{3}\}$

$n \neq -\frac{1}{3} - \frac{1}{3} - 1$

$n = \frac{4}{3} \text{ و } -\frac{1}{3}$

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

مجموع ضرایب = ۰

$\frac{n+3}{n+3} \sim n = -3$

$\frac{(n-1)(n^2-n+1)}{n+3} > 0$

$n=1 \oplus \text{مجموع ضرایب}$

$\frac{-3}{+} \frac{1}{+} \frac{1}{+}$

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

الف) $y = \frac{2}{n^2 - \omega |n-1| - 2n + \omega}$

$D = \{R - \frac{1}{2} \text{ و } -\frac{3}{2} \omega\}$

$n = \frac{1}{2} \omega$

$n^2 - \omega |n-1| - 2n + \omega \neq 0 \Rightarrow \begin{cases} n > 1 \Rightarrow n^2 - \sqrt{n} + 1 = (n-2)(n-\omega) \\ n < 1 \Rightarrow n^2 + 2n = n(n+3) \Rightarrow n = 0 \text{ و } -3 \\ n = 1 \Rightarrow n^2 - 2n + \omega \Rightarrow \Delta < 0 \Rightarrow \text{مجموع ضرایب} \end{cases}$

الف) $y = \frac{n+3}{|2n+1| - |n+3|}$

$n^2 - 2n - 2 = (n-4)(n+2) \neq 0$

$n = \frac{4}{3} \text{ و } -\frac{2}{3}$

$|2n+1| - |n+3| \neq 0$

$\{2n^2+2n+1 \neq n^2+6n+9\}$

$n^2 - 4n - 8 \neq 0$

$|2n+1| \neq |n+3| \Rightarrow (2n+1)^2 \neq (n+3)^2$

$D_f = \{R - \frac{2}{3} \text{ و } \frac{4}{3}\}$

ب) $y = \sqrt{|2n+1| - |n+3|}$

$|2n+1| - |n+3| > 0$

$|2n+1| > |n+3|$

$(2n+1)^2 > (n+3)^2$

$\{2n^2+2n+1 > n^2+6n+9\}$

$n^2 - 4n - 8 > 0 \Rightarrow$

الف) $y = \log_p (1 - \log_p n)$

$1 - \log_p n > 0 \Rightarrow n > I$

$D_f = I \cap II = (0, 3)$

$\log_p n < 1 \Rightarrow n < II$

ب) $y = \log_p (1 - \log_p \frac{n}{p}) \sim n > 0 = I$

$1 - \log_p \frac{n}{p} > 0 \Rightarrow \log_p \frac{n}{p} < 1 \Rightarrow n < \frac{1}{p}$

$I \cap II = D_f = (\frac{1}{p}, +\infty)$

اما سوال ۴ قسمت ب) $n^2 - 2n - 2 > 0 \Rightarrow (n-4)(n+2) \Rightarrow n = \frac{4}{3} \text{ و } -\frac{2}{3}$
 $D_f = (-\infty, -\frac{2}{3}] \cup [\frac{4}{3}, +\infty)$

$$f(n) = \sqrt{\log_{\omega} \log_{\omega}^{(r_n-1)}}$$

$$r_n - 1 > 0 \Rightarrow r_n > 1 \Rightarrow n > \frac{1}{r} = \text{II}$$

$$\log_{\omega}^{(r_n-1)} > 0 \Rightarrow r_n - 1 > 1 \Rightarrow n > 1 = \text{III}$$

$$\log_{\frac{1}{r}} \log_{\omega}^{(r_n-1)} > 0 \Rightarrow \log_{\omega}^{(r_n-1)} < 1 \Rightarrow r_n - 1 < \omega \quad D_f = \pm \cap \text{II} \cap \text{III} = (1, 3]$$

$$\Downarrow \\ n \leq 3 = \text{I}$$

$$\bullet \text{ الف) } y = \log(r \delta s n + 1)$$

$$r \delta s n + 1 > 0 \Rightarrow r \delta s n > -1$$

$$\Rightarrow \delta s n > -\frac{1}{r}$$

$$\bullet \text{ ب) } D_f = (2k\pi - \frac{r\pi}{r}, 2k\pi + \frac{r\pi}{r})$$

$$\bullet \text{ ب) } y = \sqrt{\log \frac{n-1}{n+1}} \sim \frac{n-1}{n+1} > 0$$

$$\text{II} = (-\infty, -1) \cup (1, +\infty) = \frac{-1}{\omega} + \frac{1}{\omega}$$

$$\log \frac{n-1}{n+1} > 0 \Rightarrow \frac{n-1}{n+1} > 1$$

$$\frac{n-1-n-1}{n+1} > 0 \Rightarrow \frac{-2}{n+1} > 0 \Rightarrow \frac{-1}{\omega} \Rightarrow (-\infty, -1) = \text{I}$$

$$f(n) = \sqrt{(a+r)n^r + an + b}$$

$$D_f = (-\infty, 3]$$

$$\frac{r}{\omega} + \frac{1}{\omega}$$

جدول تعیین علامت
مربعاً به این تابع ضرب است

$$\Rightarrow a + r = 0 \Rightarrow a = -r$$

$$n \leq \frac{b}{r}$$

$$\frac{b}{r} = 3 \Rightarrow b = 9$$

$$f(n) = \sqrt{n^2 r_n + r - m^2}$$

$$\text{درستی مقدار} = 1$$

$$\text{درستی مقدار} = -1$$

$$\Rightarrow 1 - (-1) = 2$$

$$\Sigma - \Sigma(1)(r - m^2) = 0$$

$$D_f = \mathbb{R} \Rightarrow n^2 + r_n + r - m^2 \geq 0$$

$$\Rightarrow \Delta = 0 \Rightarrow \text{دارای ریشه مضاعف}$$

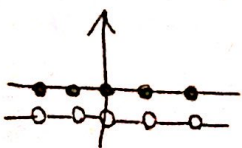
$$\Sigma - 1 + \Sigma m^2 = 0$$

$$\Sigma m^2 = \Sigma$$

$$m^2 = 1 \Rightarrow m = \pm 1$$

$$f(n) = \sqrt{\Sigma - n^2}$$

$$\Sigma - n^2 \geq 0 \Rightarrow n^2 \leq \Sigma \Rightarrow -\sqrt{\Sigma} \leq n \leq \sqrt{\Sigma} = \text{I}$$



$$[n] + [-n] + 1 \neq 0 \Rightarrow n \in \mathbb{Z} - \{0\} = \text{II}$$

$$\text{I} \cap \text{II} = \{-2, -1, 1, 2\} \Rightarrow \text{مجموعه}$$

$$\text{الف) } \begin{array}{r} 2n^3 + 12n^2 - 12n + 12 \mid n-1 \\ - 2n^3 + 12n^2 \\ \hline \end{array}$$

تقسیم سؤال 1

$$\begin{array}{r} 2n^3 - 12n + 12 \\ - 2n^3 + 12n \\ \hline 12n - 12 \\ + 12n - 12 \\ \hline 0 \quad 0 \end{array}$$

$$\text{ب) } \begin{array}{r} 2n^3 + 9n^2 + 10n + 12 \mid n+1 \\ - 2n^3 - 2n^2 \\ \hline \end{array}$$

$$\begin{array}{r} 2n^3 + 9n^2 + 10n + 12 \\ - 2n^3 - 2n^2 \\ \hline 11n^2 + 10n + 12 \\ - 11n^2 - 11n \\ \hline 21n + 12 \\ - 21n - 21 \\ \hline 0 \quad 0 \end{array}$$

$$\begin{array}{r} n^3 - 2n^2 + 2n - 1 \mid n-1 \\ - n^3 + n^2 \\ \hline \end{array}$$

تقسیم سؤال 2

$$\begin{array}{r} - n^3 + 2n^2 + 2n - 1 \\ + n^3 - n^2 \\ \hline \end{array}$$

$$\begin{array}{r} n^2 - 2n + 1 \\ - n^2 + n \\ \hline 0 \quad 0 \end{array}$$