

برای این

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$$\text{الف) } y = \frac{n+r}{r n^3 + 3 n^2 - 1 n + r} \rightarrow \frac{n+r}{(r n^2 + \omega n - r)(n-1)}$$

$$\begin{array}{r|l} r n^3 + 3 n^2 - 1 n + r & n-1 \\ - r n^3 + r n^2 & \\ \hline \omega n^2 - 1 n + r & \\ - \omega n^2 + \omega n & \\ \hline - 3 n + r & \\ + 3 n + r & \\ \hline 0 & \end{array}$$

$$r n^2 + \omega n - r = 0 \rightarrow \Delta = \omega^2 - 4(r)(-r) = \varepsilon^2 \rightarrow$$

$$n = \frac{-\omega \pm \sqrt{\varepsilon^2}}{r} \rightarrow \begin{cases} n = -3 \\ n = \frac{1}{r} \end{cases}$$

$$n-1=0 \rightarrow n=1$$

$$n \in \mathbb{R} - \left\{ \frac{1}{r}, -3, 1 \right\}$$

$$\text{ب) } y = \frac{n+r}{r n^3 + 9 n^2 + 10 n + r} \rightarrow \frac{n+r}{(n+1)(r n^2 + \nu n + r)}$$

$$\begin{array}{r|l} r n^3 + 9 n^2 + 10 n + r & n+1 \\ - r n^3 + r n^2 & \\ \hline \nu n^2 + 10 n + r & \\ - \nu n^2 + \nu n & \\ \hline 3 n + r & \\ - 3 n + r & \\ \hline 0 & \end{array}$$

$$n+1=0 \rightarrow n=-1$$

$$r n^2 + \nu n + r = 0 \rightarrow$$

$$\Delta = \varepsilon^2 - 4(r)(r) = \nu^2$$

$$n = \frac{-\nu + \varepsilon}{\varepsilon} = -\frac{1}{r}$$

$$n \in \mathbb{R} - \left\{ -3, -1, -\frac{1}{r} \right\}$$

$$n = \frac{-\nu - \varepsilon}{\varepsilon} = -3$$

پریامینی

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$$\text{الف)} \quad \frac{x+3}{x^3-2x^2+2x-1} \rightarrow \frac{x+3}{(x^2-x+1)(x-1)}$$

$$\begin{array}{r|l} x^3-2x^2+2x-1 & x-1 \\ -x^3+x^2 & \\ \hline -x^2+2x-1 & \\ +x^2-x & \\ \hline -x-1 & \\ +x-1 & \\ \hline 0 & \end{array}$$

$$x^2-x+1=0 \rightarrow \Delta < 0 \text{ جواب ندارد}$$

$$x-1=0 \rightarrow x=1$$

$$x \in \mathbb{R} - \{1\}$$

$$\rightarrow y = \sqrt{\frac{x+3}{x^3-2x^2+2x-1}}$$

$$(x^2-x+1)(x-1)=0 \rightarrow x=1, \quad x^2-x+1=0 \rightarrow \text{جواب ندارد}$$

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

$L > \Delta < 0$
همواره مثبت

$$\frac{-3}{+0} \quad \frac{1}{-0+}$$

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

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

$$n^2 - \omega |n-1| - 2n + \omega \geq 0 \rightarrow n^2 - 2n + 1 - \omega |n-1| + \epsilon = 0$$

$$\underbrace{(n-1)^2}_t - \omega \underbrace{|n-1|}_t + \epsilon = 0 \rightarrow t^2 - \omega t + \epsilon \geq 0 \quad \begin{cases} t=1 \\ t=2 \end{cases}$$

$$|n-1| \geq 1 \rightarrow n-1 \geq 1 \rightarrow n \geq 2$$

$$n-1 \geq -1 \rightarrow n \geq 0$$

$$|n-1| \leq \epsilon \rightarrow n-1 \leq \epsilon \rightarrow n \leq \omega$$

$$n-1 \leq -\epsilon \rightarrow n \leq -2$$

$$D \supset \mathbb{R} - \{-2, 0, 2, \omega\}$$

$$\text{الف) } y = \frac{n+2}{|2n+1| - |n+2|} \rightarrow \overbrace{|2n+1|}^+ - \overbrace{|n+2|}^+ \geq 0 \rightarrow$$

$$|2n+1| \geq |n+2| \xrightarrow{\text{مربع}} 4n^2 + 4 + 4n \geq n^2 + 4 + 4n \rightarrow$$

$$3n^2 - 2n - 1 \geq 0 \xrightarrow{\text{ac}} n^2 - 2n - 2 \geq 0 \rightarrow (n-4)(n+2) \geq 0 \rightarrow$$

$$n \geq \frac{4}{3} \geq 2, \quad n \leq -\frac{2}{3}$$

$$D \supset \mathbb{R} - \left\{ -\frac{2}{3}, 2 \right\}$$

پہلے اسٹی

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$$\rightarrow \sqrt{|2n+1| - |n+3|} \rightarrow |2n+1| - |n+3| \geq 0 \rightarrow$$

$$|2n+1| \geq |n+3| \rightarrow \{n^2+1+\varepsilon n \geq n^2+9+4n \rightarrow$$

$$3n^2 - 2n - 8 \geq 0$$

$$\frac{-\frac{-2}{3} \pm \sqrt{\frac{4}{9} - 4 \cdot (-8)}}{2 \cdot 3} \rightarrow$$

$$D = (-\infty, -\frac{2}{3}] \cup [2, +\infty)$$

-ω

$$\text{مثلاً } y = \log_r \left(\frac{1 - \log_r n}{r} \right) \rightarrow 1 - \log_r n > 0 \rightarrow 1 > \log_r n \rightarrow r > n$$

$$n > 0 \rightarrow D = (0, r)$$

$$\rightarrow y = \log_r \left(\frac{1 - \log_{\frac{1}{r}} n}{\frac{1}{r}} \right) \rightarrow 1 - \log_{\frac{1}{r}} n > 0 \rightarrow 1 > \log_{\frac{1}{r}} n \rightarrow n > \frac{1}{r}$$

$$n > 0 \rightarrow D = \left(\frac{1}{r}, +\infty \right)$$

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$$f(n) = \sqrt{\log_{\frac{1}{r}}^{\log_{\omega}^{(r-1)}}} \rightarrow r-1 > 0 \rightarrow r > 1 \rightarrow n > \frac{1}{r}$$

$$\log_{\omega}^{r-1} > 0 \rightarrow r-1 > 1 \rightarrow r > 2 \rightarrow n > 1$$

$$\log_{\frac{1}{r}}^{\log_{\omega}^{(r-1)}} \geq 0 \rightarrow \log_{\omega}^{(r-1)} \geq 1 \rightarrow r-1 \geq 1 \rightarrow r \geq 2 \rightarrow$$

$$n > r$$

$$D = (-\infty, r]$$

پریامینی

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$$\text{الف) } \log(x \cos n + 1) \rightarrow x \cos n + 1 > 0 \rightarrow x \cos n > -1 \rightarrow$$

$$\cos n > -\frac{1}{x}$$

$$D \rightarrow xk\pi + \frac{x\pi}{3} < n < xk\pi + \frac{5x\pi}{3}$$

$$\Rightarrow \sqrt{\log \frac{n-1}{n+1}} \rightarrow n+1 \geq 0 \rightarrow n \geq -1$$

$$\log \frac{n-1}{n+1} \geq 0 \rightarrow \frac{n-1}{n+1} \geq 1 \rightarrow \frac{-2}{n+1} \geq 0 \rightarrow n < -1$$

$$\frac{n-1}{n+1} > 0 \rightarrow \frac{-1-1}{+4-4+} \rightarrow (-\infty, -1) \cup (1, +\infty)$$

$$D \rightarrow n \in (-\infty, -1)$$

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$$f(n) \sqrt{(a+x)n^2 + an + b} \quad (-\infty, 3]$$

$$\hookrightarrow \text{کجی} \rightarrow a+x=0 \rightarrow a=-x$$

$$-xm + b \geq 0 \rightarrow b \geq xm \rightarrow \frac{b}{x} \geq m \rightarrow \frac{b}{x} \geq 3 \rightarrow b \geq 4$$

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$$f(n) = \sqrt{n^2 + 2n + 2 - m^2} \quad D: \mathbb{R}$$

$$n^2 + 2n + 2 - m^2 \geq 0 \rightarrow \underbrace{n^2 + 2n + 1}_{(n+1)^2} + 1 - m^2 \geq 0 \rightarrow$$

$$\min((n+1)^2 + 1 - m^2) = 1 - m^2 \geq 0 \rightarrow m^2 \leq 1 \rightarrow \underset{\min}{-1} \leq m \leq \underset{\max}{1} \rightarrow$$

$$1 - (-1) = 2 \quad \text{افتلاف}$$

پیرا امینی

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$$f(n) = \frac{\sqrt{4-n^2}}{[n] + [-n] + 1} \rightarrow 4 - n^2 \geq 0 \Rightarrow 4 \geq n^2 \Rightarrow -2 \leq n \leq 2$$

این عبارت همیشه برای n غلط صحیح برابر صفر و به ازای

n صحیح نابرابر صفر می شود.

اعداد صحیح دایره $\leftarrow \underbrace{-2, -1, 0, 1, 2}_{\text{۵ عدد}}$