

الف) $y = \frac{n+3}{2n^3+2n^2-1n+3} \Rightarrow 2n^3+2n^2-1n+3 \neq 0 \Rightarrow$ بخشیم بر $(n-1)$

$$\begin{array}{r} 2n^3+2n^2-1n+3 : n-1 = 2n^2+3n-2 \\ \underline{2n^3-2n^2} \\ 4n^2-1n+3 \\ \underline{4n^2-4n} \\ 3n+3 \\ \underline{3n-3} \\ 6 \end{array}$$

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

$\begin{matrix} n=1 \\ n+2 = -2 \\ n = -1 \end{matrix} \Rightarrow D_y = \mathbb{R} - \{-1, 2\}$

ب) $y = \frac{n+3}{2n^3+9n^2+10n+3} \Rightarrow 2n^3+9n^2+10n+3 \neq 0 \Rightarrow$ بخشیم بر $(n+1)$

الف) $\frac{n+3}{n^3-2n^2+2n-1} \Rightarrow n^3-2n^2+2n-1 \neq 0 \Rightarrow$ بخشیم بر $(n-1)$

ب) $\sqrt{\frac{n+3}{n^3-2n^2+2n-1}} \Rightarrow n^3-2n^2+2n-1 \neq 0 \Rightarrow$ بخشیم بر $(n-1)$

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

$D_y = \mathbb{R} - \{-3, 0, 2, \omega\}$

$y = \frac{2}{n^2-\omega(n-1)-2n+\omega} \Rightarrow$

$n^2-\omega(n-1)-2n+\omega = 0 \Rightarrow n^2-(\omega+2)n+(\omega+1) = 0$

$n > 1 \rightarrow (n-2)(n-\omega) = 0 \Rightarrow n=2, n=\omega$

$n < 1 \rightarrow n(n+3) = 0 \Rightarrow n=0, n=-3$

الف) $y = \sqrt{[n]-2} \Rightarrow \sqrt{[n]-2} > 0 \Rightarrow [n]-2 > 0 \Rightarrow [n] > 2 \Rightarrow$

$n < -2 \quad D_y = (-\infty, -2]$

ب) $y = \frac{\omega n^2+2}{[n]^2-2[n]-3} \Rightarrow [n]^2-2[n]-3 \neq 0 \Rightarrow ([n]-3)([n]+1) \neq 0$

$[n] \neq 3 \quad [n] \neq -1$

$D_y = \mathbb{R} - ([3, 4) \cup (-2, -1])$

الف) $y = \sqrt{[n-\frac{1}{2}]+[n+\frac{1}{2}]} = \sqrt{[n-\frac{1}{2}]+[n+\frac{1}{2}]-1} = \sqrt{[n]+[n]+1-1} = \sqrt{2[n]}$

$[n-\frac{1}{2}]+[n+\frac{1}{2}] \geq 0 \Rightarrow D_y = \mathbb{R} \Rightarrow \frac{1}{2} \Rightarrow D_y = [\frac{1}{2}, +\infty)$

ب) $y = \sqrt{[n-\frac{1}{2}]+[n+\frac{1}{2}]} \Rightarrow [n-\frac{1}{2}]+[n+\frac{1}{2}] \geq 0 \Rightarrow$

$D_y = \mathbb{Z}$

$$\textcircled{1} \text{ v) } \frac{Yx^r + 9x^r + 10x + r}{1x^r + 1x^r} \mid x+1 \rightarrow \boxed{x=-1}$$

$$\frac{Yx^r + 10x}{Yx^r + 1x^r} \mid x+1 \rightarrow x^r + 10x + r = 0 \Rightarrow (x+4)(x+1) \rightarrow$$

$$D_y = \mathbb{R} - \{-1, -\frac{1}{4}, r\}$$

$x_1 = -1$
$x_2 = -\frac{1}{4} + r$
$x_3 = -\frac{1}{4} - \frac{1}{4}$

$$\textcircled{2} \text{ a) } \frac{x^r - 1x^r + 1x_{n-1}}{x^r - x^r} \mid x-1 \rightarrow \boxed{x=1}$$

$$\frac{-x^r + 1x}{-x^r + x} \mid x-1 \rightarrow x - x - 1 = 0 \Rightarrow x_{1,r} = \pm \frac{1 \pm \sqrt{5}}{2}$$

$$D_y = \mathbb{R} - \left\{1, \frac{1+\sqrt{5}}{2}, \frac{1-\sqrt{5}}{2}\right\}$$

$$\textcircled{3} \text{ b) } \frac{x^r - 1x^r + 1x_{n-1}}{x^r - 1x^r + 1x_{n-1}} \mid x-1 \rightarrow \boxed{x=1}$$

$$\frac{0}{0} \mid x-1 \rightarrow x^r - x - 1 \Rightarrow x_1, x_2 = \frac{1 \pm \sqrt{5}}{2}$$

$$D_y = \mathbb{R} - \left\{1, \frac{1+\sqrt{5}}{2}, \frac{1-\sqrt{5}}{2}\right\}$$

$$\frac{x+r \rightarrow x=r}{x^r - 1x^r + 1x_{n-1}} \mid x-1 \rightarrow \frac{-r}{0} \mid x-1 \rightarrow \frac{1}{0} \mid x-1 \rightarrow \frac{1+\sqrt{5}}{2}$$

$$\Rightarrow D_y = (-\infty, -r] \cup (1, +\infty)$$

الف) $y = \frac{\cot x + 1}{\tan x + 1} \Rightarrow \begin{cases} \cot x \neq 0 \Rightarrow \text{تعریف نشده} \\ \tan x \neq k\pi + \frac{\pi}{2} \Rightarrow \text{تعریف نشده} \\ x \neq k\pi - \frac{\pi}{4} \Rightarrow \text{مضرب صفر} \end{cases} \Rightarrow D_y = \mathbb{R} - \left\{ k\pi, k\pi + \frac{\pi}{2}, k\pi - \frac{\pi}{4} \right\}$

ب) $y = \sqrt{1 - \epsilon \sin^2 x} \Rightarrow 1 - \epsilon \sin^2 x \geq 0 \Rightarrow \epsilon \sin^2 x \leq 1 \Rightarrow \sin^2 x \leq \frac{1}{\epsilon}$
 $\frac{1}{\epsilon} \leq \sin^2 x \leq \frac{1}{\epsilon} \Rightarrow D_y = \left(k\pi + \frac{\pi}{4}, 2k\pi + \frac{\pi}{4} \right)$

الف) $y = \sqrt{2 \sin x - 1} \Rightarrow 2 \sin x - 1 \geq 0 \Rightarrow \sin x \geq \frac{1}{2} \Rightarrow \sin x \geq \frac{1}{2} \Rightarrow D_y = \left(2k\pi + \frac{\pi}{6}, 2k\pi + \frac{5\pi}{6} \right)$

ب) $y = \sqrt{1 - 2 \cos x} \Rightarrow 1 - 2 \cos x \geq 0 \Rightarrow \cos x \leq \frac{1}{2} \Rightarrow D_y = \left(2k\pi + \frac{2\pi}{3}, 2k\pi + \frac{4\pi}{3} \right)$

الف) $y = \arcsin(x^2 + 2x + 1) \Rightarrow \begin{cases} x^2 + 2x + 1 \leq 1 \\ -1 \leq x^2 + 2x + 1 \leq 1 \end{cases} \Rightarrow \begin{cases} x(x+2) \leq 0 \\ x^2 + 2x \leq 0 \end{cases} \Rightarrow \begin{cases} x \in [-2, 0] \\ x \in [-2, 0] \end{cases} \Rightarrow D_y = [-2, 0]$

ب) $\cos y = \sqrt{5 - 2x} \Rightarrow \begin{cases} 5 - 2x \leq 1 \\ 0 \leq 5 - 2x \leq 1 \end{cases} \Rightarrow \begin{cases} x \geq 2 \\ x \leq \frac{5}{2} \end{cases} \Rightarrow D_y = [2, \frac{5}{2}]$

الف) $y = \log_y(1 - \log_x^n)$
 $D_y = (0, 1) \cap (0, 1) \Rightarrow D_y = (0, 1)$

ب) $y = \log_y(1 - \log_{\frac{1}{y}}^n)$
 $\log_{\frac{1}{y}}^n \neq 0 \Rightarrow 0 < n < 1$

الف) $y = \sqrt{\frac{\epsilon x - n^2}{x^2 - 1}} \Rightarrow \frac{\epsilon x - n^2}{x^2 - 1} \geq 0 \Rightarrow \frac{\epsilon x - n^2}{x^2 - 1} \geq 0 \Rightarrow \epsilon x \geq n^2 \Rightarrow x \geq \frac{n^2}{\epsilon}$
 $x - \epsilon x + 1 \geq 0 \Rightarrow A = \frac{\epsilon x - 1}{x} = \frac{(x-1)(x-1)}{x} \Rightarrow \frac{1}{x} - \frac{1}{x} + \frac{1}{x} \Rightarrow D_y = (-\infty, 1] \cup [\frac{1}{\epsilon}, +\infty)$

ب) $y = \left(\frac{x + \omega}{x + \epsilon} \right)!$
 $\frac{x + \omega}{x + \epsilon} \in \mathbb{N} \Rightarrow x + \omega = K(x + \epsilon) \Rightarrow x + \omega = Kx + K\epsilon$

$x + \epsilon \neq 0 \Rightarrow x \neq -\epsilon \rightarrow$ چون ω هست جزء شده

بیشتر صفر

$$① \vee) 0 \leq \omega - r_m \leq 1 \Rightarrow$$

$$r_m \leq \omega$$

$$n \leq r_m \omega$$

$$r_m > \omega \Rightarrow n > r_m$$

$$D_y = [r, r, \omega]$$

$$② \vee) r_m - r_k n = f_k - \omega \Rightarrow n(r - r_k) = f_k - \omega \Rightarrow n = \frac{f_k - \omega}{r - r_k}$$

$$D_y = \left\{ \frac{f_k - \omega}{r - r_k} \mid k \in W \right\}$$