

$$\begin{array}{l} \text{c) } 5x^3 + 9x^2 + 10x + 4 \mid x+1 \\ \underline{-(x^3 + x^2 + x + 1)} \\ 4x^3 + 8x^2 + 9x + 3 \\ \underline{-(4x^3 + 4x^2 + 4x + 4)} \\ 4x^2 + 5x - 1 \\ \underline{-(4x^2 + 4x + 4)} \\ x - 5 \\ \underline{-(x + 1)} \\ -6 \end{array}$$

$$\rightarrow D_f: \mathbb{R} = \{-1, -\frac{1}{2}, -\frac{1}{4}\}$$

$$x^2 - 2x + 1 = \underbrace{(x-1)}_{x=1} \underbrace{(x^2 - x + 1)}_{\Delta < 0}$$

$$\Rightarrow D_f \supset \mathbb{R} - \{1\}$$

$$D_f \subset \mathbb{R} = \{0, -1, 2, 1\}$$

$$\therefore |x+1| \geq |x+c| \rightarrow cx^2 - rx - 1 \geq 0 \rightarrow \frac{-\frac{r}{c} \pm \sqrt{\frac{r^2}{c^2} + 4}}{2} \Rightarrow D_f = (-\infty, -\frac{r}{c}] \cup [\frac{r}{c}, \infty)$$

b) $1 - \log \frac{x}{\frac{1}{\sqrt{e}}} > 0 \rightarrow \log \frac{x}{\frac{1}{\sqrt{e}}} < 1 \Rightarrow x > \frac{1}{\sqrt{e}} \Rightarrow D_f > (\frac{1}{\sqrt{e}}, +\infty)$

$$\left. \begin{aligned} r_x - 1 > 0 &\rightarrow x > \frac{1}{r} \\ \log_{\Delta} (r_x - 1) > 0 &\rightarrow r_x - 1 > 1 \rightarrow x > 1 \\ \log_{\frac{1}{\Delta}} (\log_{\Delta} (r_x - 1)) \geq 0 &\rightarrow \log_{\Delta} (r_x - 1) \leq 1 \Rightarrow x \leq r \end{aligned} \right\} \Rightarrow D_f = (1, 3]$$

الف) $2\cos x + 1 > 0 \rightarrow \cos x > -\frac{1}{2}$



$D_f = \left(12k\pi - \frac{2\pi}{3}, 12k\pi + \frac{2\pi}{3}\right)$

ب) $\frac{x-1}{x+1} > 0 \rightarrow \frac{-1}{+3 - 4} \rightarrow \log\left(\frac{x-1}{x+1}\right) > 0 \rightarrow \frac{x-1}{x+1} \geq 1 \Rightarrow x < -1$
 $\Rightarrow D_f \text{ s } (-\infty, -1)$

$a+r > 0 \rightarrow a > -r$

$(c-x)^2(a+r) \leq b+ax+x^2(r+a)$

یعنی در بازه $[-\infty, \infty]$ عبارت زیرمقادیر منفی است

$= 9(r+a) + 9x(r+a) - (r+a)x^2 \rightarrow a = -\frac{11}{5} \leftarrow -(r+a)4 = 9 \rightarrow b \leq 9(a+r) = \frac{11}{5}$

$b^2 - 4ac < 0 \rightarrow \frac{4}{f} + fm^2 < 0$

یعنی عبارت همواره مثبت بوده است $\Delta < 0$ و $a > 0$

$\Rightarrow m^2 < 1 \Rightarrow -1 < m < 1 \rightarrow 1 - (-1) \text{ و } 1 + 1 = 2$
 بیشترین و کمترین

① $(r-x)(r+x) \geq 0 \rightarrow \frac{-r \quad r}{- \quad + \quad -} \Rightarrow D_1 \text{ s } [-r, r]$

② $[x] + [-x] + 1 \rightarrow \begin{cases} x \in \mathbb{Z} \Rightarrow 1 \\ x \notin \mathbb{Z} \Rightarrow 0 \end{cases} \Rightarrow \text{خرج هرگز منفی نمیشود} \Rightarrow D_2 \text{ s } \mathbb{R}$

$D_f \text{ s } D_1 \cap D_2 \text{ s } [-r, r] \rightarrow 2 \text{ داده } -1 \text{ و } -2 \Rightarrow 5 \text{ عدد صحیح هستند}$