

الف) $\frac{x+3}{(x-1)(2x-1)(x+3)} \rightarrow \frac{-3}{+} + \frac{1}{+} + \frac{1}{-} \rightarrow D_f = \mathbb{R} - \left\{1, \frac{1}{2}, -3\right\}$

ب) $\frac{x+3}{(2x+1)(x+3)(x+1)} \rightarrow D_f = \mathbb{R} - \left\{-1, -3, -\frac{1}{2}\right\}$

الف) $\frac{x+3}{(x-1)(x^2-x+1)} \rightarrow D_f = \mathbb{R} - \{1\}$
 ریشه نمی دهد $\Delta < 0$

ب) $\frac{x+3}{(x-1)(x^2-x+1)} \geq 0 \rightarrow \frac{-3}{+} + \frac{1}{-} + \frac{1}{+} \rightarrow D_f = (-\infty, -3] \cup (1, +\infty)$
 ریشه نمی دهد $\Delta < 0$

$x^2 - \Delta |x-1| - 2x + \Delta \neq 0 \rightarrow \text{اگر } x \gg 1 \rightarrow (x-2)(x-\Delta) \neq 0$
 $\boxed{x \neq 2 \text{ و } \Delta} \leftarrow x(x+3) \neq 0 \leftarrow x < 1$
 $\boxed{x \neq 0 \text{ و } -3}$
 $\rightarrow D_f = \mathbb{R} - \{0, -3, 2, \Delta\}$

الف) $|2x+1| \neq |x+3| \rightarrow 4x^2+4x+1 \neq x^2+6x+9$
 $D_f = \mathbb{R} - \left\{2, -\frac{4}{3}\right\} \leftarrow (x-2)(3x+4) \neq 0 \leftarrow 3x^2-2x-8 \neq 0$

ب) $|2x+1| \geq |x+3| \rightarrow 4x^2+4x+1 \geq x^2+6x+9 \rightarrow 3x^2-2x-8 \geq 0$
 $D_f = (-\infty, \frac{4}{3}] \cup [2, +\infty) \leftarrow \frac{-4}{+} + \frac{2}{-} + \frac{2}{+} \leftarrow (x-2)(3x+4) \geq 0$

الف) $1 - \log \frac{x}{3} > 0 \rightarrow \log \frac{x}{3} < 1 \rightarrow x < 3$
 $x > 0 \rightarrow D_f = (0, 3)$

ب) $1 - \log \frac{x}{\frac{1}{2}} > 0 \rightarrow \log \frac{x}{\frac{1}{2}} < 1 \rightarrow x > \frac{1}{2} \text{ و } x > 0 \rightarrow D_f = (\frac{1}{2}, +\infty)$

$$\textcircled{\text{I}} \quad 2x-1 > 0 \rightarrow x > \frac{1}{2}, \quad \textcircled{\text{II}} \quad \log_{\Delta}^{2x-1} > 0 \rightarrow 2x-1 > 1 \rightarrow x > 1$$

$$\textcircled{\text{III}} \quad \log_{\frac{1}{\Delta}} \log_{\Delta}^{2x-1} \geq 0 \rightarrow \log_{\Delta}^{2x-1} \leq 1 \rightarrow 2x-1 \leq \Delta \rightarrow x \leq 3$$

$$D_f = \textcircled{\text{I}} \cap \textcircled{\text{II}} \cap \textcircled{\text{III}} = (1, 3]$$

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



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

$$\text{ب) } \log \frac{x-1}{x+1} \geq 0 \rightarrow \frac{x-1}{x+1} > 0 \rightarrow x \in (-\infty, -1) \cup (1, +\infty)$$

$$\frac{x-1}{x+1} > 1 \rightarrow \frac{-2}{x+1} \geq 0 \rightarrow x \in (-\infty, -1) \quad \textcircled{\text{I}}$$

$$D_f = \textcircled{\text{I}} \cap \textcircled{\text{II}} = (-\infty, -1)$$

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$$a+2=0 \rightarrow a=-2, \quad -2x+b \geq 0 \rightarrow 2x \leq b \rightarrow x \leq \frac{b}{2}$$

$$b=9 \leftarrow \frac{b}{2} = 3$$

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$$f - f(2-m^2) \leq 0 \rightarrow f - 1 + fm^2 \leq 0 \rightarrow f(m+1)(m-1) \leq 0$$

$$m \in [-1, 1] \leftarrow \frac{-1}{+1-1} \quad \leftarrow$$

$$|1+1|=2$$

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$f - x^2 \geq 0 \rightarrow x^2 \leq f \rightarrow -2 \leq x \leq 2$ و $[x] + [-x] \rightarrow$ اعداد صحیح متضاد را میسر نمی‌کنند.
برای اعداد صحیح $\leftarrow 0$
برای اعداد غیر صحیح $\leftarrow -1$

$$D_f = [-2, 2] \leftarrow \text{اعداد صحیح در دامنه‌ی تابع قرار دارند.}$$

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