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

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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 $\Delta < 0$

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

$\rightarrow D_f = \mathbb{R} - \{0, -3, 2, \Delta\}$

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

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

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

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

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

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

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

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



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

$$\frac{x-1}{x+1} > 0 \xrightarrow{x \in (-\infty, -1) \cup (1, +\infty)} \textcircled{\text{I}}$$

ب) $\log_{\frac{1}{2}} \frac{x-1}{x+1} \geq 0 \rightarrow \frac{x-1}{x+1} \geq 1 \rightarrow \frac{-2}{x+1} \geq 0 \rightarrow x \leq -1$

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

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

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

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

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

$$|k+1|=2$$

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

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