

الف) $2x^3 + 3x^2 - 8x + 3 \neq 0$

$2x^3 + 3x^2 - 8x + 3 \mid x-1$
 $2x^2 + 5x - 3$

$2x^2 + 5x - 3 \Rightarrow x = \frac{-5 \pm \sqrt{25 + 24}}{4} = \frac{-5 \pm 7}{4}$
 $\Rightarrow x = \frac{1}{2}, -3$

$Df = R - \{-3, \frac{1}{2}, 1\}$

ب) $2x^3 + 9x^2 + 10x + 3 \neq 0$

$2x^3 + 9x^2 + 10x + 3 \mid x+1$
 $2x^2 + 7x + 3 \Rightarrow x = \frac{-7 \pm \sqrt{49 - 24}}{4} = \frac{-7 \pm 5}{4}$
 $\Rightarrow x = -3, -\frac{1}{2}$

$Df = R - \{-3, -\frac{1}{2}, 1\}$

الف) $x^3 - 2x^2 + 2x - 1 \neq 0 \rightarrow x^3 - 2x^2 + 2x - 1 \mid x-1$
 $x^2 - x + 1$
 $\Rightarrow Df = R - \{1\}$

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ب) $\frac{x+3}{x^3 - 2x^2 + 2x - 1} \geq 0$
 $x^3 - 2x^2 + 2x - 1 \mid x-1$
 $x^2 - x + 1$
 $\Rightarrow Df = (-\infty -3] \cup (1 + \infty)$

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$x^2 - 5|x-1| - 2x + 5 \neq 0$

$x=0 \Rightarrow x^2 - 5|x-1| - 2x + 5 = 0$

$\Rightarrow Df = R - \{0\}$

الف) $|2x+1| - |x+3| \neq 0 \Rightarrow |2x+1| \neq |x+3|$

if $x \geq 0 \Rightarrow 2x+1 \neq x+3 \Rightarrow x-2 \neq 0 \Rightarrow x \neq 2$

if $x < 0 \Rightarrow -2x-1 \neq -x-3 \Rightarrow x \neq 2 \Rightarrow Df = R - \{2\}$

ب) $|2x+1| - |x+3| \geq 0$
 $\begin{cases} 2x+1 \geq x+3 \Rightarrow x \geq 2 \text{ if } x \geq 0 \rightarrow A \\ -2x-1 \geq -x-3 \Rightarrow -x+2 \geq 0 \Rightarrow x \leq 2 \text{ if } x < 0 \rightarrow B \end{cases}$
 $A \cap B \Rightarrow Df = \{2\}$

الف) $x > 0 \rightarrow A$
 $1 - \log_2 x > 0 \Rightarrow \log_2 x < 1 \Rightarrow x < 2 \rightarrow B$
 $A \cap B \rightarrow Df = (0, 2)$

ب) $x > 0 \rightarrow A$
 $1 - \log_2 \frac{1}{x} > 0 \Rightarrow \log_2 \frac{1}{x} < 1 \Rightarrow x > \frac{1}{2} \rightarrow B$
 $A \cap B \rightarrow Df = (\frac{1}{2}, +\infty)$

$$x-1 > 0 \Rightarrow x > 1 \Rightarrow x > \frac{1}{x} \rightarrow A$$

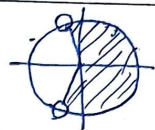
$$\log_{\frac{1}{2}}(x-1) > 0 \Rightarrow x-1 > 1 \Rightarrow x > 2 \Rightarrow x > 1 \rightarrow B$$

$$\log_{\frac{1}{2}}(\log_{\frac{1}{2}}(x-1)) \geq 0 \Rightarrow \log_{\frac{1}{2}}(x-1) \leq 1 \Rightarrow x-1 \leq 2 \Rightarrow x \leq 3$$

$$\Rightarrow x \leq 3 \rightarrow C \Rightarrow A \cap B \cap C \rightarrow Df = (1, 3]$$

ان) $2\cos x + 1 > 0 \Rightarrow \cos x > -\frac{1}{2}$

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



بـ) $x+1 \neq 0 \Rightarrow x \neq -1 \rightarrow A$ $\frac{x-1}{x+1} > 0 \Rightarrow \frac{-1}{-1-1} \rightarrow B$

$$\log \frac{x-1}{x+1} \geq 0 \Rightarrow \frac{x-1}{x+1} \geq 1 \Rightarrow \frac{x-1-x-1}{x+1} \geq 0 \Rightarrow \frac{-2}{x+1} \geq 0$$

$$\frac{-2}{x+1} \geq 0 \Rightarrow x+1 < 0 \Rightarrow x < -1 \rightarrow C$$

$$\xrightarrow{A \cap B \cap C} Df = (-\infty, -1)$$

$$Df = (-\infty, 2] \Rightarrow \text{نقطه } a+2=0 \Rightarrow a=-2$$

$$x=2 \rightarrow \sqrt{-9+b}=0 \Rightarrow b=9$$

$$Df = R \Rightarrow \Delta \leq 0 \Rightarrow f - f(1-m^2) \leq 0 \Rightarrow$$

$$f - 1 + fm^2 \leq 0 \Rightarrow fm^2 - f \leq 0$$

$$\Rightarrow m = \begin{cases} -1 \rightarrow \min \\ 1 \rightarrow \max \end{cases}$$

$$1 - (-1) = 2$$

$$f - x^2 \geq 0 \Rightarrow x^2 \leq f \Rightarrow x^2 - f \leq 0$$

$$\frac{-f \pm \sqrt{f^2}}{+f-f} \Rightarrow -f \leq x \leq f \rightarrow A$$

if $x \in \mathbb{Z} \Rightarrow [x] + [x] + 1 = 1$ ✓

if $x \notin \mathbb{Z} \Rightarrow [x] + [-x] + 1 = 0$ ✗

$$[x] + [-x] + 1 \neq 0 \rightarrow B$$

$$\Rightarrow Df = \{x \mid x = k, -f \leq x \leq f, k \in \mathbb{Z}\} \Rightarrow \text{مجموعه } A$$