

الف) $2x^3 + 4x^2 - 11x + 2 \mid \frac{x-1}{2x^2+5x-3} \rightarrow (x-1)(2x^2+5x-3) \neq 0 \rightarrow (x-1)(2x-1)(x+3) \neq 0$
 $\rightarrow D = R - \{-3, \frac{1}{2}, 1\}$

ب) $2x^3 + 9x^2 + 10x + 3 \mid \frac{x+1}{2x^2+5x+3} \rightarrow (x+1)(2x^2+5x+3) \neq 0 \rightarrow (x+1)(2x+1)(x+3) \neq 0$
 $\rightarrow D = R - \{-3, -1, -\frac{1}{2}\}$

الف) $x^3 - 2x^2 + 2x - 1 \neq 0 \quad x^3 - 2x^2 + 2x - 1 \mid \frac{x-1}{x^2-x+1} \rightarrow (x-1)(x^2-x+1) \neq 0 \rightarrow x \neq 1$
 $\rightarrow D = R - \{1\}$

ب) $\frac{-x^3}{x^3-2x^2+x-1} \quad x^3 - 2x^2 + x - 1 \mid \frac{x-1}{x^2-x+1} \rightarrow (x-1)(x^2-x+1) \neq 0$
 $\rightarrow D = (-\infty, -3] \cup (1, +\infty)$

① $x^3 - \Delta(x-1) - 2x + \Delta \neq 0 \rightarrow x^3 - \Delta x + 0 - 2x + \Delta \neq 0 \rightarrow x^3 - 2x + \Delta \neq 0$
 $\rightarrow \Delta = 9 \rightarrow x = \frac{2 \pm \sqrt{4-9}}{3} \rightarrow \frac{2 \pm i\sqrt{5}}{3}$
 ② $x^3 - \Delta(1-x) - 2x + \Delta \neq 0 \rightarrow x^3 - \Delta + \Delta x - 2x + \Delta \neq 0 \rightarrow x^3 + 2x \neq 0$
 $\rightarrow \Delta = 9 \rightarrow x = \frac{-2 \pm \sqrt{4-9}}{3} \rightarrow \frac{-2 \pm i\sqrt{5}}{3}$
 $D = R - \{1, \frac{2 \pm i\sqrt{5}}{3}, \frac{-2 \pm i\sqrt{5}}{3}\}$

الف) $|2x+1| - |x+3| \neq 0 \rightarrow |2x+1| \neq |x+3| \rightarrow 4x^2+4x+1 \neq x^2+6x+9$
 $\rightarrow 3x^2-2x-8 \neq 0 \rightarrow \Delta = 4-4(-3)(-8) = 100 \rightarrow x = \frac{2 \pm 10}{6} \rightarrow \frac{12}{6}, \frac{-8}{6}$
 $\rightarrow D = R - \{-\frac{4}{3}, 2\}$

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

الف) $x > 0$ ① $1 - \log_2 x > 0 \rightarrow \log_2 x < 1 \rightarrow x < 2$ ②
 ① $\cap$ ② = $(0, 2) = D$

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

$$x-1 > 0 \rightarrow x > 1 \rightarrow x > \frac{1}{y} \quad (1)$$

$$\log_0^{y-1} > 0 \rightarrow y-1 > 1 \rightarrow y > 2 \rightarrow x > 1 \quad (2)$$

$$\log_{\frac{1}{y}} \log_0^{(y-1)} > 0 \rightarrow \log_0^{y-1} > 1 \rightarrow y-1 \geq 2 \rightarrow y \geq 3 \rightarrow x \geq 3 \quad (3)$$

$$D = 1 \cap 2 \cap 3 \rightarrow D = [3, +\infty) \quad \text{الجواب}$$

$$y \cos x + 1 > 0 \rightarrow y \cos x > -1 \rightarrow \cos x > -\frac{1}{y} \rightarrow D = \left(k\pi + \frac{\pi}{y}, k\pi + \frac{2\pi}{y} \right) \quad \text{الف) الجواب}$$

$$\frac{x-1}{x+1} > 0 \rightarrow \left| \frac{-1}{+1-1} \right| \rightarrow (-\infty, -1) \cup (1, +\infty) \quad (1)$$

$$D = (1) \cap (2) \rightarrow D = \mathbb{R} - [-1, 1] \quad \text{الجواب}$$

$$\log_{\frac{x-1}{x+1}} > 0 \rightarrow \frac{x-1}{x+1} \geq 1 \rightarrow \emptyset \quad (2)$$

$$\begin{array}{c|c} \text{موجب} & \text{سالب} \\ \hline (+) a+y & (-) a+y \end{array} \rightarrow a+y < 0 \rightarrow a < -y$$

$$x = y \xrightarrow{0=\frac{1}{y}} 9a + 18 + 3a + b = 0 \rightarrow 12a + b + 18 = 0 \rightarrow a = \frac{-18-b}{12}$$

$$a < -2 \rightarrow \frac{-18-b}{12} < -2 \xrightarrow{\times 12} -18-b < -24 \rightarrow -b < -6 \rightarrow b > 6 \quad \text{الجواب}$$

$$\Delta \leq 0 \rightarrow f(x) = x^2 - m^2 \leq 0$$

$$\Delta \leq 0, a > 0 \rightarrow \text{معادلة بايدي ناقصين بايدي موجبة}$$

$$f_m^2 - f \leq 0 \rightarrow m^2 - 1 \leq 0 \xrightarrow{\Delta=f} m = \pm \frac{y}{y} \rightarrow \left| \frac{-1}{+1-1} \right| \rightarrow D = [-1, 1]$$

$$1 - (-1) = 2 \quad \text{الجواب}$$

$$f - x^2 \geq 0 \rightarrow \Delta = 14 \rightarrow \frac{\pm f}{-r} \rightarrow \left| \frac{-2}{-1+1} \right| \rightarrow [-2, 2] \quad (1)$$

$$[x] + [-x] + 1 \neq 0 \rightarrow \text{مقلوب} \quad (2) \geq \quad D = (1) \cap (2) \rightarrow \{-2, -1, 0, 1, 2\} \quad \text{عدد صحيح}$$