

$$a - r = 0 \rightarrow a = r$$

$$(r - r)x^r + rx + b = rx + b$$

$$r(r) + b = 0 \quad b = -4$$

$$x^r + rx + r - m^r > 0$$

$$\Delta < 0 \rightarrow b^r - 4ac < 0$$

$$r - 4(r - m^r) < 0 \rightarrow r - 4 + 4m^r < 0$$

$$-4 + 4m^r < 0 \rightarrow 4m^r < 4 \rightarrow m^r < 1$$

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

$$r - x^r > 0$$

$$x^r < r \rightarrow -1 < x < 1$$

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

$$x \in \mathbb{Z} \rightarrow 1 \quad (\checkmark)$$

$$x \notin \mathbb{Z} \rightarrow 0 \quad (\times)$$

$$\rightarrow \underbrace{-1, -1, 0, 1, 2}_{\text{ممكن}}$$

الف)

$$x^r + rx^r > 0$$

$$x^r(x + r) > 0$$

$$x = 0 \quad x = -r$$

$$\begin{array}{c} -r \quad 0 \quad r \\ - \quad + \quad + \end{array}$$

$$D_f = [-r, +\infty)$$

ب)

$$\frac{(x^r - 1)(x^r - rx^r)}{x^r - 1} > 0$$

$$\frac{(x^r - 1)(x^r - rx^r)}{(x - 1)(x^r + x + 1)} > 0$$

$$\frac{(x - 1)(x + 1)(x^r)(x - r)}{(x - 1)} > 0$$

$$x^r - 1 = (x - 1)(x^r + x + 1)$$

$$\Delta = 1 - r < 0$$

$$\begin{array}{c} 1 \quad -1 \quad 0 \quad r \\ + \quad - \quad + \quad - \end{array}$$

$$D_f = (-\infty, -1] \cup \{0\} \cup [r, +\infty)$$

الف)

$$|x - r| - r > 0$$

$$|x - r| > r \rightarrow x - r > r \rightarrow x > 2r$$

$$x - r < -r \rightarrow x < 0$$

$$D_f = (-\infty, -2r] \cup [2r, +\infty)$$

$$b) \quad r - |r - x| > 0$$

$$|r - x| < r \rightarrow -r < r - x < r$$

$$-4 < -x < 4 \rightarrow -4 < x < 4$$

$$D_f = [-4, 4]$$

الف)

$$1 - x|x| > 0$$

$$x|x| < 1 \rightarrow \begin{array}{l} x < 0 \\ x > 0 \end{array} \quad \begin{array}{l} -x^r < 1 \\ x^r < 1 \end{array}$$

$$D_f = (-\infty, 1]$$

ب)

$$r - |x - a| > 0 \quad |x - a| < r \rightarrow -r < x - a < r$$

$$r - |x - a| \neq 1 \quad r < x < 1$$

$$D_f = [r, 1]$$

$$الف) \quad \cos x \neq 0$$



$$D_f = \mathbb{R} - \left\{ k\pi + \frac{\pi}{2} \right\}$$

$$ب) \quad r \cos x - 1 \neq 0$$

$$r \cos x \neq 1$$

$$\cos x \neq \frac{1}{r}$$



$$D_f = \mathbb{R} - \left\{ 2k\pi \pm \arccos\left(\frac{1}{r}\right) \right\}$$

الف)

$$|2x+1| - |x+3| \neq 0$$

$$|2x+1| \neq |x+3|$$

$$(2x+1)^2 \neq (x+3)^2 \rightarrow 4x^2 + 4x + 1 \neq x^2 + 6x + 9$$

$$3x^2 - 2x - 8 \neq 0$$

$$x^2 - 2x - 4 \neq 0$$

$$-4(4)$$

$$(x-4)(x+4) \neq 0$$

$$\frac{4}{x} = 2 \quad \frac{-4}{x}$$

$$D_f = \mathbb{R} - \left\{ -\frac{4}{x}, 2 \right\}$$

$$\Rightarrow |2x+1| - |x+3| \geq 0$$

$$|2x+1| \geq |x+3|$$

$$(2x+1)^2 \geq (x+3)^2 \rightarrow 4x^2 + 4x + 1 \geq x^2 + 6x + 9$$

$$3x^2 - 2x - 8 \geq 0 \rightarrow x^2 - 4x - 4 \geq 0$$

$$\frac{-\frac{4}{x}}{+ \Phi - \Phi +}$$

$$D_f = (-\infty, -\frac{4}{x}] \cup [2, +\infty)$$

$$2x-1 > 0$$

$$2x > 1$$

$$x > \frac{1}{2}$$

$$\log_a(2x-1) > 0$$

$$2x-1 > 1$$

$$2x > 2$$

$$x > 1$$

$$\log_{\frac{1}{a}}(2x-1) > 0$$

$$\log_a(2x-1) \leq 1$$

$$2x-1 \leq a \rightarrow 2x \leq 4$$

$$x \leq 2$$

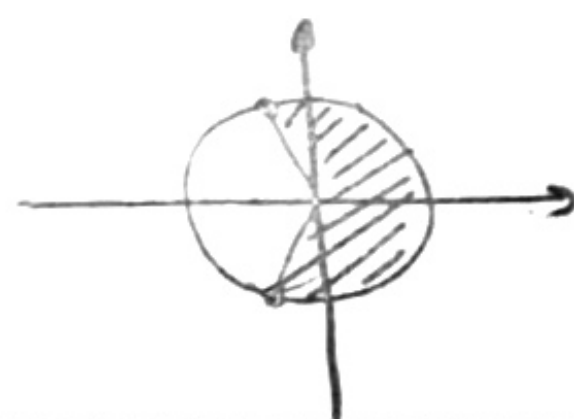
$$\cap \rightarrow 1 < x \leq 2$$

$$D_f = (1, 2]$$

$$2 \cos x + 1 > 0$$

$$2 \cos x > -1$$

$$\cos x > -\frac{1}{2}$$



$$D_f = \left[2k\pi - \frac{\pi}{3}, 2k\pi + \frac{\pi}{3} \right]$$

$$\frac{x-1}{x+1} > 0$$

$$\frac{-1}{+ \Phi - \Phi +}$$

$$(-\infty, -1) \cup (1, +\infty)$$

$$\log \frac{x-1}{x+1} > 0 \rightarrow \frac{x-1}{x+1} > 1 \rightarrow \frac{x-1}{x+1} - 1 > 0$$

$$\textcircled{10} \quad \text{lc} = \text{lim}$$

$$\frac{x-1-x-1}{x+1} > 0$$

$$\frac{-2}{x+1} > 0$$

$$x+1 < 0$$

$$x < -1$$

$$\cap \rightarrow D_f = (-\infty, -1)$$

$$(-\infty, -1)$$