

ب) دسم دسمه

د

د

الف) $\frac{\sin x - 2}{\cos x + 1} \rightarrow 2 \cos x + 1 \neq 0 \rightarrow 2 \cos x \neq -1 \rightarrow \cos x \neq -\frac{1}{2} \rightarrow \neq \frac{2\pi}{3}, \frac{4\pi}{3}$ $D = \mathbb{R} - \left\{ \frac{2\pi}{3}, \frac{4\pi}{3} \right\}$ ①

ب) $\frac{\sin x + 2}{\cos x - 1} \rightarrow \cos x - 1 \neq 0 \rightarrow \cos x \neq 1 \rightarrow \neq 0 \rightarrow D = \mathbb{R} - \{ \pi k + 2\pi \}$

الف) $\tan x + 1 \neq 0 \rightarrow \tan x \neq -1 \rightarrow \frac{\sin x}{\cos x} \neq -1 \rightarrow \cos x \neq 0 \rightarrow \frac{\pi}{2}, \frac{3\pi}{2}$ $D = \mathbb{R} - \left\{ \frac{\pi}{2}, \frac{3\pi}{2} \right\}$ ②

ب) $\cot x - 1 \neq 0 \rightarrow \cot x \neq 1 \rightarrow \frac{\cos x}{\sin x} \neq 1 \rightarrow \sin x \neq 0 \rightarrow \frac{\pi}{2}, \frac{3\pi}{2}$ $D = \mathbb{R} - \left\{ \frac{\pi}{2}, \frac{3\pi}{2} \right\}$

الف) $\sin y = x^2 - 2 \rightarrow -1 \leq x^2 - 2 \leq 1 \rightarrow 1 \leq x^2 \leq 3 \rightarrow 1 \leq x \leq \sqrt{3}$ $D = [1, \sqrt{3}] \cup [-1, -\sqrt{3}]$ ③

ب) $\arccos(\sqrt{x} - 2) \rightarrow -1 \leq \sqrt{x} - 2 \leq 1 \rightarrow 2 \leq \sqrt{x} \leq 3 \rightarrow 4 \leq x \leq 9$ $D = [4, 9]$

الف) $\cos y = |x| - 2 \rightarrow -1 \leq |x| - 2 \leq 1 \rightarrow 2 \leq |x| \leq 3 \rightarrow 2 \leq x \leq 3$ $D = [2, 3] \cup [-3, -2]$ ④

ب) $y = \arcsin(x^2 + 2x + 1) \rightarrow -1 \leq x^2 + 2x + 1 \leq 1 \rightarrow -1 \leq x^2 + 2x \leq 0 \rightarrow 0 \leq x^2 + 2x + 2 \rightarrow 0 \leq (x+1)^2 \rightarrow \frac{-2-1}{2} \leq x \leq \frac{-2+1}{2}$ $D = (-\infty, -1] \cup [0, +\infty)$

الف) $y = \log_{\frac{1}{2}}(x^2 + 2) \rightarrow x^2 + 2 > 0 \rightarrow x^2 > -2 \rightarrow x > 2$ $D = (-\infty, -2) \cup (2, +\infty)$ ⑤

ب) $\log_{\frac{1}{2}}(2 - |x|) \rightarrow 2 - |x| > 0 \rightarrow |x| < 2 \rightarrow -2 < x < 2 \rightarrow (-2, 2)$

الف) $\delta = \log_{x-1}^{a-x}$ $\left. \begin{array}{l} a-x > 0 \rightarrow x < a \\ x-1 > 0 \rightarrow x > 1 \\ x-1 \neq 1 \rightarrow x \neq 2 \end{array} \right\} D = (1, a) - \{2\}$

ب) $\log_{x+1}^{x^2-1}$ $\left. \begin{array}{l} x^2-1 > 0 \rightarrow x^2 > 1 \rightarrow x > 1, x < -1 \\ x+1 > 0 \rightarrow x > -1 \\ x+1 \neq 1 \rightarrow x \neq 0 \end{array} \right\} D = (-\infty, -1) \cup (1, +\infty) - \{0\}$

الف) $\log_{10} \frac{x^2-1}{x-1}$ $\rightarrow \frac{x^2-1}{x-1} > 0 \rightarrow \frac{(x-1)(x+1)}{x-1} > 0 \rightarrow \frac{1}{-1+x} \rightarrow D = [1, +\infty) - \{1\}$

ب) $\log_{x+1} \frac{x+1}{x-1}$ $\left. \begin{array}{l} \frac{x+1}{x-1} > 0 \rightarrow \frac{x}{x-1} > 0 \rightarrow D = (-\infty, 1) \cup (1, +\infty) \\ x+1 > 0 \rightarrow x > -1 \\ x+1 \neq 1 \rightarrow x \neq 0 \end{array} \right\} D = (-\infty, -1] \cup (1, +\infty) - \{0\}$

الف) $r - \log_r^{x-r} \geq 0 \rightarrow \log_r^{x-r} \leq r \rightarrow r^r \geq x-r \rightarrow 1 \geq x-r \rightarrow x \leq 1 \rightarrow D = (r, 1]$

ب) $\log_r^2 \log_r^x - 1$ $\left. \begin{array}{l} x > 0 \\ r \log_r^x - 1 > 0 \rightarrow r \log_r^x > 1 \rightarrow \log_r^x > \frac{1}{r} \rightarrow r^{\frac{1}{r}} > x \end{array} \right\} D = (0, r^{\frac{1}{r}})$

الف) $x^x + 1 \neq 0 \rightarrow x^x \neq -1 \checkmark D = \mathbb{R}$

ب) $x^x - 1 \neq 0 \rightarrow x^x \neq 1 \rightarrow x \neq 0 \rightarrow D = \mathbb{R} - \{0\}$

ج) $x^x - 2 \neq 0 \rightarrow x^x \neq 2 \rightarrow \log_r^r \neq x$

د) $x^x - r \neq 0 \rightarrow x^x \neq r \rightarrow \log_r^r \neq x$

الف) $(x+1)! \rightarrow x+1 > 0 \rightarrow x > -1 \rightarrow x > \frac{1}{x} \rightarrow D = \{x | x > \frac{1}{x}, x \in \frac{\mathbb{W}}{r}, \neq \frac{1}{r}\}$

ب) $\frac{rx-r}{rx-\omega} \in \mathbb{W} \rightarrow rx-r \in r\mathbb{W} - \omega\mathbb{W} \rightarrow rx-r\mathbb{W} = -\omega\mathbb{W} + r \rightarrow x = \frac{-\omega\mathbb{W} + r}{r-r\mathbb{W}} \rightarrow x = \frac{\omega\mathbb{W} - r}{r\mathbb{W} - r}$

$\rightarrow D = \{x | x = \frac{\omega\mathbb{W} - r}{r\mathbb{W} - r}, \mathbb{W} \in \mathbb{W}\} - \{r, \omega\}$