

١- (الف) $\left. \begin{aligned} &\cos n \neq 1 \\ &\cos n \neq -1 \end{aligned} \right\} \Rightarrow Df = \mathbb{R} - \left\{ 2k\pi - \frac{\pi}{2}, 2k\pi + \frac{\pi}{2} \right\}$

ب $\cos n \neq \frac{1}{r} \Rightarrow Df = \mathbb{R} - \{ 2k\pi \}$

٢- (الف) $\tan n \neq -1 \Rightarrow \frac{\sin n}{\cos n} \neq -1 \Rightarrow \sin n \neq -\cos n \Rightarrow Df = \mathbb{R} - \left\{ k\pi - \frac{\pi}{4}, k\pi - \frac{3\pi}{4} \right\}$

ب $\frac{\cos n}{\sin n} \neq 1 \Rightarrow \cos n \neq \sin n \Rightarrow Df = \mathbb{R} - \left\{ k\pi + \frac{\pi}{4}, k\pi \right\}$

٣- (الف) $\sin y = 2x - 2 \Rightarrow -1 \leq 2x - 2 \leq 1 \Rightarrow 1 \leq 2x \leq 3 \Rightarrow \sqrt{1} \leq x \leq \sqrt{3} \Rightarrow Df = [1, \sqrt{3}]$

ب $y = \arccos(\sqrt{2} - x) \Rightarrow -1 \leq \sqrt{2} - x \leq 1 \Rightarrow 2 \leq \sqrt{2} \leq 4 \Rightarrow Df = [2, 4]$

٤- (الف) $\cos y = |x| - 2 \Rightarrow -1 \leq |x| - 2 \leq 1 \Rightarrow 1 \leq |x| \leq 3 \Rightarrow Df = [-3, -1] \cup [1, 3]$

$\arcsin(n^2 + 2n + 1) \Rightarrow -1 \leq n^2 + 2n + 1 \leq 1 \Rightarrow n(n+2) \leq 0 \quad \textcircled{1}$

$\textcircled{1} \quad \begin{array}{c} -2 \quad -1 \\ + \quad + \quad - \quad + \end{array} \quad \textcircled{2} \quad \begin{array}{c} -2 \quad 0 \\ + \quad + \quad - \quad + \end{array} \quad \begin{array}{l} \hookrightarrow (n+1)(n+2) \geq 0 \quad \textcircled{2} \\ Df = \textcircled{1} \cap \textcircled{2} \Rightarrow [-\infty, -2] \cup [0, +\infty] \end{array}$

٥- (الف) $\log_{\frac{1}{e}}(n^2 - 2) \Rightarrow n^2 - 2 > 0 \Rightarrow (n+2)(n-2) > 0 \Rightarrow Df = (-\infty, -2) \cup (2, +\infty)$

ب $|x| < 2 \Rightarrow Df = (-2, 2)$

ب $-2 < x < 2$

$$a - x > 0 \Rightarrow x < a$$

(الف) - 6

$$x - c > 0 \Rightarrow x > c \Rightarrow D_f = (c, a) - \{c\}$$

$$x - c \neq 1 \Rightarrow x \neq c$$

$$x^2 - 1 \neq 0 \Rightarrow x^2 \neq 1 \Rightarrow x \neq 1, x \neq -1$$

(ب)

$$x + c > 0 \Rightarrow x > -c$$

$$D_f = (-c, -1) \cup (1, \infty) - \{-1\}$$

$$x + c \neq 1 \Rightarrow x \neq -c$$

$$\frac{x^2 - (x+c)}{x-c} = \frac{(x-1)(x-2)}{x-c} = \frac{1}{x+1} + \frac{c}{x+1} \quad D_f = [1, \infty) \quad \text{(ج) - 7}$$

$$\left. \begin{array}{l} \frac{x+c}{x-2} > 0 \quad x > -2, x < -c, x \neq 2 \\ x+c > 0 \quad x+c \neq 1 \quad x > -c \\ x \neq -c \end{array} \right\} \Rightarrow D_f = (-\infty, \infty) - \{2, -c\}$$

$$\left. \begin{array}{l} \sqrt{c - \log_r(x-1)} \\ x - c > 0 \\ \log_r(x-1) \leq c \end{array} \right\} \Rightarrow D_f = (c, \infty)$$

(د)

$$y = \log(x \log_c^n - 1)$$

- 1

$$x \log_c^n - 1 > 0 \Rightarrow \log_c^n > \frac{1}{x}$$

$$x > c^{\frac{1}{n}}$$

$$\log_c^n \rightarrow x > 0 \quad D_f = (\sqrt{c}, \infty)$$

$$\hookrightarrow x > \sqrt{c}$$

$$D_f = \mathbb{R} \quad \text{(هـ) - 9}$$

$$x^n - 1 \neq 0 \Rightarrow x \neq 0 \quad D_f = \mathbb{R} - \{0\} \quad \text{(و) - 8}$$

$$x^n \neq 1 \quad D_f = \mathbb{R} - \{\log_c^{\frac{1}{n}}\} \quad \text{(ز) - 8}$$

$$x^n \neq c \quad D_f = \mathbb{R} - \{\log_c^{\frac{1}{n}}\} \quad \text{(ح) - 8}$$

$$\begin{array}{l} x + 1 \in \mathbb{W} \\ x \in \frac{\mathbb{W}-1}{\varepsilon} \end{array}$$

$$x \in \mathbb{W} - 1 \quad D_f = \left\{ x : x = \frac{k-1}{\varepsilon}, k \in \mathbb{W} \right\} \quad \text{(ط) - 10}$$

$$\begin{array}{l} x - 1 = r \cdot \mathbb{W} \quad x - a \cdot \mathbb{W} \\ \Rightarrow (x - 1) \cdot \mathbb{W} = x - a \cdot \mathbb{W} \\ x = \frac{1 - a \cdot \mathbb{W}}{1 - r \cdot \mathbb{W}} \end{array}$$

$$D_f = \left\{ x : x = \frac{1 - a \cdot \mathbb{W}}{1 - r \cdot \mathbb{W}}, k \in \mathbb{W} \right\} \quad \text{(ق) - 5}$$