

ب. دسم دقتہ۔
 19 آئینہ!

دسم دقتہ۔

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

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

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

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

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

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

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

ب) $y = \arcsin(x^2 + 2x + 1) \rightarrow -1 \leq x^2 + 2x + 1 \leq 1 \rightarrow -1 \leq x^2 + 2x \leq 0 \rightarrow 0 \leq x^2 + 2x + 1 \leq 1 \rightarrow 0 \leq (x+1)^2 \leq 1 \rightarrow -2 \leq x \leq 0$
 $(I) \cap (II) = (-\infty, -2] \cup [0, +\infty)$
 $D \neq [-2, -1] \cup [-1, 0]$

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

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

الف) $\log_{x-1}^{a-x} \rightarrow \begin{cases} a-x > 0 \rightarrow x < a \\ x-1 > 0 \rightarrow x > 1 \\ x-1 \neq 1 \rightarrow x \neq 2 \end{cases} \quad D = (1, a) - \{2\}$

ب) $\log_{x+1}^{x^2-1} \rightarrow \begin{cases} x^2-1 > 0 \rightarrow x^2 > 1 \rightarrow x > 1, x < -1 \\ x+1 > 0 \rightarrow x > -1 \\ x+1 \neq 1 \rightarrow x \neq -2 \end{cases} \quad D = (-\infty, -1) \cup (1, +\infty) - \{-2\}$

الف) $\log_{10} \frac{x^2-4x+4}{x-1} \rightarrow \frac{x^2-4x+4}{x-1} > 0 \rightarrow \frac{(x-2)(x-1)}{x-1} > 0 \rightarrow \frac{1}{-1+2} \rightarrow D = [1, +\infty) - \{2\}$

ب) $\log_{x+1} \frac{x+1}{x-1} \rightarrow \begin{cases} \frac{x+1}{x-1} > 0 \rightarrow \frac{x}{x-1} > 0 \rightarrow D = (-\infty, -1) \cup (1, +\infty) \\ x+1 > 0 \rightarrow x > -1 \\ x+1 \neq 1 \rightarrow x \neq -2 \end{cases} \quad D = (-\infty, -2] \cup (1, +\infty) - \{-2\}$

الف) $1 - \log_r^{x-1} \geq 0 \rightarrow \log_r^{x-1} \leq 1 \rightarrow r^1 \geq x-1 \rightarrow 1 \geq x-1 \rightarrow x \leq 2 \rightarrow D = (1, 2]$

ب) $\log_r^2 \log_r^x - 1 \rightarrow \begin{cases} x > 0 \\ \log_r^x - 1 > 0 \rightarrow \log_r^x > 1 \rightarrow \log_r^x > \frac{1}{r} \rightarrow r^{\frac{1}{r}} > x \end{cases} \quad D = (\sqrt[r]{r}, +\infty) \quad D = (0, r^{\frac{1}{r}})$

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

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

ج) $x^x - 2 \neq 0 \rightarrow x^x \neq 2 \rightarrow \log_f^x \neq x$

د) $x^x - 3 \neq 0 \rightarrow x^x \neq 3 \rightarrow \log_f^x \neq x$

الف) $(x+1)! \rightarrow x+1 > 0 \rightarrow x > -1 \rightarrow x > \frac{1}{e} \rightarrow D = \{x \mid x > \frac{1}{e}, x \in \frac{\omega}{e}, \frac{1}{e}\}$

ب) $\frac{x^x-1}{x^x-1} \in \omega \rightarrow x^x-1 \in \omega \rightarrow x^x-1 \in \omega \rightarrow x^x-1 \in \omega \rightarrow x = \frac{\omega+1}{x-1} \rightarrow x = \frac{\omega-1}{1x-1}$

$D = \{x \mid x = \frac{\omega-1}{1x-1}, x \in \omega\} \rightarrow D = \{x \mid x = \frac{\omega-1}{1x-1}, x \in \omega\} - \{1, \omega\}$