

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

ب) $\frac{\sin x + 3}{\cos x - 1} \Rightarrow \cos x \neq 1 \Rightarrow D_f = \mathbb{R} - \{ 2k\pi \}$

الف) $\frac{2 \sin x + 1}{\tan x + 1} \rightarrow \tan x \neq -1 \Rightarrow D_f = \mathbb{R} - \left\{ 2k\pi + \frac{3\pi}{4}, 2k\pi - \frac{\pi}{4} \right\}$ -2

ب) $\cot x \neq 1 \Rightarrow \bigoplus \Rightarrow D_f = \mathbb{R} - \left\{ 2k\pi + \frac{\pi}{4}, 2k\pi - \frac{5\pi}{4} \right\}$

الف) $-1 < x^2 - 2 < 1 \Rightarrow \frac{x^2}{3} > 1 \Rightarrow 1 < x^2 < 3 \Rightarrow D_f = [-\sqrt{3}, -1] \cup [1, \sqrt{3}]$ -3

ب) $-1 < \sqrt{x} - 3 < 1 \Rightarrow +2 < \sqrt{x} < +4 \Rightarrow 4 < x < 16 \Rightarrow D_f = [4, 16]$

الف) $-1 < |x| - 3 < 1 \Rightarrow +2 < |x| < +4 \Rightarrow D_f = [2, 4] \cup [-4, -2]$ -4

ب) $-1 < x^2 + 3x + 1 < 1 \Rightarrow \begin{matrix} x > -1 \\ x < -2 \end{matrix} \cup \begin{matrix} x < -2 \\ -3 < x < 0 \end{matrix} \Rightarrow D_f = [-3, 2] \cup [-1, 0]$

الف) $y = \log_3 x^{2-2} \Rightarrow x^{2-2} > 0 \Rightarrow x^2 > 2 \Rightarrow x > \sqrt{2} \Rightarrow D_f = (\sqrt{2}, +\infty)$ -5

ب) $2 - |x| > 0 \Rightarrow 2 > |x| \Rightarrow -2 < x < 2 \Rightarrow D_f = (-2, 2)$

الف) $\begin{cases} 5 - x > 0 \\ x - 3 > 0 \\ x - 3 \neq 1 \end{cases} \Rightarrow \begin{matrix} 5 > x \\ x > 3 \\ x \neq 4 \end{matrix} \Rightarrow D_f = (3, 5) - \{4\}$ -6

$$(x-3)(x-1)$$

ب) $\left. \begin{array}{l} x^2 - 1 > 0 \\ x + 3 > 0 \\ x + 3 \neq 1 \end{array} \right\} \Rightarrow \left. \begin{array}{l} x > 1 \\ x > -1 \\ x > -3 \\ x \neq -2 \end{array} \right\} \Rightarrow D_f = (-3, -2) \cup (-2, -1) \cup (1, +\infty)$ -4

الف) $\log \frac{(x-3)(x-1)}{x-3} \Rightarrow \log(x-1) \Rightarrow x-1 > 0 \Rightarrow x > 1$ -5
 $D_f = (1, +\infty)$

ب) $\frac{x+3}{x-2} > 0 \Rightarrow x+3 > 0 \Rightarrow x > -3$

$x+3 > 0 \Rightarrow x > -3$

$x=2 \Rightarrow \text{ممنوع} \quad D_f = (-\infty, -3) \cup (2, \infty)$

الف) $(x-2) > 0 \Rightarrow x > 2$ $D_f = [1, +\infty)$ -6
 $3 - \log \frac{x+2}{x} > 0 \Rightarrow \log \frac{x+2}{x} < 3 \Rightarrow x-2 > 2^3 \Rightarrow x > 10$

ب) $x > 0$ و $2 \log \frac{x}{3} > \frac{1}{x} \Rightarrow \log \frac{x}{3} > \frac{1}{2x} \Rightarrow x > 3^{\frac{1}{2}} \Rightarrow x > \sqrt{3}$
 $D_f = (\sqrt{3}, +\infty)$

$f^x + 1 \neq 0 \Rightarrow f^x \neq -1 \Rightarrow D_f = \mathbb{R}$ $f^x - 1 \neq 0 \Rightarrow f^x \neq 1$ -7
 $x \neq 0 \Rightarrow D_f = \mathbb{R} - \{0\}$

$f^x - 2 \neq 0 \Rightarrow f^x \neq 2 \Rightarrow x \neq \frac{1}{f}$

$D_f = \mathbb{R} - \left\{ \frac{1}{f} \right\}$

$D_f = \mathbb{R} - \left\{ \log \frac{2}{\varepsilon} \right\}$

$\varepsilon^x - 3 \neq 0 \Rightarrow \varepsilon^x \neq 3$

$D_f = \mathbb{R} - \left\{ \log \frac{3}{\varepsilon} \right\}$

$x \in W \Rightarrow x \geq 0, \frac{x-1}{f}$ -8

الف) $f^x + 1 \in W$

ب) $\frac{f^x - 2}{f^x - \omega} \in W \Rightarrow f^x - 2 = f^x W - \omega W$

$f^x - f^x W = 2 - \omega W \Rightarrow x = \frac{2 - \omega W}{f - f W}$

$D_f = \left\{ x / x = \frac{2 - \omega k}{f - f k}, k \in W \right\}$

Parsian