

$$x \neq \pm \frac{\sqrt{3}\pi}{4} + 2K\pi, K \in \mathbb{Z}$$

$$D = \mathbb{R} - \left\{ x \mid \cos x = -\frac{1}{4} \right\}$$

(الف)

$$D = \mathbb{R} - \left\{ x = 2K\pi, K \in \mathbb{Z} \right\}$$

(ب)

$$\cot x - 1 \neq 0 \Rightarrow \cot x \neq 1 \Rightarrow x \neq \frac{\pi}{4} + K\pi \Rightarrow D = \mathbb{R} - \left\{ x = K\pi, x = \frac{\pi}{4} + K\pi \right\}$$

قسمت (ب) رو این بالا نوشتن و (الف) رو پایین.

$$\left\{ \begin{array}{l} x \neq \frac{\pi}{4} + K\pi \\ \tan x \neq -1 \Rightarrow x \neq -\frac{\pi}{4} + K\pi \end{array} \right\} \Rightarrow D = \mathbb{R} - \left\{ x = \frac{\pi}{4} + K\pi, x = -\frac{\pi}{4} + K\pi \right\}$$

(الف)

$$1 \leq x^2 \leq 3 \Rightarrow x \in [-\sqrt{3}, -1] \cup [1, \sqrt{3}]$$

(الف)

$$-1 \leq \sqrt{x} - 2 \leq 1 \Rightarrow 2 \leq \sqrt{x} \leq 3 \Rightarrow 4 \leq x \leq 9 \Rightarrow [4, 9]$$

(ب)

$$2 \leq |x| \leq 4 \Rightarrow x \in [-4, -2] \cup [2, 4]$$

(الف)

$$x^2 + 3x + 1 \geq -1 \Rightarrow x^2 + 3x + 2 \geq 0 \Rightarrow (x+1)(x+2) \geq 0 \Rightarrow x \geq -1 \text{ یا } x \leq -2$$

(ب)

$$x^2 + 3x + 1 \leq 1 \Rightarrow x^2 + 3x \leq 0 \Rightarrow x(x+3) \leq 0 \Rightarrow -3 \leq x \leq 0$$

$$\Rightarrow x \in [-3, -2] \cup [-1, 0]$$

$$D = (-\infty, -2) \cup (2, \infty)$$

(الف)

$$D = (-2, 2)$$

(ب)

$$\left. \begin{aligned} x-3 > 0 &\Rightarrow x > 3 \Rightarrow x-3 \neq 1 \Rightarrow x \neq 4 \\ &\Rightarrow 4-x > 0 \Rightarrow x < 4 \end{aligned} \right\} D = (3, 4) \cup (4, \infty) \quad \text{(الف)}$$

$$\left. \begin{aligned} x+3 > 0 &\Rightarrow x > -3, \quad x+3 \neq 1 \Rightarrow x \neq -2 \\ x^2-1 > 0 &\Rightarrow x > 1, \quad x < -1 \end{aligned} \right\} D = (-3, -2) \cup (-2, -1) \cup (1, \infty) \quad \text{(ب)}$$

$$x^2 - 4x + 3 = (x-1)(x-3) \Rightarrow x \neq 3 \Rightarrow x-1 > 0 \Rightarrow x > 1$$

$$\Rightarrow D = (1, 3) \cup (3, \infty) \quad \text{(الف)}$$

$$\left. \begin{aligned} x+5 > 0 &\Rightarrow x > -5 \Rightarrow x+5 \neq 1 \Rightarrow x \neq -4 \\ \frac{x+3}{x-2} > 0 \end{aligned} \right\} D = (-5, -4) \cup (2, \infty) - \{x = -4\} \quad \text{(ب)}$$

$$x-2 > 0 \Rightarrow x > 2, \quad x-2 \leq 1 \Rightarrow x \leq 3 \Rightarrow D = (2, 3] \quad \text{(الف)}$$

$$2 \log_3 x - 1 > 0 \Rightarrow \log_3 x > \frac{1}{2} \Rightarrow x > \sqrt{3} \Rightarrow D = (\sqrt{3}, \infty) \quad \text{(ب)}$$

$$x^2 + 1 \neq 0 \Rightarrow D = \mathbb{R} \quad \text{(الف)}$$

$$x^2 - 1 \neq 0 \Rightarrow x \neq 0 \Rightarrow D = \mathbb{R} - \{0\} \quad \text{(ب)}$$

$$D = \mathbb{R} - \left\{ \frac{1}{x} \right\} \quad \text{(ج)}$$

$$D = \mathbb{R} - \left\{ \log_3 x \right\} \quad \text{(د)}$$

$$x+1 \geq 0 \Rightarrow x+1 \in \mathbb{Z} \Rightarrow x = \frac{k-1}{f} \Rightarrow k \in \mathbb{W}$$

$$\Rightarrow D = \left\{ -\frac{1}{f}, 0, \frac{1}{f}, \frac{2}{f}, \frac{3}{f}, 1, \frac{4}{f}, \dots \right\}$$

$$\frac{x^2-2}{x-5} \in \mathbb{W}, \quad x \neq \frac{5}{f} \Rightarrow D = \left\{ x \in \mathbb{R} \mid \frac{x^2-2}{x-5} \in \mathbb{W}, \quad x \neq \frac{5}{f} \right\} \quad \text{(ب)}$$