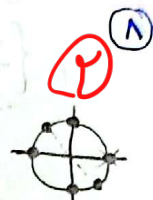


ج) $\frac{\cot x + 1}{\tan x + 1} \rightarrow \tan x + 1 \neq 0 \Rightarrow \tan x \neq -1 \Rightarrow D_f = \mathbb{R} - \left\{ \frac{k\pi}{2}, k\pi - \frac{\pi}{2} \right\}$ ✓ $k\pi$



ب) $1 - \sqrt{\sin x} \geq 0 \Rightarrow \sqrt{\sin x} \leq 1 \Rightarrow \frac{1}{4} \leq \sin x \leq \frac{1}{2} \Rightarrow D_f = \left[k\pi - \frac{\pi}{2}, k\pi + \frac{\pi}{2} \right]$ ✓

ج) $x-1 > 0 \Rightarrow x > 1$, $1 - \log_{\frac{1}{x}} x^{-1} \geq 0 \Rightarrow 1 \geq \log_{\frac{1}{x}} x^{-1} \Rightarrow \frac{1}{x} \leq x-1 \Rightarrow \frac{x}{x} \leq x \Rightarrow D_f = \left[\frac{x}{x}, +\infty \right)$ ✓

ب) $x^x - x \geq 0 \Rightarrow x(x-1) \geq 0$, $x^x - x^x > 0 \Rightarrow \frac{x}{x} - \frac{x}{x} > 0 \Rightarrow \mathbb{I} = (-\infty, 0) \cup (x, +\infty)$

$\frac{x}{x} - \frac{x}{x} > 0 \Rightarrow \mathbb{I} = (-\infty, 0) \cup [1, +\infty)$ / $1 - \log_{\frac{1}{x}} x^x \neq 0 \Rightarrow 1 \neq \log_{\frac{1}{x}} x^x \Rightarrow x \neq x^x - x^x$

$\Rightarrow x^x - x^x - x \neq 0 \Rightarrow \frac{x}{x} - \frac{x}{x} \neq 0 \Rightarrow \mathbb{R} - \{-1, x\} = \mathbb{III} \Rightarrow \mathbb{I} \cap \mathbb{II} \cap \mathbb{III} = (-\infty, -1) \cup (-1, 0) \cup (x, x) \cup (x, +\infty)$ ✓

ج) $x^x - x^x - 1 \geq 0 \Rightarrow x^x - x^x \geq 1 \Rightarrow x^x - x^x \geq 1 \Rightarrow x^x - x^x + 1 \leq 0$

$D_f = [1, x]$ ✓ $(x-x)(x-1) \leq 0$ $\frac{x}{x} - \frac{x}{x} +$

ب) $\left(\frac{xw+d}{xw+x} \right) \in \mathbb{W} \Rightarrow x \in \frac{xw-d}{xw-x}$ $\Rightarrow x \in \frac{xw-d}{-xw+x}$

$\Rightarrow xw+d \in xw+x \Rightarrow \frac{xw-d}{xw-x} \in \mathbb{W} \Rightarrow x \in \frac{xw-d}{-xw+x}$

$D_f = \left\{ x \mid x = \frac{xw-d}{-xw+x}, K \in \mathbb{W} \right\}$ ✓

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تالیف شده (۲) - بنیادین روش - یادداشت پس B

$$x^2 + y^2 - 4x + 6y + k = 0 \Rightarrow \begin{cases} (x+2)^2 = y^2 + 6y + 9 \\ (\sqrt{x} - \sqrt{y})^2 = x^2 - 4x + 2 \end{cases} \Rightarrow \begin{cases} x+2 = 11 = k \\ y+3 = 11 = k \end{cases} \quad (1) \quad (2)$$

$$x = a \Rightarrow a^2 + 4a = 11a + 2 \Rightarrow a^2 + a - 2 = 0 \Rightarrow \begin{cases} a = 1 \\ a = -2 \end{cases} \Rightarrow \begin{cases} f(1) = 1^2 + 4 = 5 \\ f(-2) = (-2)^2 + 4 = 8 \end{cases} \quad (3) \quad (4)$$

$$f(x) = \begin{cases} 11x^2 - b & ; x \geq 1, x \leq -2 \\ a + 2x & ; -2 \leq x \leq -1 \end{cases} \Rightarrow \begin{cases} 11 - b = a - 2 \\ a + b = 11 \end{cases} \quad (5) \quad (6)$$

$$|x+1| \geq 2 \Rightarrow \begin{cases} x+1 \geq 2 \Rightarrow x \geq 1 \\ x+1 \leq -2 \Rightarrow x \leq -3 \end{cases}$$

$$x = 2 \Rightarrow y = \sqrt{11 - a} + \sqrt{b - 6} \Rightarrow a = 11, b = 6 \Rightarrow \frac{b}{a} = \left(\frac{1}{11}\right) \quad (7) \quad (8)$$

الف) I: $\frac{-1}{-6} + \frac{3}{6} \Rightarrow [-1, 3) \cup (3, +\infty)$ / II: $\frac{4}{+6} - \frac{4}{-6} \Rightarrow (-\infty, 4]$ $\Rightarrow I \cap II = [-1, 3) \cup (3, 4]$ $D_f = [-1, 3) \cup (3, 4]$

ب) I: $\frac{4}{-6} - \frac{4}{6} \Rightarrow [4, +\infty)$ / II: $\frac{4}{+6} + \frac{4}{-6} \Rightarrow (-\infty, 4)$ $\Rightarrow I \cap II = D_f = \emptyset$

الف) $\frac{(x-3)(x+2)}{(x^2-9)(x^2-4)} \Rightarrow \frac{1}{x+3} - \frac{1}{x-3} - \frac{1}{x+2} + \frac{1}{x-2} \Rightarrow D_f = (-\infty, -3) \cup (2, 3) \cup (3, +\infty)$

ب) $\frac{(x-1)(x-3)(x+2)}{(x+1)(x+3)(x-2)} \Rightarrow \frac{1}{x+1} - \frac{1}{x-1} - \frac{1}{x+3} + \frac{1}{x-3} + \frac{1}{x+2} - \frac{1}{x-2}$

$D_f = (-\infty, -3) \cup [-2, -1) \cup [1, 2) \cup [2, +\infty)$

قاعده جمع ضرب = صفر پس یعنی $(x-1)$ و مجموع ضرایب زوج و فرد برابر صفر پس $(x+1)$

الف) $[-x] - 2 \geq 0 \Rightarrow [-x] \geq 2 \Rightarrow D_f = (-\infty, -2]$

ب) $\frac{[x] - 3}{([x] - 3)([x] + 1)} \Rightarrow \frac{1}{[x] + 1} \Rightarrow D_f = (-\infty, -1) \cup [4, +\infty) \cup [0, 3)$