

$$y_1^2 = 2x_1^2 + 2x_1 - 1 \Leftrightarrow y_2^2 = 2x_2^2 + 2x_2 - 1 \Rightarrow y_2^2 = y_1^2 \Rightarrow y_1 = y_2 \quad (\text{الف})$$

$$x \cos y = y \cos x \Rightarrow x = \frac{\pi}{4} \Rightarrow \dots \quad ; \quad \frac{\pi}{4} \cos y = 0 \cos y \Rightarrow y \in \left\{ \frac{\pi}{2}, \frac{3\pi}{2} \right\}$$

$$\frac{x+y}{2} = \sqrt{xy} \Rightarrow 2\sqrt{xy} = x+y \Rightarrow 2xy = x^2 + y^2 + 2xy \Rightarrow x^2 + y^2 - 2xy = 0 \quad (\text{ج})$$

$$\Rightarrow (x-y)^2 = 0 \Rightarrow x=y \quad \checkmark \quad \text{و نیز } 2x^2 + 2x - 1^2 - 2y = 0 \Rightarrow x(y^2 + 2) - y(y^2 + 2) = 0 \Rightarrow (y^2 + 2)(x-y) = 0 \Rightarrow x=y \quad \checkmark$$

$$f(x) = \begin{cases} 2x^2 - 6 & |x-1| \geq 2 \Rightarrow |x-1| > 2 \Rightarrow x-1 \geq 2 \Rightarrow x \geq 3 \text{ یا } x-1 \leq -2 \Rightarrow x \leq -1 \\ a+2x & -3 \leq x \leq -1 \end{cases}$$

$$\text{در } x = -1 \Rightarrow \text{تابع پیوسته} \Rightarrow 2(-1)^2 - 6 = a + 2(-1) \Rightarrow a + b = 4$$

$$\begin{aligned} x=b \Rightarrow a-b^2-b^2 &\Rightarrow a=b^2 \quad (1) \quad x \Rightarrow \frac{-(c-b)}{2(-1)} = \frac{-b}{2} = \frac{a+b}{2} \quad \text{استارز} \\ -b &= a+b \Rightarrow 2b = -a \Rightarrow a = -2b \Rightarrow -2b = b^2 \Rightarrow b^2 + b = 0 \Rightarrow b \begin{cases} = 0 \\ \text{یا } -1 \end{cases} \\ a &= -2b \Rightarrow a = -2(-1) \Rightarrow a = 2 \Rightarrow a+b \Rightarrow 2+(-1) = 1 \end{aligned}$$

$$a=0 / b < 0 / 2b+c=0 \Rightarrow c=-2b / 3+c-3|b| \Rightarrow$$

$$3(0) + (-2b) - 3(-b) \Rightarrow -2b + 3b = b$$

$$\sqrt{\frac{1}{|x|-[x]}} \Rightarrow |x| - [x] + 0 \Rightarrow |x| = [x] \Rightarrow x \geq 0 \Rightarrow x = 2^+ \quad (\text{الف})$$

$$\sqrt{x} + \sqrt{y} = 9 \Rightarrow x > 0 \quad (1) \quad (2) \quad x=11, y=\sqrt{4}=2 \quad \text{چون } \sqrt{y}$$

$$0 \leq x \leq 11 \Rightarrow x \in [0, 11]$$

الفرق

$$\sqrt{\log_{x-1} x} \Rightarrow \begin{cases} ① x > 0 \\ ② x+1 \end{cases} \quad \begin{cases} ③ \log_{x-1} x > 0 \Rightarrow x-1 \geq 1 \Rightarrow x \geq \frac{2}{3} \\ ④ \log_{x-1} x < 0 \Rightarrow x-1 < 1 \Rightarrow x < 2 \end{cases}$$

$$x \in \left[\frac{2}{3}, 2\right) - \{1\}$$

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$$\log \frac{1}{\sqrt{4x+1}+1} \Rightarrow \begin{cases} ① \sqrt{4x+1}-1 \neq 0 \Rightarrow \sqrt{4x+1}-1 > 0 \Rightarrow \sqrt{4x+1} > 1 \Rightarrow 4x+1 > 1 \Rightarrow x > 0 \\ ② \sqrt{4x+1}-1 < 0 \Rightarrow \sqrt{4x+1} < 1 \Rightarrow 4x+1 < 1 \Rightarrow x < 0 \end{cases}$$

$$x \in (-9, 9)$$

بما ان x بارز، $b = -2$ $\Rightarrow$ $b = -2$

$$\sqrt{\frac{x^2+1}{x+b}} + a \quad x=2 \Rightarrow \frac{x^2+1}{(x)+b} \rightarrow 2+b=0 \Rightarrow b=-2$$

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$$f(x) = \begin{cases} x-1 & x \geq 0 \\ x+1 & x < 0 \end{cases} \Rightarrow \sqrt{f(x)-x+1} \geq 0 \Rightarrow \begin{cases} x & x \geq 0 \\ x+1 & x < 0 \end{cases} \Rightarrow$$

$$x^2+1 \geq 0 \Rightarrow x \geq -\frac{1}{x} \Rightarrow D_1 = \left[-\frac{1}{x}, +\infty\right)$$

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$$\frac{x^2n^2 + 2x^2 + 1}{(x^2 + x + 1)^2} \Rightarrow \frac{x^2n^2 + 2x^2 + 1}{((x^2 + 1)^2)^2} \Rightarrow D_f = \mathbb{R} - \left\{-\frac{1}{2}\right\}$$

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$$\sqrt{1 - \log_{x-a} x} \Rightarrow \begin{cases} ① x-a > 0 \Rightarrow x > a \Rightarrow x > \frac{9}{2} \Rightarrow b \\ ② 1 - \log_{x-a} x \geq 0 \Rightarrow \log_{x-a} x \leq 1 \Rightarrow x-a \leq 1 \Rightarrow x \leq a+1 \Rightarrow c \end{cases}$$

$$\frac{1+a}{2} \geq a \Rightarrow c = \frac{1+a}{2}$$

$$c = b \Rightarrow \frac{1+a}{2} = \frac{a}{2} \Rightarrow \frac{1}{2} = \omega$$

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