

$$الف) \sqrt{\frac{x-1}{x}} - \frac{x}{x-1} \Rightarrow -\frac{1}{x} + \frac{1}{x-1} \Rightarrow D_f = (0, 1)$$

$$\Rightarrow \frac{x-1}{x} - \frac{x}{x-1} > 0$$

$$ب) \frac{-x-2}{x^2+x} \sim -\frac{1}{x} \Rightarrow \frac{1}{x+1} \Rightarrow x \neq -1 \Rightarrow \mathbb{R} - \{-1, 0, 1, -\frac{1}{2}\}$$

$$الف) \left(\frac{1}{x}\right)^x = 9 \quad x^x = 9 \quad x = 2, 0 \Rightarrow \frac{-2}{x^2-x} \Rightarrow D_f = (-\infty, -2] \cup [2, +\infty)$$

$$ب) \sqrt{y+1} = 3 - \sqrt{x-1} \Rightarrow \sqrt{x-1} > 0 \Rightarrow \sqrt{x-1} \Rightarrow 1 < x \leq 18 \quad D_f = [1, 18]$$

$$f(x) = \frac{\log(x^2 - x - 4)}{\sqrt{x^2 - 1} + 1} \Rightarrow x^2 - x - 4 > 0 \Rightarrow (x+1)(x-4) > 0 \Rightarrow x > 4 \text{ or } x < -1 \Rightarrow D_f = \mathbb{R} - [-1, 4]$$

$$\sqrt{c + 2x - x^2} \xrightarrow{x=-2} \sqrt{-c + c - 2a} = 0 \Rightarrow -1 - 2a = 0 \Rightarrow a = -\frac{1}{2} \Rightarrow D_f = [-c, 0]$$

$$\Rightarrow -x^2 - \frac{x}{2} + c = 0 \Rightarrow \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{\frac{1}{2} \pm \sqrt{\frac{1}{4} - c}}{-2} = -2, \frac{c}{2}$$

$$g(x) = x > 1 \Rightarrow \sqrt{2x-1-x} \rightarrow \sqrt{x-1} \rightarrow 2x-1 > 0 \Rightarrow x > \frac{1}{2} \Rightarrow x > 1 \Rightarrow I \Rightarrow I \cap I \Rightarrow D_g = [-c, +\infty)$$

$$h(x) = x < 1 \Rightarrow \sqrt{2x+5-x} \rightarrow \sqrt{x+5} \rightarrow x+5 > 0 \Rightarrow x > -5 \Rightarrow x < 1 \Rightarrow II \Rightarrow x < 1 \Rightarrow \text{پایه های صدها}$$

$$f(0) = f(1) + a \Rightarrow (a+1)(1+0) = a - \varepsilon + a$$

$$1 \cdot a + 1 \cdot \varepsilon = a - \varepsilon$$

$$1 \cdot a = -1 \cdot \varepsilon$$

$$a = -1, \varepsilon$$

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$$\sqrt{x-\sqrt{c}} + \frac{1}{\sqrt{x-\sqrt{c}}} + c + \sqrt{x+\sqrt{c}} + \frac{1}{\sqrt{x+\sqrt{c}}} - c$$

$$= \frac{\sqrt{x-\sqrt{c}} + \sqrt{x+\sqrt{c}} + \sqrt{x+\sqrt{c}} + \sqrt{x-\sqrt{c}} + c + c}{\sqrt{(x-\sqrt{c})(x+\sqrt{c})}}$$

$$\Rightarrow \frac{(\sqrt{x-\sqrt{c}} + \sqrt{x+\sqrt{c}} + c) \cdot \sqrt{4}}{\sqrt{4}} = \varepsilon + c\sqrt{4}$$

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$$f(x) - f(-x) = \varepsilon x^5 - x \Rightarrow A$$

$$f(-x) - f(x) = \varepsilon x^5 + x \Rightarrow B$$

$$B + A: f(x) - f(x) = -\varepsilon f(x) = -\omega f(x)$$

$$\Rightarrow -\omega f(x) = \varepsilon x^5 + x$$

$$f(x) = -\varepsilon x^5 - \frac{x}{\omega}$$

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$$(x+c)f(x) - cxf(x+c) = \varepsilon x^5 - mx + c^{m-1}$$

$$\left(\begin{array}{l} x=0 \\ x=c \end{array} \right) \Rightarrow f(0) = c^{m-1} \Rightarrow 4f(0) = 4c^{m-1}$$

$$\Rightarrow 4c^{m-1} = 10 + 0m$$

$$m = \frac{10}{4} = 2.5$$

$$f(0) = \frac{10-1}{4} = \frac{9}{4} \quad (4, 2.5)$$

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$$f(-1) \Rightarrow f(-1) + f\left(\frac{1}{-1}\right) = \frac{c + 1c + c}{-1}$$

$$\underline{f(-1) = -9}$$

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