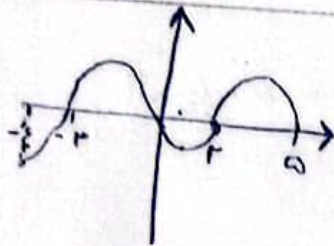


$$y = \sqrt{x f(x)} \rightarrow x f(x) \geq 0 \rightarrow$$

$$D_f = [-\infty, 0] \cup [r, \infty]$$

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$$y = \sqrt{\frac{-x}{f(x)}} \rightarrow \begin{cases} \frac{-x}{f(x)} \geq 0 \\ f(x) \neq 0 \end{cases} \rightarrow$$

$$D_f = (-3, 2) - \{0\} \rightarrow \text{محدوده تعریف}$$

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$$f(x) - 2f(r) = x^2 - 2x + \varepsilon \xrightarrow{x=r} f(r) - 2f(r) = \varepsilon - 2 + \varepsilon \rightarrow f(r) = -1$$

$$f(-r) - 2f(r) = \varepsilon + 2 + \varepsilon \rightarrow f(-r) = 10$$

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$$f(x) = \begin{cases} x - \sqrt{x+9} & ; x > 3 \\ 2x+3 & ; x \leq 3 \end{cases}$$

$$\underbrace{f(f(\infty))}_V + \underbrace{f(f(1))}_r = V + r = 9$$

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$$f(x) = ax^2 - bx + r$$

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$$f(x-1) = a(x-1)^2 - b(x-1) + r = ax^2 + a - 2ax - bx + b + r = ax^2 + bx + r - ax + a + b \rightarrow$$

$$\begin{cases} -2ax + a + b = 0x + r \\ a = -3 \\ b = a \end{cases} \rightarrow a \cdot b = -3 - a = -1$$

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$$F(x) = \frac{x^2 + \varepsilon x + \omega}{x^2 + \varepsilon x + \nu}$$

$$F(\sqrt{3}-1) = \frac{(\sqrt{3}-1)^2 + \varepsilon(\sqrt{3}-1) + \omega}{(\sqrt{3}-1)^2 + \varepsilon(\sqrt{3}-1) + \nu} = \frac{3 + \varepsilon - \varepsilon\sqrt{3} + \varepsilon\sqrt{3} - 1 + \omega}{3 + \varepsilon - \varepsilon\sqrt{3} + \varepsilon\sqrt{3} - 1 + \nu} = \frac{\varepsilon}{\varepsilon} = \frac{1}{3} \quad (5)$$

$$F\left(x - \frac{1}{x}\right) = \frac{x^2 + 1}{x^2} = x^2 + \frac{1}{x^2} \quad (5)$$

$$F(-1) = F\left(x - \frac{1}{x}\right) \rightarrow (-1)^2 = \left(x - \frac{1}{x}\right)^2 \rightarrow x^2 + \frac{1}{x^2} - 2 = 9 \rightarrow x^2 + \frac{1}{x^2} = 11$$

$$F(x) = \{(1, 0), (1, -\varepsilon), (0, 2), (1, 1)\} \quad g(x) = \sqrt{9 - 2x^2} \rightarrow D_g = [-3, 3] \quad (5)$$

$$\text{الف) } \frac{F}{g} = (0, \frac{2}{3}) \cup (1, \frac{4}{3}) \cup (2, 0) \cup D_f = \{1, 0, 2, 3\}$$

$$\text{ب) } \frac{g}{F} = (0, \frac{3}{2}) \cup (1, \frac{5}{2}) \cup (2, \frac{5}{2}) \quad \text{تعريف نسبي}$$

$$F(x) = \{(1, 1), (1, 4), (-1, 2), (1, -1)\}$$

$$\text{الف) } 2F(x) = \{(2, 2), (2, 8), (-2, 4), (2, -2)\}$$

$$\text{ج) } 3F(x) + 1 = \{(3, 5), (3, 13), (-3, 7), (3, 3)\}$$

$$\text{ب) } F(x) + 1 = \{(2, 2), (2, 5), (-2, 3), (2, 0)\}$$

$$\text{د) } F(x) = \{(1, 1), (\frac{1}{2}, 4), (-\frac{1}{2}, 2), (\frac{1}{2}, -1)\}$$

$$\text{الف) } F - g = \{(2, 2), (1, 4), (3, 2)\}$$

$$\text{ب) } \frac{2F}{g} = \{(2, 6), (1, \frac{4}{3}), (3, -2)\} \quad \text{تعريف نسبي}$$