

۲. آزمون علی نوبخت

$$P((a+1)(v)) = 3a - \varepsilon + a$$

$$12a + 1\varepsilon = 3a - \varepsilon$$

$$10a = -1\varepsilon, \quad \boxed{a = -1\varepsilon} \quad \text{پ}$$

$$\sqrt{2-\sqrt{3}} + \frac{1}{\sqrt{2-\sqrt{3}}} + \sqrt{2+\sqrt{3}} + \frac{1}{\sqrt{2+\sqrt{3}}} + \sqrt{2}$$

$$\sqrt{2-\sqrt{3}}(\sqrt{2-\sqrt{3}})(\sqrt{2+\sqrt{3}}) + \sqrt{2+\sqrt{3}}(\sqrt{2-\sqrt{3}})(\sqrt{2+\sqrt{3}}) + \sqrt{2-\sqrt{3}} + \sqrt{2+\sqrt{3}} + \sqrt{2} = 2\sqrt{2} + 2\sqrt{2} + 2 = 4\sqrt{2} + 2$$

$$2\sqrt{2-\sqrt{3}} + 2\sqrt{2+\sqrt{3}} + 2 \Rightarrow 2(\sqrt{2-\sqrt{3}} + \sqrt{2+\sqrt{3}}) + 2 = 2\sqrt{4} + 2 = 4 + 2 = 6$$

$$2 \times 2f(x) - 3f(-x) = \varepsilon x^2 - x \Rightarrow 4f(x) - 3f(-x) = \varepsilon x^2 - x$$

$$3 \times 2f(-x) - 3f(x) = \varepsilon x^2 + x \Rightarrow 6f(-x) - 3f(x) = \varepsilon x^2 + x$$

$$-5f(x) = 20x^2 + 2x \Rightarrow f(x) = -4x^2 - \frac{x}{5}$$

$$\begin{cases} f(0) = 2f(0) = 3m - 1 \\ f(-2) = 4f(0) = 12 + 2m + 3m = 12 + 5m \end{cases} \quad \begin{cases} -5 \times 2f - 3m = -1 \\ 3 \times 4f - 5m = 15 \end{cases} \quad \begin{cases} -10f + 15m = -1 \\ 12f - 15m = 15 \end{cases}$$

$$f(0) = \frac{15}{18} = \frac{5}{6}$$

$$f(-1) \Rightarrow f(-1) + f(-1) = \frac{3 + 12 + 3}{-1} \Rightarrow 2f(-1) = -18$$

$$\boxed{f(-1) = -9} \quad \text{پ}$$

$$1) \begin{cases} D_f = 1-x \geq 0 \Rightarrow \boxed{x \leq 1} & (-\infty, 1] \\ D_g = (1-x)^3 \geq 0 \Rightarrow 1-x \geq 0, \boxed{x \leq 1} & (-\infty, 1] \end{cases} \left. \vphantom{\begin{matrix} D_f \\ D_g \end{matrix}} \right\} D_f = D_g$$

$$2) f(0) = g(0), \dots$$

$$1), 2) \Rightarrow f(x) = g(x)$$

$$1) \begin{cases} D_f = x \geq 0 & [0, \infty) \\ D_g = x^3 \geq 0 \Rightarrow x \geq 0 & [0, \infty) \end{cases} \left. \vphantom{\begin{matrix} D_f \\ D_g \end{matrix}} \right\} D_f = D_g$$

$$2) f(x) = x\sqrt{x} = g(x) = \sqrt{x^3}, \dots$$

$$1), 2) \Rightarrow f(x) = g(x)$$

$$1) \begin{cases} D_f = \boxed{x \geq 0} \\ D_g = x - |x| \geq 0 \leadsto x \geq |x| \leadsto \boxed{x \leq 0} \end{cases} \left. \vphantom{\begin{matrix} D_f \\ D_g \end{matrix}} \right\} D_f = D_g$$

$$2) f(x) = g(x), \dots = \boxed{0}$$

$$1), 2) \Rightarrow f(x) = g(x)$$

$$D_{f \circ g} = \{1, 2, 3, 0\}$$

$$الف) \frac{x+1}{x-1} = \frac{3}{-1} \leadsto (1, 3)$$

$$ب) \frac{x^3}{0} = \frac{0}{0}, \dots$$

$$2.) f(0) \circ g(-1) = 0 \times 1 = 0$$

$$الف) \left( \frac{x+1}{3}, \frac{x-1}{3} \right) \leadsto g(x) = \{ (1, 1), (0, 2), \left( \frac{1}{3}, 5 \right), \left( -\frac{1}{3}, 2 \right), \left( \frac{2}{3}, -1 \right) \}$$

$$ب) |x| = \frac{x+1}{3} \Rightarrow h(x) = \{ (-2, 1), (0, 5), (7, -1) \}$$