

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

$$f(-1) = 1a - 1 \rightarrow 1a - 1 = 1a - 1 + a \Rightarrow 1a = -1 \rightarrow a = -1$$

(سوال ۱)

$$\left. \begin{aligned} f(2-\sqrt{3}) &= \sqrt{2-\sqrt{3}} + \frac{1}{\sqrt{2-\sqrt{3}}} \times \frac{\sqrt{2+\sqrt{3}}}{\sqrt{2+\sqrt{3}}} + 2 \rightarrow \sqrt{2-\sqrt{3}} + \sqrt{2+\sqrt{3}} + 2 \\ f(2+\sqrt{3}) &= \sqrt{2+\sqrt{3}} + \frac{1}{\sqrt{2+\sqrt{3}}} \times \frac{\sqrt{2-\sqrt{3}}}{\sqrt{2-\sqrt{3}}} + 2 \rightarrow \sqrt{2+\sqrt{3}} + \sqrt{2-\sqrt{3}} + 2 \end{aligned} \right\} 2A + 4 \Rightarrow \underline{2\sqrt{4} + 4}$$

$$A = 2 - \sqrt{3} + 2 + \sqrt{3} + 2\sqrt{2-\sqrt{3}} \rightarrow A = 4 \rightarrow A = \sqrt{4}$$

$$\left. \begin{aligned} x \rightarrow 2f(x) - 3f(-x) &= 5x^2 - x \quad \times 2, \quad 4f(x) - 6f(-x) = 10x^2 - 2x \\ -x \rightarrow 2f(-x) - 3f(x) &= 5x^2 + x \quad \times 3, \quad 6f(-x) - 9f(x) = 15x^2 + 3x \end{aligned} \right\} -8f(x) = 10x^2 + x$$

$$f(x) = \frac{10x^2 + x}{-8}$$

$$\begin{aligned} f(1) &\rightarrow 2f(1) = 3m - 1 \\ f(-1) &\rightarrow 4f(-1) = 18 + 8m \\ 12m - 4 &= 18 + 8m \rightarrow 4m = 22 \rightarrow m = 5.5 \end{aligned}$$

$$f(1) \Rightarrow \frac{12 \times 5.5}{4} \rightarrow \frac{165}{2}$$

$$\begin{aligned} f(x) &= ax + b \quad f\left(\frac{1}{x}\right) = \frac{a}{x} + b \\ ax + \frac{a}{x} + 2b &\rightarrow \frac{ax^2 + a + 2bx}{x} = \frac{3x^2 + 3 - 12x}{x} \end{aligned}$$

$$\left(\begin{matrix} a = 3 \\ b = -4 \end{matrix} \right) \rightarrow f(x) = 3x - 4 \rightarrow f(-1) = -9$$

اه نعم ————— با اصل متق یک رو جایگزینی کنیم که راحت تر جواب پیدا بشه! ☺

$$\begin{aligned} Df(x) &\rightarrow 1-x \geq 0 \rightarrow 1 \geq x \quad \xrightarrow{x=\frac{1}{4}} \quad -\frac{1}{4} \sqrt{\frac{1}{4}} \\ Dg(x) &\rightarrow 1-x \geq 0 \rightarrow 1 \geq x \quad \xrightarrow{x=\frac{1}{4}} \quad -\frac{1}{4} \sqrt{\frac{1}{4}} \end{aligned}$$

$$g(x) = f(x)$$

$$\begin{aligned} Df(x) &= x \geq 0 \rightarrow x\sqrt{x} \\ Dg(x) &= x \geq 0 \quad \xrightarrow{x \geq 0} \quad |x|\sqrt{x} \rightarrow x\sqrt{x} \end{aligned}$$

$$\begin{aligned} Df(x) &= x \geq 0 \rightarrow 0 \leq \sqrt{x} - [\sqrt{x}] < 1 \quad \xrightarrow{\text{برگشت}} \quad \text{جمله برابر با صفر} \\ Dg(x) &= \begin{matrix} \oplus \\ \ominus \\ \oplus \end{matrix} \rightarrow x \geq 0 \rightarrow \text{جمله برابر با صفر} \end{aligned}$$

$$\rightarrow g(x) = f(x)$$

سؤال 9

$$\text{الف) } \frac{f(1)+g(1)}{f(1)-g(1)} \rightarrow \frac{2+1}{2-1} \rightarrow 3 \quad \text{ب) } \frac{f(2)+g(2)}{f(2)-g(2)} \rightarrow \frac{3+3}{3-3} \rightarrow \infty$$

$$\text{ج) } 0 \times 1 \rightarrow 0$$

$$f(m) = \{(2,1), (-1,4), (0,5), (-2,2), (3,-1)\}$$

سؤال 10

$$\text{الف) } g(m) = f(3m-1) \rightarrow$$

$$3m-1=2 \rightarrow m=1 \quad (1,1) \quad 3m-1=0 \rightarrow m=\frac{1}{3} \quad (\frac{1}{3}, 5) \quad 3m-1=+3 \rightarrow m=\frac{4}{3} \rightarrow (\frac{4}{3}, -1)$$

$$3m-1=-1 \rightarrow m=0 \quad (0,4) \quad 3m-1=-2 \rightarrow m=-\frac{1}{3} \quad (-\frac{1}{3}, 2)$$

$$g(m) \rightarrow \{(1,1), (0,4), (\frac{1}{3}, 5), (-\frac{1}{3}, 2), (\frac{4}{3}, -1)\}$$

$$\text{ب) } h(m) = f(|m|)$$

$$|m|=2 \rightarrow m=\pm 2 \quad (2,1) \quad (-2,1) \quad |m|=-1 \text{ غير ممكن } |m|=0 \rightarrow (0,5) \quad |m|=3 \text{ غير ممكن } |m|=3 \quad m=\pm 3 \quad (3,-1) \quad (-3,-1)$$

$$h(m) = \{(2,1), (-2,1), (0,5), (3,-1), (-3,-1)\}$$

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