

تکلیف شماره ۶ یازدهم دفتر C

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$$2f(0) = f(-2) + a \rightarrow 2(a+1)(0+2) = 2a+2(-2)+a \rightarrow 4a+4 = 2a-4 \rightarrow 2a = -8 \rightarrow a = -4$$

$$\frac{1}{\sqrt{2-\sqrt{3}}} + \frac{1}{\sqrt{2+\sqrt{3}}} + 2 + \sqrt{2+\sqrt{3}} + \frac{1}{\sqrt{2-\sqrt{3}}} + 2 \xrightarrow{(2-\sqrt{3})(2+\sqrt{3})=1}$$

$$2\sqrt{2-\sqrt{3}} + 2\sqrt{2+\sqrt{3}} + 4 \rightarrow 2(\sqrt{2-\sqrt{3}} + \sqrt{2+\sqrt{3}}) + 4 = \boxed{4 + 2\sqrt{4}} = 8$$

$$\begin{aligned} \text{if } x=x &\rightarrow (2f(x) - 2f(-x) = \varepsilon x^2 - x) \times 2 \rightarrow \varepsilon f(x) - 4f(-x) = 12x^2 - 2x \\ \text{if } x=-x &\rightarrow (2f(-x) - 2f(x) = \varepsilon x^2 + x) \times 2 \rightarrow -4f(x) + 4f(-x) = 12x^2 + 2x \\ &\rightarrow -8f(x) = 12x^2 + 2x \\ &\xrightarrow{+(-5)} f(x) = \boxed{-\frac{3}{2}x^2 - \frac{x}{4}} \end{aligned}$$

$$(x+2)f(x) - 2xf(x+2) = \varepsilon x^2 - mx + 2m - 1$$

$$\left. \begin{aligned} \text{if } x=-2 &\rightarrow 4f(0) = 10 + 2m \\ \text{if } x=0 &\rightarrow 2f(0) = 2m - 1 \end{aligned} \right\} 10 + 2m = 4m - 2 \rightarrow 2m = 12 \rightarrow m = 6$$

$$\xrightarrow{\text{با جایگزینی } m=6} 2f(0) = 2(6) - 1 \rightarrow f(0) = \boxed{\frac{11}{2} = 5.5}$$

$$\left. \begin{aligned} f(x) = ax + b, \quad f\left(\frac{1}{2}\right) = \frac{a}{2} + b \rightarrow f(x) + f\left(\frac{1}{2}\right) = ax + 2b + \frac{a}{2} \\ \frac{3x^2 - 12x + 4}{x} \xrightarrow{x \neq 0} = 3x - 12 + \frac{4}{x} \end{aligned} \right\} a=3, b=-4$$

$$f(x) = 3x - 4 \rightarrow f(-1) = -3 - 4 = \boxed{-7}$$

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$$\begin{cases} f(x) = (x-1)\sqrt{1-x} \\ g(x) = -\sqrt{(1-x)^3} \end{cases}$$

چون باید زیر رادیکال غیر منفی من
 $1-x \geq 0 \rightarrow x \leq 1$

$$= -|1-x|\sqrt{1-x} \rightarrow -(1-x)\sqrt{1-x} = (x-1)\sqrt{1-x}$$

همچنین $\rightarrow D_f = D_g = (-\infty, 1]$

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$$\begin{cases} f(x) = x\sqrt{x} \\ g(x) = \sqrt{x^3} \end{cases}$$

$x \geq 0$
 $= |x|\sqrt{x} = x\sqrt{x}$

همچنین $\rightarrow D_f = D_g = [0, +\infty)$

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$$\begin{cases} f(x) = [\sqrt{x} - [\sqrt{x}]] & D_f = [0, +\infty) \\ g(x) = \sqrt{x - |x|} \end{cases}$$

چون $0 \leq \sqrt{x} - [\sqrt{x}] < 1 \rightarrow f(x) = 0$

$x \geq 0 \rightarrow 0$
 $x < 0 \rightarrow X$
 $D_g = [0, +\infty)$

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