

۲۰. افین عالی نویسی

$$f(a) = (a+1)(a+2) = \sqrt{a+1} \quad , \quad f(-1) = 2a + 2(-1) = 2a - 2$$

$$\rightarrow 2f(a) = f(-1) + a \rightarrow 2\sqrt{a+1} = 2a - 2 + a \rightarrow 1\sqrt{a+1} = \frac{3a-2}{2} \rightarrow$$

$$10a = -11 \Rightarrow a = -1.1$$

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$$A = \sqrt{x} + \frac{1}{\sqrt{x}} + 2 \rightarrow A-2 = \sqrt{x} + \frac{1}{\sqrt{x}} \xrightarrow{\text{ضرب در } (A-2)^2} (A-2)^2 = x + \frac{1}{x} + 2 \xrightarrow{x=\sqrt{2}} \sqrt{2} + \frac{1}{\sqrt{2}} + 2 = 6 \rightarrow$$

$$(A-2)^2 = 2 - \sqrt{2} + \frac{1}{2 - \sqrt{2}} + 2 = 2 - \sqrt{2} + \frac{1 \times (2 + \sqrt{2})}{(2 - \sqrt{2})(2 + \sqrt{2})} + 2 = 2 - \sqrt{2} + \frac{2 + \sqrt{2}}{4 - 2} + 2 = 6 \rightarrow$$

$$(A-2)^2 = 6 \rightarrow A-2 = \sqrt{6} \rightarrow A = 2 + \sqrt{6}$$

$$\Rightarrow f(2+\sqrt{6}) = 2 + \sqrt{6}$$

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

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

کبر - جی x - x - جی جی جی

$$\begin{cases} 2f(x) - 3f(-x) = 5x^2 - x \\ 2f(-x) - 3f(x) = 5x^2 + x \end{cases} \rightarrow$$

$$5f(x) - 6f(-x) = 10x^2 - 2x$$

$$-9f(x) + 6f(-x) = 10x^2 + 2x$$

$$-14f(x) = 20x^2 + 2x$$

$$f(x) = -\frac{5}{7}x^2 - \frac{x}{7}$$

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$$\xrightarrow{x=0} 2f(0) = 3m - 1 \rightarrow 2f(0) - 3m = -1 \xrightarrow{-6f(0) + 9m = 3}$$

$$\xrightarrow{x=-5} 9f(0) = 5m + 14 \quad 9f(0) - 5m = 14 \quad 9f(0) - 5m = 14$$

$$14m = 14 \rightarrow m = \frac{1}{2}$$

$$2f(0) = 3m - 1 \rightarrow f(0) = \frac{3m-1}{2}$$

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$$f(x) + f\left(\frac{1}{x}\right) = \frac{5x^2 - 12x + 5}{x} \rightarrow ax + b + \frac{a}{x} + b = 5x - 12 + \frac{5}{x}$$

$$\rightarrow ax + \frac{a}{x} + 2b = 5x + \frac{5}{x} - 12 \Rightarrow \begin{cases} a = 5 \\ b = -6 \end{cases}$$

$$f(x) = ax + b = 5x - 6 \xrightarrow{x=-1} f(-1) = -5 - 6 = -11$$

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$\begin{cases} f(x) = -(1-x)\sqrt{1-x} \Rightarrow D_f = (-\infty, 1] \\ \quad = -\sqrt{(1-x)^3} \\ g(x) = -\sqrt{(1-x)^3} \Rightarrow D_g = (-\infty, 1] \end{cases}$ $D_f = D_g \rightarrow f = g$ متساوية	٤
$\begin{cases} f(x) = x\sqrt{x} \rightarrow D_f = [0, +\infty) \\ \quad = \sqrt{x^2 \cdot x} = \sqrt{x^3} \\ g(x) = \sqrt{x^3} \rightarrow D_g = [0, +\infty) \end{cases}$ $\Rightarrow f = g$	٧
$\begin{cases} f(x) = [\sqrt{x} - \sqrt{x}] = 0, D_f = \cancel{[0, +\infty)} \\ g(x) = \sqrt{x - x } = 0, \frac{x}{2} \quad x - x \geq 0 \rightarrow x \leq x \rightarrow x \geq 0 \Rightarrow D_g = [0, +\infty) \end{cases}$ $f = g$ متساوية	
الف) $\left(\frac{f+g}{f-g}\right)(1) = \frac{f(1)+g(1)}{f(1)-g(1)} = \frac{2+1}{2-1} = 3$ ب) $\left(\frac{f+g}{f-g}\right)(2) = \frac{f(2)+g(2)}{f(2)-g(2)} = \frac{2+3}{2-2} = \frac{5}{0} \rightarrow$ تعريف شدة ج) $f(0)g(-1) = (0) \times (1) = 0$	٩
الف) $g(x) = \{(1,1), (0,4), (\frac{1}{2}, 4), (-\frac{1}{2}, 2), (\frac{2}{3}, -1)\}$ ب) $h(x) = \{(2,1), (-2,1), (0,4), (\frac{2}{3}, -1), (-\frac{2}{3}, -1)\}$	١٠