

$$2(a+2)(a+1) = 3a + 2(-2) + a$$

$$\Rightarrow 11a + 11 = 3a - 4$$

$$1 \cdot a = -11$$

$$\Rightarrow a = -1, 11 \leftarrow \text{پاسخ}$$

$$f\left(\frac{\sqrt{3}-1}{2}\right) + f\left(\frac{\sqrt{3}+1}{2}\right) = f\left(\frac{\sqrt{3}-1}{2}\right) + f\left(\frac{\sqrt{3}+1}{2}\right) = \frac{\sqrt{3}-1}{2} + \frac{\sqrt{3}+1}{2} + 2 + \frac{\sqrt{3}+1}{2} + \frac{\sqrt{3}-1}{2} + 2$$

$$\Rightarrow \frac{\sqrt{3}-1}{2} + \frac{\sqrt{3}+1}{2} + \frac{\sqrt{3}+1}{2} + \frac{\sqrt{3}-1}{2} + 4 = \frac{4\sqrt{3}}{2} + 4 = 2\sqrt{3} + 4 \leftarrow \text{پاسخ}$$

$$\begin{cases} (2f(x) + 3f(-x) = 5x^2 - 9x) \times 2 \\ (2f(-x) - 5f(x) = 15x^2 + 9x) \times 3 \end{cases}$$

$$\begin{cases} 4f(x) + 6f(-x) = 10x^2 - 18x \\ 6f(-x) - 15f(x) = 45x^2 + 27x \end{cases}$$

$$-11f(x) = 35x^2 + 45x \Rightarrow f(x) = -\frac{35}{11}x^2 - \frac{45}{11}x \leftarrow \text{پاسخ}$$

$$x = 0 \Rightarrow 2f(0) = 3m - 1 \quad x = -2 \Rightarrow 4f(0) = 14 + 2m + 3m - 1$$

$$x = -2 \rightarrow 4f(0) = 5m + 13 \Rightarrow 3(3m - 1) = 5m + 13$$

$$\Rightarrow 9m - 3 = 5m + 13 \Rightarrow m = 4, 5$$

$$\Rightarrow 2f(0) = 3m - 1 \Rightarrow f(0) = \frac{3m-1}{2} = \frac{11, 5}{2} = 9, 25 \leftarrow \text{پاسخ}$$

$$f(x) + f\left(\frac{1}{x}\right) = ax + b + \frac{a}{x} + b = \frac{ax^2 + 2bx + a}{x} = \frac{3x^2 - 12x + 3}{x}$$

$$\Rightarrow \begin{cases} a = 3 \\ b = -4 \end{cases} \Rightarrow f(x) = 3x - 4 \Rightarrow f(-1) = -3 - 4 = -7 \leftarrow \text{پاسخ}$$

$$D_f = (-\infty, 1] \quad ; \quad D_g = (-\infty, 1]$$

$$(1-x)=t \rightarrow \begin{cases} f(x) = -t\sqrt{t} \\ g(x) = -\sqrt[3]{t} \end{cases} \Rightarrow f(x) = g(x) \leftarrow \text{سنگ}$$

$$D_f = [0, +\infty) \quad ; \quad D_g = [0, +\infty)$$

$$f(x) = x\sqrt{x} \stackrel{x \geq 0}{=} \sqrt{x^3} = g(x)$$

$$g(x) = f(x) \leftarrow \text{سنگ}$$

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

$$f(x) = \text{همواره } 0$$

$$g(x) = \text{همواره } 0 \Rightarrow f(x) = g(x) \leftarrow \text{سنگ}$$

$$\text{الف)} \quad \frac{f(1)+g(1)}{f(1)-g(1)} = \frac{2+1}{2-1} = 3 \quad \left\{ \begin{array}{l} \frac{f(x)+g(x)}{f(x)-g(x)} = \frac{2+2}{2-2} = \frac{4}{0} \text{ تعریف نشده} \end{array} \right.$$

$$\text{ج)} \quad f(0)g(-1) = 0 \times 1 = 0$$

$$\text{الف)} \quad 2x-1 = D_f \text{ همخوان } \Rightarrow g(x) = \left\{ (1,1), (0,2), \left(\frac{1}{2}, \omega\right), \left(-\frac{1}{2}, 1\right), \left(\frac{x}{2}, -1\right) \right\}$$

$$\text{ب)} \quad |x| = D_f \text{ همخوان } \Rightarrow |x| = \left\{ \frac{2}{x} \Rightarrow h(x) = \left\{ (2,1), (-2,1), (0,\omega), (2,-1), (-2,-1) \right\} \right.$$