

$$\begin{aligned} f(a) &= V(a+1) \\ f(-1) &= 3a-5 \end{aligned} \Rightarrow \begin{aligned} 14(a+1) &= 3a-5+9 \\ 12a+14 &= 3a-5 \\ 10a &= -19 \\ \underline{a = -1.9} \end{aligned}$$

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

$$\sqrt{2+\sqrt{3}} + \frac{1}{\sqrt{2+\sqrt{3}}} + \sqrt{2-\sqrt{3}} + \frac{1}{\sqrt{2-\sqrt{3}}} + 5$$

$$\begin{aligned} \sqrt{1}(\sqrt{2-\sqrt{3}} + \sqrt{2+\sqrt{3}})^2 &= 2 - \sqrt{3} + 2\sqrt{3} + 2 + \sqrt{3} = 4 \\ \text{و نیز } (\sqrt{2-\sqrt{3}} + \sqrt{2+\sqrt{3}}) &= \sqrt{4} \end{aligned}$$

$$2(\sqrt{2+\sqrt{3}} + \sqrt{2-\sqrt{3}}) + 5 \rightarrow 4 + 2\sqrt{4} = 8$$
~~$$2(\sqrt{2+\sqrt{3}} + \sqrt{2-\sqrt{3}}) + 5 \rightarrow 4 + 2\sqrt{4} = 8$$~~

$$\left. \begin{aligned} 2f(x) - 3f(-x) &= 4x^2 - x \\ -x \text{ بزرگ } 2f(x) - 3f(-x) &= 4x^2 + x \end{aligned} \right\} \Rightarrow f(x) = -4x^2 - \frac{x}{2}$$

$$\begin{aligned} \text{در } x=0 \quad 2f(0) &= 3m-1 \\ \text{در } x=-2 \quad 4f(0) &= 18+8m \end{aligned} \Rightarrow m = \frac{9}{4}$$

$$f(0) = \frac{2 \cdot \frac{9}{4} - 1}{2} = \frac{\frac{9}{2} - 1}{2} = \frac{\frac{7}{2}}{2} = \frac{7}{4}$$

$$\begin{aligned} f(x) &= ax+b \\ f\left(\frac{1}{x}\right) &= \frac{a}{x} + b \end{aligned} \rightarrow \begin{aligned} ax+b + \frac{a}{x} + b &= 3x-12 + \frac{3}{x} \\ \text{و نیز } 2b &= -12 \quad \underline{a=3} \\ b &= -6 \end{aligned}$$

$$\frac{3x^2-12x+3}{x} = \frac{3(x^2-12x+1)}{x} \quad \begin{aligned} f(x) &= 3x-6 \\ f(-1) &= -3-6 = -9 \end{aligned}$$

$$f(x) = (x-1)\sqrt{x} \quad D = (-\infty, 1]$$

$$g(x) = -\sqrt{1-x^2} \quad D = (-\infty, 1]$$

→ $f \neq g$

$$f(x) = x\sqrt{x} \rightarrow D = [0, +\infty)$$

$$\forall x \geq 0 \rightarrow \sqrt{x^3} = x\sqrt{x} = f(x) = D = [0, +\infty)$$

$f = g$

$$\text{ج) } x = \sqrt{3} + \begin{matrix} f(x) = \sqrt{x} - [\sqrt{x}] \\ g(x) = \sqrt{x-1} \end{matrix} \rightarrow \begin{matrix} \sqrt{3} - [\sqrt{3}] = \sqrt{3-3} \\ \sqrt{3} - 1 \neq 0 \end{matrix}$$

$f(x) \neq g(x)$

$$\text{الف) } \frac{2+1}{2-1} = 3$$

$$\text{ب) } \frac{3+3}{3-3} = \frac{6}{0} \rightarrow \text{كفر نسبه}$$

$$\text{ج) } 0 \times 1 = 0$$

$$g(x) = \left\{ \left(\frac{1}{3}, 2 \right), (0, 4), \left(\frac{1}{3}, 5 \right), (1, 1), \left(\frac{5}{3}, -1 \right) \right\}$$

$$h(x) = \left\{ (-3, -1), (-2, 1), (0, 5), (2, 1), (3, -1) \right\}$$

$$\hookrightarrow -3, -2 \xrightarrow{|x|} 3, 2$$