

$$\left(\frac{1}{x}\right)^{x^2} > 0 \Rightarrow x^3 f_{(x+1)} > 0 \Rightarrow x^3 > 0 \Rightarrow D = [0, +\infty)$$

از دامنه و

$$x + |x+2| > 0$$

$$\left. \begin{array}{l} x+2 > 0 \Rightarrow x > -2 \\ x-2 > 0 \Rightarrow x > 2 \end{array} \right\} D = [-2, +\infty) \Rightarrow f_{(-2)} \rightarrow x < 1 \Rightarrow D = (-\infty, 1]$$

از دامنه و

$$\frac{x-1}{f(x)} > 0 \left\{ \begin{array}{l} \text{مردم} \rightarrow (2, 3) \\ \text{مردم} \rightarrow (-4, 1] \end{array} \right\} \rightarrow (-4, 1] \cup (2, 3)$$

$$\frac{1}{4x^2 - \sqrt{x-4}x - 4} = \frac{1}{(x^2-1)^2 - (x+2)^2} = \frac{1}{(x^2-1+x+2)(x^2-1-x-2)} \Rightarrow \sqrt{-(1+(x-2))} = \sqrt{2}$$

از دامنه و

$$f\left(\frac{x}{2}\right) = \left(\frac{x}{2}\right)^2 + \frac{x}{2} = \frac{x^2}{4} + \frac{x}{2}$$

$$f(x) - f\left(\frac{x}{2}\right) = x^2 + x - \left(\frac{x^2}{4} + \frac{x}{2}\right) \rightarrow \frac{x^2 + x - \frac{x^2}{4} - \frac{x}{2}}{x^2} \rightarrow \frac{x^2 + x - \frac{x^2}{4} - \frac{x}{2}}{x^2} \rightarrow \frac{x^2 + x - \frac{x^2}{4} - \frac{x}{2}}{x^2}$$

از دامنه و

$$\frac{(x^2-4)(x^2-5x^2+16)}{x^2}$$

$$\left\{ \begin{array}{l} (x^2-5x^2+16) > 0 \Rightarrow \frac{x^2-4}{x^2} \left\{ \begin{array}{l} x > 0 \rightarrow x^2-4 > 0 \Rightarrow x > 2 \\ x < 0 \rightarrow x^2-4 < 0 \Rightarrow x < -2 \end{array} \right. \end{array} \right\} D = [-2, 0) \cup [2, +\infty)$$

$$f(x) : x=1 \rightarrow f(x) = 2-1=1 \quad f_{(1,0)} : x=2 \rightarrow f_{(0)} = 1-1=0$$

$$f(x) + f_{(0)} = 1 + 0 = 1$$

$$\left. \begin{array}{l} g(\sqrt{x}-3) = (\sqrt{x}-3)^2 + 9(\sqrt{x}-3) + 2\sqrt{x}(\sqrt{x}-3) \rightarrow 2\sqrt{x}\sqrt{x}-6 \\ (\sqrt{x})^2 - 3(\sqrt{x})^2 + 3(\sqrt{x}) + 9 - 2\sqrt{x} = -20 - 9(\sqrt{x})^2 + 2\sqrt{x}\sqrt{x} \\ (\sqrt{x})^2 - 6\sqrt{x} + 9 \rightarrow 9(\sqrt{x})^2 - 54\sqrt{x} + 81 \end{array} \right\} \frac{-20}{10} = -2$$

از دامنه و

$$\frac{g}{f} \rightarrow \left\{ \left(2, \frac{3}{4} \right), (0, 6) \right\}$$

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$$\text{ا) } \left\{ \left(\frac{1}{4}, 2 \right), \left(\frac{3}{4}, -1 \right), (2, 2), \left(-\frac{1}{4}, 6 \right) \right\}$$

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$$\text{ب) } \left\{ (1, 2), (\sqrt{3}, -1), (2, 2) \right\}$$

$$\text{ج) } \left\{ (-2, 19), (1, 3), (3, 9), (-1, 1) \right\}$$

$$\text{د) } \left\{ (1, 4), (3, -1), \left(-\frac{1}{2}, \frac{1}{2} \right) \right\}$$