

$$y = \sqrt{x f(x)} \rightarrow x f(x) \geq 0 \rightarrow D_f = [-6, \infty) \cdot ([0, 2) \cup [4, \infty))$$

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$$y = \sqrt{\frac{-x}{f(x)}} \rightarrow \frac{-x}{f(x)} \geq 0 \rightarrow D_f = (-3, 0) \cup (0, 2) \rightarrow \frac{2}{3} \text{ عدد صحیح}$$

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$$x = 2 \rightarrow f(2) - 2f(2) = 4 - 6 + 2 \rightarrow -f(2) = 2$$

$$x = -2 \rightarrow f(-2) - \overset{+4}{2}f(2) = 4 + 6 + 2 \rightarrow f(-2) = 10$$

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$$\left. \begin{aligned} f(f(\infty)) &= f(2) \rightarrow f(2) = 2 \\ f(f(1)) &= f(\infty) \rightarrow f(\infty) = 2 \end{aligned} \right\} 2 + 2 = 4$$

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$$x = 1 \rightarrow \begin{cases} f(x) = a - b + 2 \\ f(x-1) = 2 \end{cases} \rightarrow \begin{cases} f(x-1) - f(x) = 6x + 2 \\ 2 - a + b - 2 = 6 \cdot 1 \\ b - a = 1 \\ \boxed{a - b = -1} \end{cases}$$

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$$\frac{(\sqrt{12}-1)^2 + 1^2 (\sqrt{12}-1) + \omega}{(\sqrt{12}-1)^2 + 1^2 (\sqrt{12}-1) + \nu} = \frac{1 - 4\sqrt{12} + 12\sqrt{12} - 1 + \omega}{9 - 4\sqrt{12} + 12\sqrt{12} - 1 + \nu} = \frac{\omega}{\nu}$$

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$$f(x - \frac{1}{x}) = \frac{x^2 + 1}{x^2} = x^2 + \frac{1}{x^2} = (x - \frac{1}{x})^2 + 2$$

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$$f(x) = x^2 + 2 \rightarrow f(-2) = 9, 2 = 11$$

$$g(x) = \sqrt{9 - x^2} \rightarrow g(x) = 9 - x^2 \geq 0 \rightarrow 9 \geq x^2 \rightarrow 3 \geq x \geq -3$$

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$$Dg \cap D_f = \{ (2, 1), (0, 0) \} \quad \frac{f}{g} = \{ (0, \frac{1}{2}), (1, \sqrt{2}), (1, 0) \}$$

$$\frac{g}{f} = \{ (0, \frac{\sqrt{2}}{2}), (1, -\frac{\sqrt{2}}{2}), (1, -\frac{\sqrt{2}}{2}) \}$$

$$2f(x) = \{ (2, 2), (3, 1), (-1, 3), (1, -3) \}$$

$$f(x+1) = \{ (2, 2), (3, 1), (-1, 3), (1, -1) \}$$

$$3f(x)+1 = \{ (2, 3), (3, 4), (-1, 4), (1, 1) \}$$

$$f(1/x) = \{ (1, 1), (1, 2), (-1, 2), (2, -2) \}$$

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$$f-g = \{ (2, 2), (1, 3), (3, 1) \}$$

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$$\frac{2f}{g} = \{ (2, 2), (1, \frac{1}{2}), (3, -1) \}$$