

$$f(x), x \leq 0$$

$$[5, 0] \cup [2, 5]$$

۱

$$\frac{-x}{f(x)} \geq 0$$

$$(-3, 0) \cup (0, 2)$$

$$\text{مردمای صحیح: } -2, -1, 1$$

$$\overline{63}$$

۲

$$f(2) - 2f(2) = 4 - 4 + 4 = 4$$

$$f(2) = -2$$

$$f(-2) = f(-2) + 4 = 4 + 4 + 4 = 14$$

$$\overline{f(-2) = 10}$$

۳

$$f(5) = 5 - \sqrt[3]{4} = 2 \Rightarrow f(2) = 4 + 3 = 7$$

$$f(1) = 2 + 3 = 5 \Rightarrow f(5) = 2$$

$$\overline{7 + 2 = 9}$$

۴

$$a(x-1)^2 - b(x-1) + 2$$

$$ax^2 - 2ax + a - bx + b + 2 - ax^2 + bx - 2 = 4x + 2$$

$$-2ax + a + b = 4x + 2$$

۵

$$f(3) = 9 - 9 + 1 = 1$$

$$f(-1) = 1 + 3 + 1 = 5$$

$$f(2) = 4 - 9 + 1 = -4$$

$$\frac{(3 \times \cancel{-1}) + 5}{(-1)^2} = \frac{2}{1} = 2$$

6

$$f(4) = 16 + 1 = 17$$

$$f(-2) = 4$$

$$f(2) = 4 + 1 = 5$$

$$\frac{(3 \times \cancel{17}) - (2 \times \cancel{4})}{5} = \frac{31}{5}$$

7

$$\frac{f(f(\cancel{4})) - f(f(\cancel{2}))}{f(1) - 2} = \frac{4 - 4}{4 - 2} = 0$$

8

$$x^2 + \frac{1}{x} \quad x: \sqrt{3} - 2 \Rightarrow 3 + \frac{1}{\sqrt{3} - 2} + \frac{1}{\sqrt{3} - 2} - 1 = -1$$

$$f(\sqrt{3} - 2) = \frac{-1 + 9}{-1 + 5} = \frac{8}{4} = 2$$

$$f(2) = \frac{4 + 1 + 9}{4 + 1 + 5} = \frac{14}{10} = \frac{7}{5}$$

9

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

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

$$\cancel{x^2} + 2 + \frac{1}{\cancel{x^2}} - \cancel{x^2} - \frac{1}{\cancel{x^2}} = 2$$

10