

$$\sqrt{x f(x)} \rightarrow x f(x) \geq 0$$

$$[-2, 2]$$

$$(-2, -1) \oplus$$

$$(-1, 1) \ominus \Rightarrow [-1, 1] \cup [1, 2]$$

$$(1, 2) \oplus$$

۱

$$f(x) \neq 0$$

$$x(-1, -2) f < 0$$

$$(0, 1) f < 0 \Rightarrow \text{نه}$$

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

$$(-2, 0) f > 0$$

$$x(1, 2) f > 0$$

$$\downarrow$$

$$\text{اعداد صحیح در بازه}$$

$$(0, 1)$$

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

$$f(-2) - 2f(-2) = \frac{4 + 4 + 4}{1} \Rightarrow f(-2) = 1$$

۳

$$f(5) = 5 - \sqrt{9} = 2 \quad f(f(5)) = f(2) \rightarrow 2(2) + 3 = 7 \rightarrow f(1) = 5$$

$$f(f(1)) = f(5)$$

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

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$$a(x-1)^2 - b(x-1) + 2 - (ax^2 - bx + 2) = \underbrace{-2ax + a + b}$$

$$-2a = 4 \rightarrow \boxed{a = -2}$$

$$a + b = 2 \rightarrow -2 + b = 2 \Rightarrow \boxed{b = 4}$$

$$a - b = \boxed{-6}$$

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$$\frac{xf(x) + f(-1)}{f'(x)} = \frac{x+1}{1} = \boxed{\sqrt{x}}$$

$$f(x) = 9 - 9 + 1 = \underline{1}$$

$$f(-1) = 1 + 9 + 1 = \underline{10}$$

$$f(x) = 9 - 9 + 1 = \underline{1}$$

6

$$\frac{xf(x) - xf(-2)}{f'(x)} = \frac{x-1}{x} = \boxed{\frac{x-1}{x}}$$

7

$$\frac{f(f(f)) - f(f(x))}{f(1)-x} \rightarrow 0 = \frac{0}{f(1)-x} = \underline{0}$$

8

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

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

↓

$$\frac{f+1+9}{f+1+10}$$

9

$$(f(\sqrt{x}))^2 = \left(x + \frac{1}{x}\right)^2 = \boxed{2x + 2 + \frac{1}{x}}$$

$$(f(\sqrt{x}))^2 - f(x) = \boxed{2}$$

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