

$$x f(x) \geq 0 \quad \frac{-5}{-} \quad \frac{0}{+} \quad \frac{2}{-} \quad \frac{5}{+} \quad D_f = [-5, 0] \cup [2, 5]$$

$$\frac{-x}{f(x)} \geq 0 \quad f(x) \neq 0 \quad \frac{-3}{-} \quad \frac{0}{+} \quad \frac{2}{-} \quad D_f = (-3, 0) \cup (0, 2)$$

$$f(x) - x f(x) = x^2 - 9 + x^2 \Rightarrow -f(x) = x \Rightarrow f(x) = -x$$

$$f(-x) - x f(-x) = x^2 + 9 + x^2 \Rightarrow f(-x) = 1$$

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

$$f(x) = x^2 + v \Rightarrow v + 2 = 9$$

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

$$f(x-1) - f(x) = -2ax + a + b \Rightarrow 9x = -2ax \quad 5$$

$$9 = -2a \Rightarrow a = -\frac{9}{2}$$

$$a + b = 2 \Rightarrow -\frac{9}{2} + b = 2 \Rightarrow b = \frac{13}{2} \quad a - b = -\frac{9}{2} - \frac{13}{2} = -11$$

$$f(x) = x^2 - x \times x + 1 = 1$$

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

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

$$\frac{f(1) + 0}{1} = 1$$

$$f(4) = 4 \times 4 + 1 = 17$$

$$f(-4) = (-4)^2 = 16$$

$$f(1) = 1 \times 1 + 1 = 2$$

$$\left. \begin{array}{l} f(4) = 4 \times 4 + 1 = 17 \\ f(-4) = (-4)^2 = 16 \\ f(1) = 1 \times 1 + 1 = 2 \end{array} \right\} \frac{f(17) - f(4)}{17} = \frac{16}{17}$$

$$\frac{f(f(4)) - f(f(1))}{f(1) - 1}$$

$$= \frac{9 - 4}{1} = \frac{5}{1} = 5$$

$$f(\sqrt{x} - 1) \Rightarrow \frac{(\sqrt{x} - 1)^2 + f(\sqrt{x} - 1) + 9}{(\sqrt{x} - 1)^2 + f(\sqrt{x} - 1) + 16} = \frac{1}{5} = 1$$

$$f(1) = \frac{1 + 1 + 9}{1 + 1 + 16} = \frac{11}{18}$$

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

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

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