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$$f(x) = k$$

$$f(x) = x^2 - 9x + 8 + 2k$$

$$f(x) = (x)^2 - 9(x) + 8 + 2k = k$$

$$f(-x) = (-x)^2 - 9(-x) + 8 = f(x) = 1$$

$$x^2 - 9x + 8 + 2k = k$$

$$k = -x^2 + 9x - 8$$

$$f(x) = x^2 - 9x + 8 + 2k = f(x) = x^2 - 9x + 8 + 2(-x^2 + 9x - 8) = -x^2 + 9x - 8$$

$$f(f(5)) + f(f(1))$$

فایده دارد $5 > 3$ $1 < 3$

$$f(x) = \begin{cases} x^2 - 9x + 8 & x > 3 \\ x^2 + 9x - 8 & x < 3 \end{cases}$$

$$\begin{aligned} \textcircled{1} f(5) &= 5^2 - 9 \cdot 5 + 8 = -2 \rightarrow f(2) \\ \textcircled{2} f(x) &= x^2 - 9x + 8 = 8 - 9x + x^2 \end{aligned}$$

$$\left. \begin{aligned} f(1) &= 1^2 - 9 \cdot 1 + 8 = 0 \\ f(5) &= 5^2 - 9 \cdot 5 + 8 = -2 \end{aligned} \right\} \begin{aligned} f(f(5)) &= f(-2) = (-2)^2 - 9(-2) + 8 = 25 \\ f(f(1)) &= f(0) = 0^2 - 9 \cdot 0 + 8 = 8 \end{aligned}$$

$$f(f(5)) + f(f(1)) = 25 + 8 = 33$$

۴

$$f(x-1) - f(x) = 8x + 2$$

$$f(1) - f(2) = \frac{15}{-10} \rightarrow 29 - (+10) = 19$$

$$f(x) = a - b + x \rightarrow x - b = 19$$

$$-(b-x) = 10$$

$$-2b = 19$$

$$b = -9.5$$

$$|a \leq x|$$

$$a - b = 19$$

$$f(x) = a - b + x$$

$$b - a = \frac{a - b + x}{19 + f(x)} - 1$$

$$-1 = 19 + f(x)$$

$$f(1) = 19$$

$$f(2) = 18 = b - a$$

۵

$$f(x) = e^x - e(-x) = e^x + e$$

$$f(1) = 1 - e = -e$$

$$f(x) = e^x + e$$

$$f(-x) = e^{-x} - e(-x) = e^{-x} + e$$

$$f(x) = e^x - e(-x)$$

$$\frac{-e + e}{1} = \frac{-e}{1} = -e$$

$$f(x) = e^x - e(-x) = e^x + e$$

$$f(1) = 1 - e = -e$$

$$f(x) = e^x + e$$

$$f(-x) = e^{-x} - e(-x) = e^{-x} + e$$

$$f(x) = e^x - e(-x)$$

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

$$f(f(\sqrt{x}))$$

$$f(x) = \frac{x^2 + e^x + 9}{x^2 + e^x + 0}$$

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

$$f(\sqrt{x}) = \frac{(x^2 + e^x) + 9}{(x^2 + e^x) + 0} = \frac{-1 + 9}{-1 + 0} = \frac{8}{-1} = -8$$

$$f(f(\sqrt{x})) = f(x) = \frac{x^2 + e^x + 9}{x^2 + e^x + 0} = \frac{8}{-1} = -8$$

$$f'(x) = (f(\sqrt{x}))' - f(x)$$

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

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

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