

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

$$\frac{-x}{f(x)} \geq 0, \quad (f) x \neq 0 \quad \frac{-3 + 0 - 2 - 5}{\phi + \phi - \phi + \phi} \Rightarrow D_f = (-3, 0) \cup (0, 2)$$

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if $x=2 \Rightarrow f(x) - 2(f(x)) = 4 - 4 + 4 \Rightarrow -f(x) = 2 \Rightarrow f(x) = -2$

$f(-2) - 2f(x) = (-2)^2 - 2(-2) + 4 \Rightarrow f(-2) + 4 = 14 \Rightarrow f(-2) = 10$

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

$f(2) = 2(2) + 3 = 7$

$f(1) = 2(1) + 3 = 5 \Rightarrow f(f(1)) = f(5) = 2 \Rightarrow 5 + 2 = 7$

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

$f(n-1) = a(n-1)^2 - b(n-1) + 2 = an^2 - 2an + a - bn + b + 2 \Rightarrow f(n-1) = f(n) - 2an + a + b$

$-2an + a + b = 4n + 2 \Rightarrow -2a = 4 \Rightarrow a = -2 \quad \begin{cases} a + b = 2 \\ -2 + b = 2 \end{cases} \Rightarrow b = 4$

$\Rightarrow a - b = -2 - 4 = -6$

$ \begin{aligned} f(x) &= x^x - x(x) + 1 = 1 \\ f(-1) &= (-1)^{-1} - (-1)(-1) + 1 = 0 \\ f'(x) &= x^x \cdot x(x) + 1 = 1 \Rightarrow f'(x) = 1 \end{aligned} \left. \vphantom{\begin{aligned} f(x) &= x^x - x(x) + 1 = 1 \\ f(-1) &= (-1)^{-1} - (-1)(-1) + 1 = 0 \\ f'(x) &= x^x \cdot x(x) + 1 = 1 \Rightarrow f'(x) = 1 \end{aligned}} \right\} \Rightarrow \frac{f(1) + 0}{1} = \boxed{1} $	9
$ \begin{aligned} f(x) &= x(x) + 1 = 1x \\ f(-x) &= (-x)^x = x^x \\ f(x) &= x(x) + 1 = 1 \end{aligned} \qquad \frac{x(1x) - x(x)}{1} = \frac{x}{1} $	7
$ \begin{aligned} f(x) &= 1 \Rightarrow f(1) = 4 \\ f(x) &= x \Rightarrow f(x) = 4 \\ f(1) - x &= 4 - x = x \end{aligned} \left. \vphantom{\begin{aligned} f(x) &= 1 \Rightarrow f(1) = 4 \\ f(x) &= x \Rightarrow f(x) = 4 \\ f(1) - x &= 4 - x = x \end{aligned}} \right\} \Rightarrow \frac{4-4}{x} = 0 $	1
$ \begin{aligned} f(\sqrt{x}-x) &= (\sqrt{x}-x)^x + x(\sqrt{x}-x) + 9 \\ &\quad \frac{(\sqrt{x}-x)^x + x(\sqrt{x}-x) + 0}{(\sqrt{x}-x)^x + x(\sqrt{x}-x) + 0} \Rightarrow (\sqrt{x}-x)^x + x(\sqrt{x}-x) = -1 \Rightarrow f(\sqrt{x}-x) \cdot \frac{-1+9}{-1 \cdot 0} \cdot \frac{1}{x} = x \end{aligned} $ $ f(x) = f(f(\sqrt{x}-x)) \Rightarrow f(x) = \frac{x^x + x(x) + 9}{x^x + x(x) + 0} = \frac{x}{1x} $	9
$ \begin{aligned} (f(\sqrt{n})) &= (\sqrt{n})^x + \frac{1}{(\sqrt{n})^x} = n + \frac{1}{n} \Rightarrow (f(\sqrt{n}))^x = n^x + x + \frac{1}{n^x} \\ f(n) &= n^x + \frac{1}{n^x} \Rightarrow n^x + x + \frac{1}{n^x} - n^x - \frac{1}{n^x} = \boxed{x} \end{aligned} $	10