

$f(x) = 0, x = 0$
 $f(x) < 0$ for $x < 0$
 $f(x) > 0$ for $x > 0$



نقاط ۲، ۰، ۲ - قبل
 بعد - قبل
 منبر گاه
 $(-2, 0)$
 $(0, 2)$
 $f(2, 13) = 0$
 $f(2) = 0$
 $f(0) = 0$
 $(-2, 0, -1)$
 $(2, 13)$

$$f(r) - rf(r) = r^r - r \times r + r \quad f(-r) = 1$$

$$f(r) - rf(r) = r^r - r \times r + r \rightarrow -f(r) = r \rightarrow f(r) = -r$$

$$f(-r) - rf(r) = (-r)^r - r(-r) + r \rightarrow f(-r) = 1$$

$$f(x) = \begin{cases} x - \sqrt{x+r} & x > r \\ x+r & x \leq r \end{cases}$$

$$\begin{aligned} f_n &= an^r - bn + r & f_{(n-1)} - f_n &= 4n + r & a - b &= ? \\ f_{(n-1)} &= a(n-1)^r - b(n-1) + r = a(n^r - rn + 1) - bn + b + r = an^r - ran + a - bn + b + r \\ f_{(n-1)} - f_n &= (an^r - ran + a - bn + b + r) - (an^r - bn + r) = -ran + a + b \\ -ran + a + b &= 4n + r \rightarrow a = -r \\ a + b &= r \rightarrow -r + b = r \Rightarrow b = 2 \\ a - b &= -4 \end{aligned}$$

$$f(n) = n^r \cdot \ln(n)$$

$$\frac{r f(n) + f(n)}{f(n)} = \frac{r}{1} = \boxed{r}$$

$$f(n) = r \ln(n) + r \ln(n)$$

$$f(n) = (-1)^r \cdot \ln(n) = 0$$

$$f(n) = r^r - 4 + 1 = -1$$

$$f(n) = \begin{cases} r \ln(n) & n \geq r \\ n^r & n < r \end{cases}$$

$$\frac{r f(n) - r f(n-r)}{f(n)} = \boxed{\frac{r}{1}} = r$$

$$f(n) = r \ln(n) + 1 = r$$

$$f(n) = (-r)^r = r$$

$$f = \{(n, 4), (r, r), (1, 1), (1, 4)\}$$

$$\frac{f(f(n)) - f(f(n))}{f(n)} = \boxed{0}$$

$$f(n) = r \rightarrow f(f(n)) = f(r) = 4$$

$$f(n) = 1 \rightarrow f(f(n)) = f(1) = 4$$

$$f(n) = \frac{n^r + \ln(n) + 9}{n^r + \ln(n) + 8} \quad f(f(\sqrt{r}-r)) = ?$$

$$n^r + \ln(n) + 9 = (n+r)^r + 8, \quad n^r + \ln(n) + 8 = (n+r)^r + 1$$

$$\frac{(n+r)^r + 8}{(n+r)^r + 1} \xrightarrow{n=\sqrt{r}-r} \frac{(\sqrt{r})^r + 8}{(\sqrt{r})^r + 1} = \frac{1}{2} = r \rightarrow f(r) = \frac{r^r + \ln(r) + 9}{r^r + \ln(r) + 8} = \boxed{\frac{r}{1}} = r$$

$$f(n) = n^r + \frac{1}{n^r} \quad (f(\sqrt{n}))^r = f(n) = ?$$

$$f(\sqrt{n}) = (\sqrt{n})^r + \frac{1}{(\sqrt{n})^r} = n + \frac{1}{n} \rightarrow (f(\sqrt{n}))^r = \left(n + \frac{1}{n}\right)^r = n^r + r + \frac{1}{n^r}$$

$$\left(n^r + r + \frac{1}{n^r}\right) - \left(n^r + \frac{1}{n^r}\right) = \boxed{r}$$