

$$f(n) = n + 1 \geq 0 \longrightarrow [n] \geq f \longrightarrow [n] \geq \omega \longrightarrow n \geq \omega$$

$$\hookrightarrow [n] \leq f \longrightarrow n < \omega$$

$$(2n-1) - n + 1 \geq 0 \longrightarrow n \geq 0 \Rightarrow [0, +\infty)$$

$$(n+1) - n + 1 \geq 0$$

$$2n+1 \geq 0 \Rightarrow n \geq -\frac{1}{2} \Rightarrow [-\frac{1}{2}, +\infty)$$

$$y = \frac{3(1n^3 + 12n^2 + 9n + 1)}{(2n+1)^2} \rightarrow \frac{3(2n+1)^2}{(2n+1)^2} = \frac{3}{2n+1}$$

$$(5n^2 + 5n + 1)^2 \times \dots \rightarrow (2n+1)^2 \times \dots \rightarrow n \geq -\frac{1}{2} \Rightarrow D = \mathbb{R} - \{-\frac{1}{2}\}$$

$$f(n) = \pm 1 \xrightarrow{+1} \frac{a+r}{1+b} = 1 + \frac{r}{b} \rightarrow r + rb = a + r \Rightarrow \begin{cases} a - rb = 1 \\ a + b = r \end{cases}$$

$$g(n) = \pm 1 \xrightarrow{-1} \frac{-a+r}{-1+b} = -1 + \frac{r}{b} \rightarrow -1 + b = -a + r \Rightarrow \begin{cases} a + b = r \\ b = r \end{cases}$$

$$g(n) = f(n) \xrightarrow{n \geq r} r + c = \frac{1 + 1 - r - 1}{1 + r} \Rightarrow r + c = \frac{1}{1+r} \Rightarrow \boxed{c = \frac{1}{1+r}}$$

$$\frac{1}{1+r} + r = \frac{1}{r}$$

$$\frac{a+r}{n-c} = \frac{(n-1)(n+1)}{n^2-1} \rightarrow \frac{a^2 + am + b^2 - (c+1)a + c}{n^2 + am + b} \rightarrow a = -(c+1) \Rightarrow b = c$$

$$\frac{a+1}{n-c} = \frac{1}{1-c} = \frac{1}{1+a+b} \Rightarrow \boxed{c=1} \quad \boxed{a=-1} \quad \boxed{b=1}$$

$$-1+1+1 = 1$$

$$f(n+1) = ((n+1)-r)^2((n+1)-1) = (n-r)^2(n) = (n^2 + r - r^2)(n) = n^3 + rn - rn^2$$

$$f(1-n) = ((1-n)-r)^2((1-n)-1) = (-n-r)^2(-n) = (n^2 + r + r^2)(n) = n^3 + rn + rn^2$$

$$r n^3 + 12 n^2$$

$$f(1-\sqrt[n]{n}) \xrightarrow{f(x)=1} -1 \leq 1-\sqrt[n]{n} \rightarrow n=1 \rightarrow f(-1) = \sqrt[n]{1} = 1$$

$$\xrightarrow{f(x)=x} \sqrt[n]{-1} + x = -1 + x = 1$$

$$x+1=2$$

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$$\sqrt[n]{n} = z$$

$$n + \sqrt[n]{n} = 9 \rightarrow z^n + z - 9 = 0$$

$$(z-1)(z+1) \begin{cases} z=1 \rightarrow \sqrt[n]{n} = 1 \times \\ z=-1 \rightarrow \sqrt[n]{n} = -1 \rightarrow n=1 \end{cases}$$

$$f(x) = x^x + 1x$$

$$= x^x + 1x = x^x + x$$

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$$f(n-1) + f(1-n) = \rightarrow$$

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

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

$$\Rightarrow 0$$

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$$f(x) = x - \frac{a-1}{x} \geq 0 \rightarrow x \geq \frac{a-1}{x} \rightarrow D = \left[\frac{a-1}{x}, \infty \right)$$

$$g(x) = b - \frac{a+1}{x} \geq 0 \rightarrow x \leq \frac{b+1}{x} \rightarrow D = (-\infty, \frac{b+1}{x}]$$

$$\text{so } x \in \left[\frac{a-1}{x}, \frac{b+1}{x} \right] = \left[\frac{1}{x}, \frac{1}{x} \right]$$

$$\frac{a-1}{x} = 1 \rightarrow a-1 = x$$

$$\rightarrow (1 \leq x) \in [1, 1] \rightarrow (x-1) = 0 \rightarrow a-1 = x$$

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

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$$x_m + x \geq 0 \rightarrow x \geq -1 \quad D_f = [1, \infty) \rightarrow D_g = m - x \geq 0 \rightarrow x \leq m \rightarrow (-\infty, m]$$

$$D_{f \times g} = D_f \cap D_g \rightarrow (-\infty, m] \cap [1, \infty) = [1, m] = [1, \infty) = [1, \infty)$$

$$(f-g)(x) = 4\sqrt{x} = f(x) - g(x) = 4\sqrt{x}$$

$$\begin{cases} g(x) = \sqrt{x} = \sqrt{x} = \sqrt{x} \\ f(x) - \sqrt{x} = 4\sqrt{x} \rightarrow f(x) = 5\sqrt{x} \end{cases}$$

$$f(x) = \sqrt{x} = \sqrt{x} = \sqrt{x} = 1 + x \rightarrow x = \sqrt{x} - 1 \rightarrow x = \sqrt{x} - 1 \rightarrow x = \sqrt{x} - 1 \rightarrow x = \sqrt{x} - 1$$

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