

$$\sqrt{f(n)-n+1} \rightarrow f(n) \begin{cases} r_{n-1} & n \geq a \rightarrow \sqrt{r_{n-1}-n+1} = \sqrt{n} \sim n \geq a \\ r_{n+1} & n < a \rightarrow \sqrt{r_{n+1}-n+1} = \sqrt{r_{n+1}} \rightarrow \frac{r}{r} \leq n < a \end{cases}$$

$$\{U\} \rightarrow Df: \left[-\frac{r}{r}, a\right) \cup [a, +\infty) = \left[-\frac{r}{r}, +\infty\right)$$

$$\frac{r(1n^r + 1r_{n+1}^r)}{((r_{n+1}))^r} = \frac{r(r_{n+1})^r}{(r_{n+1})^r} = \frac{r}{r_{n+1}} \rightarrow Df = \mathbb{R} - \left\{-\frac{1}{r}\right\}$$

$$\begin{aligned} n=1 &\rightarrow \frac{a+r}{b+1} = \frac{c+1}{r} & \frac{x^r + r_{n+1}^r - n - r}{n \leq 1} = \frac{(x^r - 1)(n+r)}{n \leq 1} = n+r \rightarrow c=r \\ n=-1 &\rightarrow \frac{r-a}{b-1} = \frac{c-1}{1} & \rightarrow r b + r = a + r \rightarrow a = \frac{a}{r}, b = \frac{1}{r} \\ & & b-1 = r-a \end{aligned} \quad \left. \begin{array}{l} \\ \\ \end{array} \right\} b+c = \boxed{\frac{a}{r}}$$

$$\frac{x^r-1}{x^r+am+b} = \frac{x+1}{x-c} \rightarrow \frac{x^r-1}{x^r-r_{n+1}} = \frac{x+1}{n-c} \rightarrow \begin{cases} a=-r \\ b=1 \\ c=1 \end{cases} \quad \boxed{a+br+c=0}$$

نکته: $x-1$ را به x^r-1 تقسیم می‌کنیم

$$\begin{aligned} f(n+1) &= (x-r)^r x \\ f(1-n) &= (x+r)^r - x \\ g(n) &= x(n-r)^r - (-n)(x+r)^r = x(x^r - rx + r^2 - x^r - r_{n+1}^r) = x(-1n) \\ g(n) &= -1n^r \end{aligned}$$

$$\begin{aligned} n=1 &\rightarrow f(-1) = \sqrt{1} = 1 \\ n > 0 & \\ n=-1 &\rightarrow f(r) = \sqrt{-1+r} = 1 \\ n < 0 & \end{aligned} \quad \left. \begin{array}{l} \\ \\ \end{array} \right\} \boxed{f(-1) + f(r) = a}$$

$$\begin{aligned} x+\sqrt{x} &= r \rightarrow r^r + r(r) \rightarrow f(r) = r^r r \\ x &= r \end{aligned}$$

$$\begin{aligned} n-1 &= a \\ f(a) + f(1-a) &= a^r + a - a^r - a \rightarrow \boxed{f(n-1) + f(1-n) = 0} \end{aligned}$$

$$r - ra = 0 \rightarrow a = \frac{r}{r}$$

$$b - r = 0 \rightarrow b = r$$

$$(rf-g)(1) = rk - r - rk = k$$

$k = -1$

$$\rightarrow ra - \frac{b}{r} - k = r - r - (-1) = \boxed{1}$$

چون فقط 1 در دو صورت می‌آید پس 1 هر دو صورت است

۱- ضرب دو تابع اشتراک دافنه آنهاست

$$g(x) \Rightarrow 2x+2 \geq 0 \Rightarrow x \geq -1$$

$$f(x) \Rightarrow x-x \geq 0 \Rightarrow x \leq x$$

$$[-1, x] = [-1, \sqrt{5}]$$

$$x = \sqrt{5}$$

$$(f-g)(x) = \sqrt{5-x} + x - \sqrt{2x+2} = x + \sqrt{5-x} - \sqrt{2x+2}$$

$$x = \sqrt{5}-2$$

$$\left. \begin{array}{l} \\ \\ \end{array} \right\} m+n = \sqrt{5}+5$$