

نام خانوادگی: محمد حبیبی / موضوع: (مجموعه) A / توضیح: ۳: تعریف

$$f(n) - n + 1 \geq 0 \quad f(n) = \begin{cases} r_{n-1} & [n] > r \\ r_{n+r} & [n] \leq r \end{cases} \Rightarrow \begin{cases} r_{n-1} & n > a \\ r_{n+r} & n \leq a \end{cases}$$

$$\Rightarrow \begin{cases} r_{n-1} - n + 1 \geq 0 & n > 0 \\ r_{n+r} - n + 1 \geq 0 & n \geq \frac{-r}{r} \end{cases} \quad \begin{aligned} & [0, +\infty) \cap [a, +\infty) = [a, +\infty) \quad I \\ & (-\infty, 0) \cap \left[\frac{-r}{r}, +\infty\right) = \left[\frac{-r}{r}, 0\right) \quad II \end{aligned}$$

$$I \cup II = \left[\frac{-r}{r}, +\infty\right)$$

$$\frac{r^n r + r^4 n^r + 11n + r}{(r^n + r_{n+1})^r} = \frac{r(r_{n+1})(\cancel{r^n} + r_{n+1})}{(\cancel{r^n} + r_{n+1})(r_{n+1})^r} = \frac{r}{r_{n+1}} \quad D_f = R - \left\{\frac{1}{r}\right\}$$

$$f(n) = \begin{cases} \frac{n^r + r_{n+r} - n - r}{n^r - 1}, & n \neq \pm 1 \Rightarrow \frac{(n^r - 1)(n + r)}{n^r - 1} = n + r \quad \left\{ b + c = \frac{1}{r} + r = \frac{r+1}{r} \right. \\ \frac{a + r}{n + b}, & n = \pm 1 \Rightarrow \begin{aligned} & n = 1 \Rightarrow g(1) = 1 + r < r \quad \frac{a+r}{1+b} = r \\ & n = -1 \Rightarrow \frac{-a+r}{-1+b} = 1 \quad (-a+r < b-1, a < r(b+1)) \end{aligned} \end{cases}$$

$$g(n) = n + c = n + r \quad \boxed{c=r} \quad \hookrightarrow b = \frac{1}{r}$$

$$D_f = D_g \Rightarrow g(n) = \frac{(n+1)(n-1)}{n^r + an + b}, \quad f(n) = \frac{n+1}{n-c} \Rightarrow g(n) = \frac{(n+1)(n-1)}{(n-1)^r}$$

$$= \frac{n+1}{n-1} \quad \boxed{c=1} \quad n^r + an + b = n^r - rn + 1 \quad \boxed{a=-r} \quad \boxed{b=1}$$

$$a + b + c = \boxed{0}$$

$$f(n+1) = (n+1-r)^r (n+1-1) = (n-r)^r (n) \quad g(n) = 1 - \frac{1}{n^r}$$

$$f(1-n) = (1-n-r)^r (1-n-1) = (-n-r)^r (-n) \quad f(n) = (n-r)^r (n-1)$$

$$g(n) = (n-r)^r (n) + (-n-r)^r (-n)$$

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

$$f(1) + f(r) \neq \Rightarrow f(1-r) = \begin{cases} \sqrt[n]{n} + r & n \leq 0 \\ \sqrt[n]{n} & n > 0 \end{cases} \quad f(-1) = f(1-r) \Rightarrow n \leq 1$$

$$r+1 = \boxed{a}$$

$$\text{if } n=1 \quad f(-1) = r \quad f(r) = f(1-r) \Rightarrow n = -1 \quad f(r) = \sqrt[r]{-1} + r \leq 1$$

$$f(n+\sqrt{n}) = n^k + kn \quad n+\sqrt{n} \leq 4 \implies n \leq 4 \quad f(4) = 4^k + 4 = \boxed{12}$$

$$f(n) = n^k + n \quad f(n-1) + f(1-n) = (n-1)^k + (n-1) + (1-n)^k + (1-n) = \boxed{0}$$

$$D_f \Rightarrow kn - ka \geq 0 \quad n \geq \frac{ka}{k} \quad D_{(f-g)} = D_{(f)} \cap D_g$$

$$D_g \Rightarrow b - kn \geq 0 \quad n \leq \frac{b}{k} = [1] \quad \frac{ka}{k} \leq 1 \quad a \leq \frac{k}{k} \quad \frac{b}{k} \leq 1 \quad b \leq k$$

$$f(1) = \sqrt{k-1} + k-1 = k-1 \quad g(1) = \sqrt{k-1} + k = k$$

$$kf - g = k^2 - k - k^2 = k \quad k=1 \quad ka - \frac{b}{k} - k = k - 1 - (-1) = \boxed{1}$$

$$D_f \Rightarrow m-n \geq 0 \quad n \in (-\infty, m]$$

$$D_g \Rightarrow km + r \geq 0 \quad n \geq -1 \quad n \in [-1, +\infty) \quad D_{f \cap g} = [-1, v] \quad m = v$$

$$g(r) = r\sqrt{r} \quad f = 1\sqrt{r} \quad f(n) = \sqrt{m-n} + n = 1\sqrt{r}$$

$$f(r) = \sqrt{v-r} + n = 1\sqrt{r} \implies n = 1\sqrt{r} - r$$

$$m+n \leq v + 1\sqrt{r} - r \leq 1\sqrt{v} + 0$$

منقول
في
f(r)