

$$x = -1 \rightarrow f(1 - r(-1)) = f(r) = \sqrt[3]{r} + r = 1$$

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

$$1 + r \in \mathbb{Q}$$

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$$f(y) \rightarrow y = r \rightarrow f(r + \sqrt{r}) = f(y) = r + w(r) = 248$$

✓

$$f(n-1) + f(1-n) = \underbrace{(n-1)^r}_{n-1-r-\frac{r}{n}+\frac{r}{n}} + (n-1) + \underbrace{(1-n)^r}_{1-n-r-\frac{r}{n}+\frac{r}{n}} + (1-n) = 0$$

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$$\begin{aligned} f(m) &= \sqrt{m-r} + k - 1 \rightarrow Df \Rightarrow r_m - r_a \geq 0 \\ g(m) &= \sqrt{b-r_m} + rk \rightarrow Dg \Rightarrow b - r_m \geq 0 \end{aligned} \quad \left\{ \begin{array}{l} n \geq \frac{ra}{r} \\ n \geq \frac{b}{r} \end{array} \right. \quad \left\{ \begin{array}{l} \frac{ra}{r} = \frac{b}{r} = 1 \rightarrow \begin{array}{l} a = \frac{r}{r} \\ b = r \end{array} \end{array} \right. \quad \left| \begin{array}{l} ra - \frac{b}{r} - k = \\ r - r - (-1) = V \end{array} \right.$$

$$\begin{aligned} f(m) &= \sqrt{r_m - r} + k - 1 \\ g(m) &= \sqrt{r - r_m} + rk \end{aligned} \quad (f - g)(1) = r(0 + k - 1) - (0 + rk) = -r - k = k$$

$$g(m) = \sqrt{r_m + r} \quad Dg \Rightarrow r_m + r \geq 0$$

$$f(m) = \sqrt{m-n} + n \quad Df \Rightarrow m-n \geq 0$$

مع
m = V
نوع
D
مشتق
E, V

$$(f - g)(r) = \frac{\sqrt{V-r} + n}{r + n} - \frac{\sqrt{r(r)+r}}{r} = 9\sqrt{r}$$

$$n = 1\sqrt{r} - r$$

$$m + n = V + 1\sqrt{r} - r = 1\sqrt{r} + 2$$

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(تکلیف ۳)

(نقطه شگاری)

(روز دهم دفتر B)

$$f(n) = \begin{cases} r_{n-1} & n \geq 0 \\ r_{n+r} & n < 0 \end{cases}$$

$$\textcircled{I} \quad n \geq 0 \rightarrow \sqrt{r_{n-1} - n + 1} = \sqrt{n}$$

$$I, II \rightarrow \textcircled{n \geq 0}$$

$$\textcircled{II} \quad n \geq 0$$

$$\textcircled{I} \quad n < 0 \rightarrow \sqrt{r_{n+r} - n - 1} = \sqrt{r_{n+r}}$$

$$\textcircled{II} \quad r_{n+r} \geq 0, n \geq -\frac{r}{2}$$

$$\textcircled{I}, \textcircled{II} \rightarrow -\frac{r}{2} \leq n < 0$$

$$D_f = \left[-\frac{r}{2}, +\infty\right)$$

$$\frac{r^2 r_n^r + r^2 r_n^r + 11n + r}{(r_n^r + r_{n+1})^r} = \frac{r^2 r_n^r + r^2 r_n^r + 9n + 11n^r + 11n + r}{(r_n^r + r_{n+1})^r}$$

$$\frac{9n(r_n^r + r_{n+1}) + r(r_n^r + r_{n+1})}{(r_n^r + r_{n+1})^r} = \frac{(9n+r)(r_n^r + r_{n+1})}{(r_n^r + r_{n+1})^r} = \frac{9n+r}{r_n^r + r_{n+1}} = \frac{9}{r_n^r + r_{n+1}} = \frac{9}{(r_n^r + r_{n+1})(n + \frac{1}{r})} \quad \boxed{1}$$

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

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

$$\left. \begin{aligned} n=1 \rightarrow f &= \frac{a+r}{1+b} = g = 1+r=r \\ n=-1 \rightarrow f &= \frac{-a+r}{-1+b} = -1+r=r \end{aligned} \right\} \begin{aligned} a+r &= r+b \\ -a+r &= -1+b \end{aligned} \rightarrow \begin{aligned} a-r &= b-1 \\ a+b &= r \end{aligned}$$

$$\boxed{b+c=r, a}$$

$$r_b = r \quad \boxed{b = \frac{1}{r}}$$

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

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

$$\textcircled{a = -r} \quad \textcircled{b = 1} \quad \textcircled{C = -1}$$

$$a + b + C = -r - 1 + 1 = -r \quad \boxed{15}$$

نشان دهیم که
مجموع بی نهایت
g(n) = ...
مجموع f(n) = ...
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مجموع f(n) = ...

$$f(n+1) \rightarrow ((n+1)-r)^r \times ((n+1)-1) = (n-r)^r (n) = n^r - r_{n+1} + r_{n+1}$$

$$f(1-n) \rightarrow (1-n-r)^r \times (1-n-1) = (-n-r)^r (-n) = (n+r)^r (-n) = -n^r - r_{n+1} + r_{n+1}$$

$$f(n+1) + f(1-n) = n^r - r_{n+1} + r_{n+1} + (-n^r - r_{n+1} + r_{n+1}) = -2n^r \quad \boxed{0}$$