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دوازدهم سر B

$$f(m) = \begin{cases} r_{m-1} & ; [n] > r \\ r_{m+r} & ; [n] \leq r \Rightarrow n < \infty \end{cases}$$

$$\sqrt{f(m) - m + 1} \Rightarrow f(m) - m + 1 \geq 0$$

$$f(m) = \begin{cases} r_{m-1} & n \geq 0 \rightarrow [r_{m-1} - m + 1 \geq 0 \quad n \geq 0 \text{ ①}] \\ r_{m+r} & n < 0 \rightarrow r_{m+r} - m + 1 \geq 0 \end{cases}$$

$$\Rightarrow [n \geq 0 \quad \text{②} \quad r_{m+r} \geq 0 \Rightarrow -\frac{r}{r} \leq n < \infty]$$

$$\Rightarrow -\frac{r}{r} \leq n < \infty \quad \text{I} \cup \text{II} \quad n$$

$$D = [-\frac{r}{r}, +\infty)$$

$$y = \frac{r f m^r + r y m^r + 1 m + r}{(f m^r + r m + 1)^r} = \frac{r (1 m^r + 1 m^r + y m + 1)}{((y m + 1)^r)^r} = \frac{r (1 m^r + 1 m^r + y m + 1)^r}{(y m + 1)^r}$$

$$= \frac{r (y m + 1)^r}{(y m + 1)^r} = \frac{r}{y m + 1}$$

ضرر 2 بنیاد مغایرت

$$(f m^r + r m + 1)^r = 0 \quad (y m + 1)^r = 0 \quad D = \mathbb{R} - \{-\frac{1}{r}\}$$

$$y m \neq -1$$

$$y m = -1 \Rightarrow m = -\frac{1}{y}$$

$$f(m) = \begin{cases} \frac{m^r + r m^r + m - r}{a^r - 1} & ; a \neq \pm 1 \\ \frac{a m + r}{a + b} & ; a = \pm 1 \end{cases}$$

$$g(m) = m + c$$

$$m^r + r m^r - m - r = m^r (m + r) - (m + r) = (m^r - 1)(m + r)$$

$$\frac{(m^r - 1)(m + r)}{m^r - 1} = m + r = g(m) \Rightarrow m + r = m + c$$

$$r = c$$

$$g(1) = 1 + r = r \Rightarrow \frac{a + r}{a + b} = r \Rightarrow \frac{b + r a}{r - a} = r \Rightarrow r - r a = a + r$$

$$a = \frac{1}{r} = \frac{1}{10}$$

$$g(-1) = -1 + r = 1 \Rightarrow \frac{r - a}{b - 1} = 1 \Rightarrow r - a = b - 1$$

$$r - a = b$$

$$b = r a \Rightarrow b = r - \frac{1}{10} = \frac{1}{10} = \frac{1}{r}$$

$$b + c = \frac{1}{10}$$

$$f(n) = g(n)$$

$$D_f = D_g \text{ فاصله ها برابر}$$

$$D_f = \mathbb{R} - \{+c\}$$

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

$$g(n) = \frac{n^2-1}{n^2+an+b} = \frac{(n-1)(n+1)}{n^2+an+b} \xrightarrow{\text{با ضرب فاصله ها برابر}} = \frac{(n-1)(n+1)}{(n-1)^2} = \frac{(n-1)(n+1)}{n^2-2n+1}$$

با ضرب فاصله ها برابر
با ضرب (n-1) صورت
با ضرب (n-1) مخرج شود.
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$$n^2+an+b = (n-1)^2$$

$$n^2+an+b = n^2-2n+1$$

$$n^2-2n+1 = n^2+an+b$$

$$a = -2$$

$$b = 1$$

$$c = +1$$

$$a+b+c = -2+1+1 = 0$$

$$f(n) = (n-2)^2(n-1)$$

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

$$n \Rightarrow n+1, f(n+1) = ((n+1)-2)^2((n+1)-1) = (n-1)^2(n)$$

$$n \Rightarrow 1-n$$

$$f(1-n) = ((1-n)-2)^2((1-n)-1) = (-n-2)^2(-n)$$

$$(-n-2)^2 = (n+2)^2$$

$$g(n) = (n-1)^2(n) + (n+2)^2(-n)$$

$$g(n) = n((n-1)^2 - (n+2)^2) = n(n^2-2n+1 - n^2-4n-4) = n(-6n-3) = -6n^2-3n$$

$$g(n) = -6n^2-3n$$

$$f(1-2n) = \begin{cases} 2n+2 & n \leq 0 \\ 2n & n > 0 \end{cases} \quad f(1) = 4 \quad \sqrt{1} = 1$$

(9)

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

$$f(x) = \sqrt{x-1} + 2 = 1$$

$$x = 1 - 2n$$

$$x = -2$$

$$n = -1$$

$$f(-1) + f(x) = 4 + 1 = 5$$

$$f(n\sqrt{n}) = n^2 + 2n$$

$$n\sqrt{n} = 4 \quad \sqrt{n} = t \quad t^2 + t - 4 = 0$$

$$f(4)$$

$$n=2$$

$$n=3$$

$$(t-2)(t+2) = 0 \quad \begin{cases} t=2 \checkmark \\ t=-2 \times \end{cases}$$

$$f(4) = (4)^2 + 2(4) = 16 + 8 = 24$$

(1)

$$f(m) = m^r + m \xrightarrow{n \rightarrow n-1} (n-1)^r + (n-1)$$

$$f(m-1) + f(1-m) \xrightarrow{n \rightarrow 1-m} (1-m)^r + (1-m)$$

$$f(m-1) + f(1-m) = (m-1)^r + \cancel{(m-1)} + (1-m)^r + \cancel{(1-m)} = (m-1)^r + (1-m)^r$$

$$= (m-1)^r - (m-1)^r = 0$$

$$f(m) = \sqrt{r_m - r} + k - 1 \rightarrow D_f: r_m - r \geq 0 \quad m \geq \frac{r_u}{r} \quad (9)$$

$$g(m) = \sqrt{b - r_m} + r k \rightarrow D_g: b - r_m \geq 0 \quad m \leq \frac{b}{r}$$

$$D_f \cap D_g = \{1\}$$

$$L, \quad \frac{r_u}{r} = 1 \Rightarrow \left(\frac{r}{r} \right)$$

$$\frac{b}{r} = 1 \Rightarrow b = r$$

$$r_u - \frac{b}{r} - k = r \left(\frac{r}{r} \right) - \frac{r}{r} - (-1) =$$

$$\Rightarrow r - 1 + 1 = r$$

$$r(f(1) - g(1)) = r(\sqrt{r_u - r} + k - 1) - \sqrt{b - r} + r k = k$$

$$r(k-1) - \sqrt{b - r} - r k = k$$

$$r k - r - r k = k$$

$$-k = k + r \Rightarrow -r k = r \quad (k = -1)$$

$$f(m) = \sqrt{m - n} + n$$

$$g(m) = \sqrt{r_m - r}$$

$$D_g \Rightarrow r_m - r \geq 0 \quad m \geq -1$$

$$D_f \Rightarrow m - n \geq 0 \quad m \leq m$$

$$D_{f \cap g} = [-1, m] = [-1, \sqrt{r}]$$

$$m = \sqrt{r}$$

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

$$f(g) = \sqrt{r} = r \sqrt{r}$$

$$\left\{ \begin{aligned} f - g(r) &= r + n - r \sqrt{r} = r \sqrt{r} \\ n &= \sqrt{r} - r \end{aligned} \right.$$

$$m, n = 0, \sqrt{r}$$