

نام و نام خانوادگی البیاضی نجادی پاسخنامه تشریحی تکلیف شماره ۲۰ کلاس دوازدهم (فصل B)

$$f(n) = \begin{cases} r_{n-1} & ; [n] > \kappa \\ \varepsilon_{n+\kappa} & ; [n] \leq \kappa \end{cases} \rightarrow \begin{cases} r_{n-1} & n \geq \omega \\ \varepsilon_{n+\kappa} & n < \omega \end{cases} \rightarrow f(n) =_{n+1} \begin{cases} n & n \geq \omega \\ r_{n+\kappa} & n < \omega \end{cases}$$

$$f(n) - n + 1 \geq 0 \quad \rightarrow \quad n \quad n \geq 0 \rightarrow \checkmark \textcircled{K}$$

$\xrightarrow{\text{②, ③}} D_f = \left[-\frac{F}{P}, +\infty\right)$

$$y = \frac{r \sum x^k + r^2 q_n r + 1 r n + r}{(\sum x^r + \sum n + 1)^r} = \frac{r(1 x^k + 1 r x^r + 4 n + 1)}{((r n + 1)^r)^r} = \frac{r(r n + 1)^r}{(r n + 1)^r}$$

$$(1) \xrightarrow{(\gamma_n)_n} \frac{\gamma_n}{\gamma_{n+1}} \rightarrow \text{مخرج} \neq 0 \rightarrow \gamma_{n+1} \neq 0 \rightarrow \underline{\underline{n \neq -\frac{1}{\gamma}}}$$

$$Df, \mathbb{R} = \left\{ -\frac{1}{r} \right\}$$

$$f(n) = \begin{cases} \frac{n^r + n^r - n - r}{n^r - 1} & n \neq \pm 1 \\ \frac{a + r}{n + b} & n = \pm 1 \end{cases} = g(n) = n + c \quad b + c = r + \frac{1}{r} = \boxed{\frac{d}{r}} \Leftrightarrow b + c = ?$$

$$\frac{n^p + r n^p - n - r}{n^p - 1} = \frac{n^p(n+r) - (n+r)}{n^p - 1} = \frac{(n+r)(n^p - 1)}{n^p - 1} \xrightarrow{n \neq \pm 1} = n+r \rightarrow g(n) : n+r \rightarrow \boxed{C=r}^p$$

$$g(1) = 1 = f(1) = \frac{a+1}{b+1} \rightarrow 1b+1 = a+1 \rightarrow a = 1b+1$$

$$g(1) = w = f(u) = \frac{a+r}{b+1} \rightarrow kb + r = 2a + r \rightarrow a = kb + 1$$

$$g(-1) = 1 = f(-1) = \frac{-a+r}{b-1} \rightarrow b-1 = -a+r \xrightarrow{a=kb+1} b-1 = -kb-1+r \rightarrow kb+r = b-1 \rightarrow \boxed{b = \frac{1}{r}}, \boxed{a = \frac{a}{r}}$$

$$f(n) = \frac{n+1}{n-c} \rightarrow D_f = \mathbb{R} - \{c\}$$

$f(n) = \frac{n+1}{n-1} \rightarrow D_f = \mathbb{R} - \{1\}$
 $g(n) = \frac{n^2-1}{n^2+n+6} = \frac{(n+1)(n-1)}{n^2+n+6}$

۱) دامنه معبر ایند $\mathbb{R}$ تا بهای برابر است: پس باید صورت $(n+1)$ هم 0 نباشد و مخرج $(n-1)$ در مخرج باشد تا با $(n-1)$ صورت ساده شود.
 ۲) دامنه ها نیز برابر است: پس تابع $g(n)$ هم مانند $f(n)$ فقط.

$$n^r + an + b = (n-1)^r + n^r + r_{n+1} \Rightarrow \boxed{a = -r}, \boxed{b = 1}$$

$$Dg = \mathbb{R} - \{1\} \quad \underbrace{Df: \mathbb{R} - \{c\}}_{c=1}$$

$$a + b + c = 1 + 1 - 2 = \boxed{0}$$

$$f_{(1)2}(n-k)^{k+1} (n-1)$$

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

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

$$f(-1) \Rightarrow 1 - 2n = -1 \Rightarrow n = 1 \Rightarrow f(1) = 2\sqrt{1} = 2$$

$$f(1) \Rightarrow 1 - 2n = 1 \Rightarrow n = 0 \Rightarrow \sqrt{-1} + 1 = -1 + 1 = 0$$

$$f(-1) + f(1) = 0 + 2 = \boxed{2}$$

$$f(n + \sqrt{n}) = n^2 + 4n$$

$$f(4) \rightarrow n + \sqrt{n} = 4 \rightarrow n + \sqrt{n} - 4 = 0 \xrightarrow{\sqrt{n}=t} t^2 + t - 4 = 0 \rightarrow (t+4)(t-1) = 0$$

$$\sqrt{n} = 1 \rightarrow \boxed{n=1} \quad \text{و } \sqrt{n} = -4 \rightarrow n = -16 \text{ (مردود)}$$

$$f(4) = 1^2 + 4 \times 1 = 1 + 4 = \boxed{5}$$

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

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

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

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

$$f(n) = \sqrt{a - \epsilon n} + k - 1 \rightarrow 1 - f(n) = 1 - \sqrt{a - \epsilon n} + k - 1 \rightarrow k - \sqrt{a - \epsilon n} > 0 \rightarrow n > \frac{k^2 - a}{\epsilon}$$

$$g(n) = \sqrt{b - \epsilon n} + k \rightarrow b - \epsilon n > 0 \rightarrow n < \frac{b}{\epsilon}$$

از آنجا که $\frac{k^2 - a}{\epsilon} < \frac{b}{\epsilon}$ در دامنه صحت
 مشترک است پس می‌توانیم بنویسیم: $\boxed{b, k, a, \frac{k}{\epsilon}}$

$$1 - f - g = 1 - \sqrt{a - \epsilon n} + k - 1 - \sqrt{b - \epsilon n} - k = -\sqrt{a - \epsilon n} - \sqrt{b - \epsilon n} < 0$$

$$\Rightarrow -k - 1 > k \rightarrow \boxed{k < -1} \quad ka - \frac{b}{\epsilon} - k = k - 1 + (-1) = \boxed{-2}$$

$$f(n) = \sqrt{m - n} + n \rightarrow m - n \geq 0 \rightarrow n \leq m$$

$$g(n) = \sqrt{n + 1} \rightarrow n + 1 \geq 0 \rightarrow n \geq -1$$

$$Df \cap Dg = (-\infty, m] \cap [-1, +\infty) = [-1, m] \Rightarrow \boxed{m \geq -1}$$

$$f - g(4) = f(4) - g(4) = \sqrt{4 - 4} + 4 - \sqrt{4 + 1} = 4 - \sqrt{5} = 4 - 2\sqrt{5} = 2(2 - \sqrt{5})$$

$$\boxed{n = 4 - \sqrt{5}}$$

$$m + n = m + 4 - \sqrt{5} > \boxed{3 + 4\sqrt{5}}$$