

$$y = \sqrt{p(x) - x + 1} \quad (1)$$

$\begin{cases} [x] > \frac{1}{p} \rightarrow x-1 \xrightarrow{y} \sqrt{x-1-x+1} = \sqrt{x} \rightarrow \sqrt{x} \text{ معنادار} \\ [x] \leq \frac{1}{p} \rightarrow x+\frac{1}{p} \xrightarrow{y} \sqrt{x+\frac{1}{p}-x+1} = \sqrt{x+\frac{1}{p}+1} \geq 0 \rightarrow x \geq -\frac{1}{p} \end{cases}$

$$D_y = [-\frac{1}{p}, +\infty)$$

$$y = \frac{px^3 + 3px^2 + 11x + 3}{(x^2 + x + 1)^p} = \frac{3(1x^3 + 12x^2 + 11x + 1)}{(x^2 + x + 1)^p} = \frac{3(x^2 + 1)^3}{(x^2 + x + 1)^p} \quad (2)$$

$$x^2 + x + 1 \neq 0 \rightarrow x \neq -\frac{1}{2} \rightarrow D_y = \mathbb{R} - \{-\frac{1}{2}\}$$

$$h(x) = \begin{cases} \frac{x^3 + 2x^2 - x - 2}{x^2 - 1}, & x \neq \pm 1 \\ \frac{ax + r}{x + b}, & x = \pm 1 \end{cases} \quad (3)$$

$\begin{matrix} n=0 & \rightarrow & 2 \\ n=1 & \rightarrow & \frac{a+2}{b+1} \\ n=-1 & \rightarrow & \frac{r-a}{b-1} \end{matrix}$

$$g(x) = x + c \quad (3)$$

$\begin{cases} x=0 & c=2 \\ x=1 & c+1=3 \\ x=-1 & 1 \end{cases}$

$$\begin{aligned} n=1 & \rightarrow \frac{a+2}{b+1} = 3 \rightarrow a+2=3b+3 \\ n=-1 & \rightarrow \frac{r-a}{b-1} = 1 \rightarrow r-a=b-1 \\ & \rightarrow r = b+1 \rightarrow b = \frac{1}{p} \end{aligned}$$

$$b+c = \frac{1}{p} + 2 = 2\frac{1}{p}$$

$$h(x) = g(x) \rightarrow \frac{(x+1)}{x-c} = \frac{(x+1)(x-1)}{x^2+ax+b} \rightarrow \frac{(x+1)}{x-c} \sim (x-1)(x-c) \quad (4)$$

$\hookrightarrow D_h = D_g$

$\begin{matrix} \S \\ n \neq c \end{matrix} \quad \begin{matrix} \S \\ c^2+ac+b=0 \rightarrow \text{ریشه های } c \end{matrix}$

$\text{ریشه مضاعف} \rightarrow c=1$

$$a+b+c=0 \leftarrow (x-1)^2 = x^2 - 2x + 1$$

$\begin{matrix} a & b \end{matrix}$

$$h(x) = (x-1)^2(x+1) \quad g(x) = h(x+1) + h(1-x) \quad (5)$$

$$h(x+1) = (x+1)^2(2) = 2x^2 + 4x + 2 \rightarrow -1x^2 = g(x)$$

$$h(1-x) = (-x)^2(-2) = -2x^2$$

$$h(1-n) = \begin{cases} \sqrt[n]{n} + 1, & n \leq 0 \\ \sqrt[n]{n}, & n > 0 \end{cases} \quad h(-1) + h(1) = 0 \quad (9)$$

$\begin{cases} 1 - \sqrt[n]{n} = -1 \sim n = 1 \rightarrow h(-1) = 1 \\ 1 - \sqrt[n]{n} = 1 \sim n = -1 \rightarrow h(1) = 1 \end{cases}$

$$h(n + \sqrt[n]{n}) = n^2 + \sqrt[n]{n} \quad n + \sqrt[n]{n} = 9 \rightarrow t^2 + t - 9 = 0 \quad (10)$$

$\rightarrow (t+3)(t-2) = 0$
 $\downarrow$
 $\text{S5E } t = -3 \quad \hookrightarrow t = 2 \rightarrow n = 4 \rightarrow h(4) = (4)^2 + \sqrt[4]{4} = 16 + \sqrt[4]{4}$

$$h(n) = n^2 + \sqrt[n]{n} \quad h(n+1) + h(1-n) = 0 \quad (11)$$

$h(n+1) = (n+1)^2 + \sqrt[n+1]{n+1} = n^2 + 2n + 1 + \sqrt[n+1]{n+1}$
 $h(1-n) = (1-n)^2 + \sqrt[1-n]{1-n} = 1 - 2n + n^2 + \sqrt[1-n]{1-n}$
 $\left. \begin{aligned} h(n+1) + h(1-n) &= n^2 + 2n + 1 + \sqrt[n+1]{n+1} + 1 - 2n + n^2 + \sqrt[1-n]{1-n} \\ &= 2n^2 + 2 + \sqrt[n+1]{n+1} + \sqrt[1-n]{1-n} \end{aligned} \right\}$

$$h(n) = \sqrt[n]{n^2 + a} + k - 1 \quad \forall h - g = \{(1, k)\} \quad (12)$$

$$g(n) = \sqrt[n]{b - \sqrt[n]{n}} + \sqrt[n]{n} k$$

$\hookrightarrow \sqrt[n]{n^2 + a} - \sqrt[n]{b - \sqrt[n]{n}} - k = ?$

$$D_h \cap D_g = \{1\} \xrightarrow{\text{S5E}} D_g (-\infty, 1] \rightarrow D_h [1, +\infty)$$

$$\sqrt[n]{n^2 + a} \geq 0 \quad \frac{1}{-b + \sqrt[n]{n}} \quad (a = \frac{r}{\mu})$$

$$b - \sqrt[n]{n} \geq 0 \quad \frac{1}{+b - \sqrt[n]{n}} \quad (b = r)$$

$$\sqrt[n]{h(1)} = \sqrt[n]{\sqrt[n]{r^2 - r} + k - 1}, \quad g(1) = \sqrt[r]{r - \sqrt[r]{r}} + \sqrt[r]{r} k \rightarrow \sqrt[r]{r} k - \sqrt[r]{r} - \sqrt[r]{r} k = k$$

$(k = -1)$

$$\sqrt[r]{\left(\frac{r}{\mu}\right)} - \frac{r}{\mu} + 1 = \sqrt[r]{r}$$

$$g(n) = \sqrt[n]{n^2 + r} \quad h(n) = \sqrt[n]{n^2 + r} + n \quad D_{h \circ g} = [-1, \sqrt[r]{r}] \quad (13)$$

$D_g = [-1, +\infty)$

$\hookrightarrow D_h = (-\infty, \sqrt[r]{r}] \rightarrow (m = \sqrt[r]{r})$

$h(g(n)) = 9\sqrt[r]{r} \rightarrow \sqrt[r]{r} + n = 9\sqrt[r]{r} \rightarrow n = 8\sqrt[r]{r}$
 $g(\sqrt[r]{r}) = \sqrt[r]{r^2 + r}, \quad h(\sqrt[r]{r}) = \sqrt[r]{r^2 + r} + \sqrt[r]{r}$
 $m + n = 9\sqrt[r]{r}$