

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

(1)

$$p(n) = \begin{cases} 2n-1 & ; [n] > 4 \\ 2n+3 & ; [n] \leq 4 \end{cases}$$

با توجه به فرم $[n] \leq 4$ و $[n] > 4$

برقراره

$$[n] > 4 \Rightarrow \sqrt{2n-1-n+1} = \sqrt{n} \Rightarrow n \geq 0$$

$$[n] \leq 4 \Rightarrow \sqrt{2n+3-n+1} = \sqrt{n+4}$$

$$2n+4 \geq 0 \Rightarrow 2n \geq -4 \Rightarrow n \geq -\frac{4}{2}$$

$$\Rightarrow D = [-\frac{4}{2}, +\infty)$$

$$y = \frac{14n^3 + 34n^2 + 14n + 3}{(2n+1)^2} = \frac{3(4n^3 + 12n^2 + 4n + 1)}{(2n+1)^2} \quad (1)$$

$$\Rightarrow \frac{3(2n+1)^3}{(2n+1)^4} = \frac{3}{2n+1}$$

$$2n+1 \neq 0$$

$$\Downarrow n = -\frac{1}{2}$$

$$\Rightarrow D_f = \mathbb{R} - \left\{-\frac{1}{2}\right\}$$

$$f(n) = \begin{cases} \frac{n^3 + 2n^2 - n - 1}{n^2 - 1} & ; n \neq \pm 1 \xrightarrow{n=0} \frac{-1}{-1} = 1 \end{cases} \quad (2)$$

$$\frac{an+r}{n+b} ; n = \pm 1 \xrightarrow{n=+1} \frac{a+r}{1+b}$$

$$\xrightarrow{n=-1} \frac{-a+r}{b-1}$$

$$b+c = \frac{1}{1} + \frac{r}{1} = \frac{a}{1}$$

$$g(n) = n+c \Rightarrow c = 1$$

$$3+3b = a+1$$

$$b+c = ?$$

$$3b-a = -1$$

$$b+a = 3 \Rightarrow b = 2$$

$$n = -1$$

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

$$\xrightarrow{n=+1} \mu = \frac{a+r}{1+b}$$

$$\Rightarrow b-1 = r-a$$

$$f(n) = \frac{n+1}{n-c} = g(n) = \frac{n^2-1}{n^2+an+b} \quad (2) \quad (3)$$

$$a+b+c=?$$

در صورتی که دو تابع برابر باشند دایره آنها نیز برابر است

$$\Rightarrow n-c \neq 0 \Rightarrow n \neq c \quad \Rightarrow c^2+ac+b=9$$

که معادله درجه ۲

$$\Delta = 0 \quad c = \text{دایره، ریشه صفای}$$

(از طرف غیر در ضابطه ها)

$$\frac{n+1}{n-c} = \frac{(n+1)(n-1)}{n^2+an+b}$$

صورت و مخرج ضمیمه (n-1) شده

$$\Rightarrow (n-c)(n-1) = \text{معادله درجه ۲ با ریشه صفای}$$

$(c=1)$ $c = n - c = n - 1$

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

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

$$a+b+c$$

$$f(n) = (n-2)^2(n-1) \quad g(n) = f(n+1) + f(1-n) \quad (1) \quad (2)$$

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

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

$$\cancel{n^3} + 4n - 4n^2 - \cancel{n^3} + 4n^2 - 4n = 0 \quad \checkmark$$

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

$$f(-1) + f(1) = \underbrace{f+1} = 2 \quad (2)$$

$$1 - \sqrt[n]{n} = -1 \Rightarrow \sqrt[n]{n} = 1 \Rightarrow n = 1$$

$$1 - \sqrt[n]{n} = 1 \Rightarrow -\sqrt[n]{n} = 1 \Rightarrow n = -1$$

$$f(-1) = \varepsilon \sqrt{-1} = \varepsilon \quad (1)$$

$$f(1) = \sqrt[1]{-1} + 1 = 1 - 1 = 0 \quad (2)$$

$$f(n + \sqrt[n]{n}) = n^{\varepsilon} + \sqrt[n]{n} \quad f(4) = ? \quad (1)$$

$$n + \sqrt[n]{n} = 4$$

$$\sqrt[n]{n} = t$$

$$t^{\varepsilon} + t - 4 = 0$$

$$(t + \varepsilon)(t - 1) = 0 \Rightarrow \sqrt[n]{n} = 1 \Rightarrow n = 1 \quad (2)$$

$$t = -\varepsilon \cup \varepsilon \quad t = 1 \quad (1)$$

$$f(4) = (1)^{\varepsilon} + \sqrt[1]{1} = 1 + 1 = 2 \quad (2)$$

$$f(n) = n^{\varepsilon} + n \quad (1)$$

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

$$f(n-1) = (n-1)^{\varepsilon} + (n-1) = n^{\varepsilon} - 1 + \sqrt[n]{n} - \sqrt[n]{n}^{\varepsilon} + n - 1$$

$$= n^{\varepsilon} + \varepsilon n - \sqrt[n]{n}^{\varepsilon} - 1$$

$$f(1-n) = (1-n)^{\varepsilon} + (1-n) = 1 - n^{\varepsilon} - \sqrt[n]{n} + \sqrt[n]{n}^{\varepsilon} + 1 - n$$

$$= -n^{\varepsilon} - \varepsilon n + \sqrt[n]{n}^{\varepsilon} + 1$$

$$f(n-1) + f(1-n) = \cancel{n^{\varepsilon}} + \cancel{\varepsilon n} - \cancel{\sqrt[n]{n}^{\varepsilon}} - \cancel{1} - \cancel{n^{\varepsilon}} - \cancel{\varepsilon n} + \cancel{\sqrt[n]{n}^{\varepsilon}} + \cancel{1} = 0 \quad (2)$$

$$f(x) = \sqrt{x-3a} + k-1$$

(2) (9)

$$g(x) = \sqrt{b-2x} + 3k$$

عدد حقیقی ضربی در x

$$f-g = \{(1, k)\}$$

$$f-g(x) = \sqrt{x-3a} - \sqrt{b-2x} + k-1 - 3k = \sqrt{x-3a} - \sqrt{b-2x} - 2k-1$$

$\downarrow$

$$3a - \frac{b}{2} - k = ?$$

باقی به خودت بیاور

$$Dg: (-\infty, 1]$$

$$Df \cap Dg = \{1\}$$

$$Df: [1, +\infty)$$

$$x-3a \geq 0 \Rightarrow -\phi +$$

$$x-3a=0 \Rightarrow a = \frac{x}{3}$$

$$b-2x \geq 0 \Rightarrow +\phi -$$

$$b-2x=0 \Rightarrow b=2x$$

$$3\left(\frac{x}{3}\right) - \frac{x}{2} - (-1)$$

$$x-2+1 = 3$$

$$f(1) = \sqrt{1-3a} + k-1$$

$$= k-2$$

$$g(1) = \sqrt{b-2(1)} + 3k$$

$$= 3k$$

$$f-g = k-2-3k = -k-2$$

$$-k-2 = k \Rightarrow 2k = -2$$

$$\Rightarrow k = -1$$

$$g(m) = \sqrt{m+2} \quad f(n) = \sqrt{m-n} + n$$

$$m+n = \sqrt{m-2} + \sqrt{m-n} + n$$

$$Df \times Dg = [-1, 2] \Rightarrow Df \cap Dg = [-1, 2]$$

$$f-g(n) = \sqrt{m-n} + n - \sqrt{m+2} = \sqrt{m-n} - \sqrt{m+2} + n$$

$$Dg \Rightarrow m+2 \geq 0 \Rightarrow m \geq -2$$

$$n = \sqrt{m-2}$$

$$= -1$$

$$-\phi +$$

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

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

$$m+n = \sqrt{m-2}$$

$$Df = [-\infty, 2]$$

$$g(n) = \sqrt{m+2} \Rightarrow m+n - \sqrt{m-2} = \sqrt{m+2}$$

$$m-n=0$$

$$\Rightarrow m=n$$

(10)

(2)