

برای $n \geq 1$ داریم

$$g(n) = \sqrt{n - \varepsilon} \sqrt{n - \varepsilon} \quad , \quad f(n) = \sqrt{n + \varepsilon} \sqrt{n - \varepsilon}$$

$$f(n) + g(n) = a + b\sqrt{n+c}$$

$$p = \frac{a+b}{c}$$

$$(\sqrt{n+\varepsilon}\sqrt{n-\varepsilon} + \sqrt{n-\varepsilon}\sqrt{n-\varepsilon}) = \sqrt{n+\varepsilon}\sqrt{n-\varepsilon} + n - \varepsilon\sqrt{n-\varepsilon} + 2\sqrt{n^2 - 14n + 4\varepsilon}$$

$$2n + 2\sqrt{n^2 - 14n + 4\varepsilon} \quad n \geq 1 \quad \rightarrow \quad \varepsilon n - 14 = 8^2$$

$$\varepsilon(n - \varepsilon) = 8^2 \quad 8 = 2\sqrt{n - \varepsilon}$$

$$a = 0 \quad b = 2 \quad c = -\varepsilon$$

$$\frac{0+2}{-\varepsilon} = -\frac{1}{\varepsilon}$$

$$g(n) = \sum_{(2,1), (1,0), (3,0), (0,4)} f(n) = \frac{n+2}{n^2 - \varepsilon n + \varepsilon} \quad \text{۲- اگر}$$

$$f(n) = \frac{n+2}{(n-1)(n-3)}$$

عامل $\frac{g}{f}$ در ۳ تعریف می شود

پس فقط $n=0$ و $n=2$ است

$$(2,1) \rightarrow g \quad f(2) = \frac{\varepsilon}{-1} = -\varepsilon \quad (2, -\frac{1}{\varepsilon}) \rightarrow \frac{2, g(2)}{f(2)} = \frac{1}{-\varepsilon}$$

$$(0,4) \quad f(0) = \frac{2}{3} \quad \frac{g(0)}{f(0)} = \frac{\varepsilon}{\frac{2}{3}} = \frac{3\varepsilon}{2} \quad n=0 \quad \text{بر}$$

$$\sum_{(2, -\frac{1}{\varepsilon}), (0, \frac{3\varepsilon}{2})} = \text{حاصل}$$

$$g(n) = \sum_{(-2,3), (1,-1), (3,2), (-1,0)} f(n) = \sum_{(1,2), (3,-1), (4,2), (-1,4)} f(n)$$

$$الف) f(n) = \sum_{(\frac{1}{2}, 2), (\frac{3}{2}, -1), (2, 2), (-\frac{1}{2}, 4)} f(n)$$

$$ب) f(n^2) = \sum_{(-2,2), (2,2), (1,2), (1,2), (\sqrt{3}-1, \sqrt{3}-1)} f(n^2)$$

$$ج) 2g^2(n) + 1 = \sum_{(-2,19), (1,3), (2,9), (-1,1)} f(n)$$

$$د) 2f = \sum_{(-1, \frac{\pi}{5}), (3, -\frac{1}{2}), (1, -2)} f(n)$$

$$g = \left\{ (0,1), (2,3), (-2,4), (-1,5) \right\} \quad f(x) = \left\{ (2,1), (3,1), (4,9), (-2,0) \right\} \quad -\varepsilon$$

$$h = r f g s \quad h = \left\{ (2,1), (3,1), (4,9), (-2,0) \right\}$$

$$f\left(\frac{f}{g+1}\right)(n)$$

$$(sub) g(n) [n] + [-n], \quad f(x) = \frac{-8}{\sqrt{3n-n} \cdot n-2}$$

$$\textcircled{1} g x \rightarrow \begin{matrix} 0 & x=2 \\ -1 & x \neq 2 \end{matrix}$$

$$\sqrt{3n} > 0 \quad n \geq 0$$

$$\textcircled{2} Df =$$

$$\sqrt{3n} - n \geq 0$$

$$\sqrt{3n} \geq n$$

$$3n \geq n^2$$

$$3n - n^2 \geq 0$$

$$n(3-n) \geq 0$$

$$Df = [0, 3] - \{2\}$$

↓
باید صریح
نم باشد

$$= \{0, 1, 3\} = D$$

$$h(n) = \frac{f(n)}{g(n)}$$

$$n \neq 2 \quad \begin{matrix} 0 & 3 \\ - & + \end{matrix}$$

$$f(n) = \sqrt{3n - n^2 - 8} \quad -9$$

$$g(n) = \left\{ (1,2), (2,2), (4,9), (0,1) \right\}$$

$$-(n^2 - 3n + 8) \geq 0$$

$$-(n-1)(n-8) \geq 0$$

$$-n^2 + 3n - 8 \geq 0 \quad f_{\text{بافت}}(I)$$

$$\begin{matrix} 1 & 8 \\ + & + \\ - & - \end{matrix}$$

$$1 \leq n \leq 8$$

$$h(n) = \left\{ (1,0), (2, \frac{\sqrt{2}}{2}), (8,0) \right\}$$

مستترها = ۱ و ۸ و ۰

$$y = x^3 - 3x^2 + 3x \quad (الف)$$

$$Rf = R$$

۷- برای هر عدد اولی می باشد

$$ب) = \frac{1}{n^2 - 3n}$$

$$n^2 - 3n = \frac{1}{y}$$

$$(n-1)^2 - 1 = \frac{1}{y}$$

$$1 + \frac{1}{y} = (n-1)^2 \quad R = (-\infty, 1] \cup$$

$$1 + \frac{1}{y} \geq 0$$

$$\frac{1+y}{y} \geq 0$$

$$\begin{matrix} -1 & 0 \\ + & - \end{matrix}$$

$$(0, \infty)$$

$$y = x^2 - 2x + 10$$

$$\frac{-b}{2a} = x_s \quad -\frac{-(-2)}{2} = 1$$

۱- برآیند

$$2 - 2 + 10 = 10$$

$$R_1 = [10, +\infty)$$

$$y = -x^2 + 4x + 3$$

max

$$\frac{-4}{-2} = 2$$

$$-1 + 16 + 3 = 18$$

$$(-\infty, 18] = R$$

$$y = \sqrt{x^2 - 2x - 3}$$

$$\frac{-(-2)}{2} = 1$$

$$2 - 2 - 3 = -3$$

$$\sqrt{[-3, +\infty)}$$

$$= [0, +\infty)$$

$$y = \sqrt{4x - x^2}$$

max

$$\frac{-4}{-2} = 2$$

$$16 - 4 = 12$$

$$R = \sqrt{(-\infty, 12]}$$

$$= [0, 3]$$

$$y = x^3 - 3x^2 + 2x + 1$$

$$R_f = R$$

۹- برآیند

$$y = x^4 - 4x^3 + 2x + 5 \quad R_f = R$$

$$y = \sqrt{x^4 - 4x^3 + 2x + 5}$$

$$[0, +\infty)$$

$$y = \left(\underbrace{x^4 - 2x^3 + 2x + 1}_R \right)^2$$

$$R^2 = [0, +\infty)$$

$$y = \frac{2x+1}{x-2}$$

$$x = -\frac{-2y-1}{y-2} =$$

$$\frac{2y+1}{y-2} = x$$

$$y \neq 2 \quad R = \{2\}$$

$$y = \frac{2x+1}{x+1}$$

$$x = -\frac{y-1}{y-2} =$$

$$= \frac{1-y}{y-2}$$

$$y \neq 2 \quad R = \{2\}$$