

تکانه سینوسی - بازه نامرئی

$$f(n) = \sqrt{n + \sqrt{n-1}} \\ g(n) = \sqrt{n - \sqrt{n-1}} \quad \left\{ \begin{aligned} x &= \sqrt{(n + \sqrt{n-1})(n - \sqrt{n-1})} = \sqrt{n^2 - (\sqrt{n-1})^2} \\ &= \sqrt{n^2 - (n-1)} = \sqrt{n^2 - n + 1} = \sqrt{(n-1)^2 + 1} \end{aligned} \right. \quad (1)$$

$$(f \circ g)^2 = f^2 \circ g^2 \circ f \circ g$$

$$\left\{ \begin{aligned} n + \sqrt{n-1} \\ n - \sqrt{n-1} \end{aligned} \right\} f^2 \circ g^2 \circ f \circ g \rightarrow n + (n-1) = 2n-1 = (f \circ g)^2$$

0 و 1 را از مجموعه حذف می‌کنیم

$$f(n) = \frac{n+1}{n-1}, \quad g(n) = \left\{ (1, 1), (2, 2), (3, 3), (4, 4) \right\} \quad (2)$$

$$\frac{g(n)}{f(n)} = \begin{cases} 1 \rightarrow \frac{1}{f} \\ 0 \rightarrow \frac{0}{f} = 0 \end{cases}$$

$$\frac{g}{f} = \left\{ (1, \frac{1}{f}), (0, 4) \right\}$$

$$f(n) = \left\{ (1, 1), (2, 1), (3, 1), (4, 1) \right\}, \quad g(n) = \left\{ (1, 1), (2, 1), (3, 1), (4, 1) \right\} \quad (3)$$

$$f(n) = \left\{ (1, 1), (2, 1), (3, 1), (4, 1) \right\}$$

$$f(n) = \left\{ (1, 1), (2, 1), (3, 1), (4, 1), (5, 1) \right\}$$

$$g(n) = \left\{ (1, 1), (2, 1), (3, 1), (4, 1) \right\}$$

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

$$f(n) = \left\{ (1, 1), (2, 1), (3, 1), (4, 1) \right\}, \quad g(n) = \left\{ (1, 1), (2, 1), (3, 1), (4, 1) \right\} \quad (4)$$

$$h = f \circ g \rightarrow h = \left\{ (1, 1), (2, 1), (3, 1), (4, 1) \right\}$$

$$f(n) = \sqrt{n^2 - n}, \quad g(n) = [n] + [-n] \quad \left(\frac{f}{g} \right)(n) = \frac{f(n)}{g(n)} \quad (5)$$

$$n \geq 0 \rightarrow n \geq 0$$

$$\sqrt{n^2 - n} \geq 0 \rightarrow n(n-1) \geq 0 \rightarrow 0 \leq n \leq 1 / n-1 \neq 0 \rightarrow n \neq 1$$

$$\frac{n}{n-1}$$

$$D_f = [0, 1] - \{1\}$$

$$[n] + [-n] = 0 \rightarrow 1-1=0$$

$$n \rightarrow 0 \rightarrow 0 \rightarrow 0$$

$$D_{\frac{f}{g}} = \{0, 1, \infty\}$$

$$f(n) = \sqrt{\omega n - n^2 - \epsilon} \rightarrow n^2 + \omega n - \epsilon \geq 0 \rightarrow (n-1)(n+\omega) \leq 0$$

$$3 \frac{1}{2} - 6 \rightarrow [1, 2]$$

$$g(n) = \{(1, 1), (1, 1), (1, 1), (1, 1)\}$$

$$h(n) = \frac{f(n)}{g(n)} = \left\{ \left\{ (1, 1), (1, 1), (1, 1), (1, 1) \right\} \right\}$$

$$\text{اذا } y = \frac{n^2 - \epsilon n + \omega}{2(n^2 - \epsilon n + \omega)} \rightarrow y n^2 - \epsilon n y + \omega y = n$$

$$y n^2 + \omega y = \frac{n + \epsilon n y}{2(1 + y)} \rightarrow n = \frac{y n^2 + \omega y}{1 + y}$$

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

$$y \neq \frac{1}{n^2}$$

$$n^2 - \epsilon n = \frac{1}{y} \rightarrow y \neq 0$$

$$\text{اذا } y = n^2 - \epsilon n + 1 \rightarrow \frac{-b}{2a} = \frac{\epsilon}{2} = \epsilon n \min$$

$$y_{\min} = \epsilon - n + 1 = 0$$

$$[y, \infty)$$

$$\therefore y = -n^2 + 2n + \omega \rightarrow \frac{-b}{2a} = \frac{-2}{-2} = 1$$

$$-n^2 + 2n + \omega = 1$$

$$(-\infty, 1]$$

$$2.) y = \sqrt{n^2 - \epsilon n - \omega}$$

$$[0, \infty)$$

$$y = \sqrt{4n - n^2} \rightarrow [0, \infty)$$

$$\text{اذا } R$$

$$\therefore R$$

$$2.) \rightarrow [0, \infty)$$

$$y \rightarrow [0, \infty)$$

$$(9)$$

$$\text{اذا } y = \frac{\omega n + 1}{n - \epsilon} \rightarrow (n - \epsilon)y = \omega n + 1 \rightarrow \frac{n y - \epsilon n}{n(y - \epsilon)} = 1 + \frac{\omega}{n}$$

$$(2.)$$

$$n = \frac{1 + \epsilon y}{y - \epsilon} \rightarrow y \neq \epsilon$$

$$\therefore y = \frac{\omega n + 1}{n - \epsilon} \rightarrow y n + y = \omega n + 1$$

$$y n + \omega n = 1 - y$$

$$n(y + \omega) = 1 - y \rightarrow n = \frac{1 - y}{y + \omega} \rightarrow R - \{1, 3\}$$

$$R - \{1\}$$