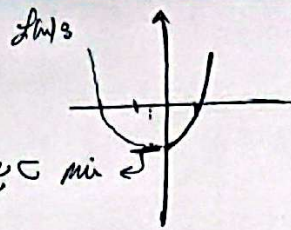


$$f(n) = n + \sqrt{n} - 2 \xrightarrow{\sqrt{n} = a} f(n) = a^2 + a - 2 \xrightarrow{a > 0}$$



-1

در $[0, +\infty)$ میانه $\sqrt{n}$ و n را میزنیم، میانه $n = \frac{1}{4}$ و $\sqrt{n} = \frac{1}{2}$ میزنیم
 در $n = \frac{1}{4}$ و $\sqrt{n} = \frac{1}{2}$ میزنیم

1/28

$$Dof \rightarrow f(n) \in Df \rightarrow n + \sqrt{n} - 2 > 0 \quad (\sqrt{n} + 2)(\sqrt{n} - 1) > 0 \rightarrow n \geq 1$$

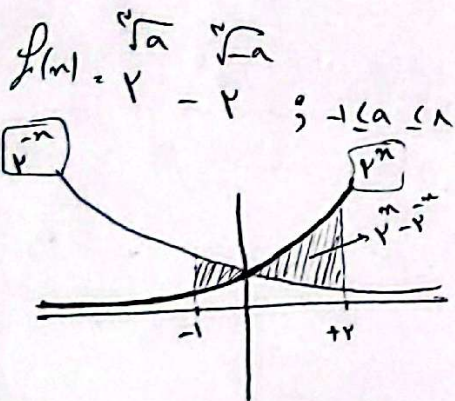
$$f(n) \rightarrow f(n) \leq f(\sqrt{n}) \rightarrow \sqrt{n} \geq f(n) \rightarrow \sqrt{n} \geq n + \sqrt{n} - 2 \rightarrow n - 2 \leq 0 \rightarrow n \leq 2 \quad (1)$$

$$\rightarrow Df = [0, +\infty) \quad (2) \quad (1) \cap (2) \rightarrow n \in [1, 2] \quad Dof = [1, 2] \quad \subset \mathbb{R}$$

$$f(n) = \sqrt[3]{4\cos^2 t} - \sqrt[3]{1 - 4\cos^2 t} \rightarrow 4\cos^2 t = a$$

-4

$$0 \leq \cos^2 t \leq 1 \rightarrow 0 \leq 4\cos^2 t \leq 4 \rightarrow -1 \leq 4\cos^2 t \leq 1$$



$$\Rightarrow f(n) = \sqrt[3]{n} - \sqrt[3]{-n}, \quad Df = [-1, 1]$$

2

$$f(t) = \sqrt[3]{t} - \sqrt[3]{-t} = t - \frac{1}{t} \cdot \frac{1}{t} \left\{ Rf = \left[-\frac{1}{t}, \frac{1}{t} \right] \right.$$

$$f(-1) = \frac{1}{-1} - \sqrt[3]{-1} = -\frac{1}{1} - \frac{1}{1} = -2$$

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

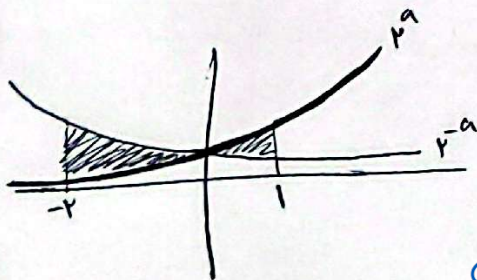
$$f(n) = n - [a, t] = \frac{n - [a]}{t} \rightarrow \dots \rightarrow -1 \leq a - 2 < 1 \rightarrow -1 \leq f(n) < 1$$

-10

1/28

$$g(n) = \frac{t^n - t^{-n}}{t} \xrightarrow{f(n)=a} g \circ f(n) = \frac{t^a - t^{-a}}{t} \quad ? -1 \leq a < 1$$

$$Rg \circ f = \left[-\frac{1}{t}, \frac{1}{t} \right]$$



$$t g(1) = \frac{1 - \frac{1}{t}}{t} = \frac{t - 1}{t^2} \rightarrow g(1) = \frac{t - 1}{t^2}$$

$$t g(-1) = \frac{\frac{1}{t} - t}{t} = \frac{1 - t^2}{t^2} \rightarrow g(-1) = \frac{1 - t^2}{t^2}$$

$$Rg \circ f = \left[-\frac{1}{t}, \frac{1}{t} \right]$$

تقسیم بر 2 کردی دوباره؟

بسیار زیاده

$$f(n) = \log \frac{n}{2}$$

تزدی $\rightarrow$ و تزدی

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

تزدی

$$\bigcup \rightarrow [1, \infty)$$

$$\log \frac{n^2 - 2n - 1}{2} \rightarrow n^2 - 2n - 1 > 0 \quad n > 2$$

$$n < -2$$

$$\frac{1}{2} \rightarrow n < -2$$