

$$F(n+2) = \begin{cases} n+2 & ; n \geq 1 \\ n-1 & ; n < 1 \end{cases}$$

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

$$f(n) = t-2$$

$$\begin{cases} 3(t-2)+2 & t \geq 3 \\ 3t-1 & \\ f(t-2) & t < 3 \end{cases}$$

این دو مساوی است

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

داده

$$n \leq 2 \rightarrow n \leq 1 \rightarrow D_f = (-\infty, 1]$$



$$F(n) = (n^k + n)^k$$

$$f \circ f(n) < F(n^k) \rightarrow ((n^k + n)^k + (n^k + n)^k)^k - f \circ f$$

$$f \circ f(n^k) = (n^k + n^k)^k$$

$$\sqrt[n]{n^k + n}^k + (n^k + n)^k < n^k + n^k$$

$$z = n^k + n$$

$$g(z) = z^k + z^k$$

$$z^k + z^k < n^k + n^k$$

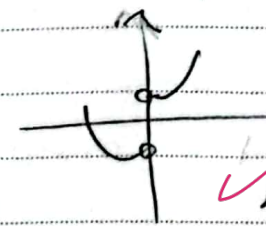
$$z, g(z) < g(n) \rightarrow z < n \rightarrow g(z) < g(n) \rightarrow z < n$$

$$n^k + n < n \rightarrow n^k < 0 \rightarrow (n < 0)$$

$$y = |n|/(n^k + \frac{1}{n})$$

$$n > 0 \rightarrow n^k + 1$$

$$n < 0 \rightarrow -n^k - 1$$

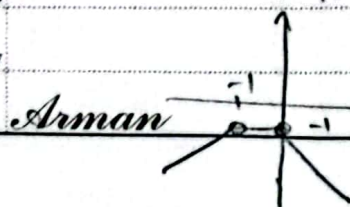


این دو مساوی است

$$f(n) = \frac{n+1}{n+|n+1|}$$

$$\frac{|n|+|n+1|}{|n|+|n+1|}$$

$$\frac{(n+1)(|n|+|n+1|)}{n^2 - (n+1)^2 - (n+1) - (|n|/(n+1))}$$



$$\lim_{n \rightarrow -1} f(n) = 0$$

$$D_f = (-\infty, 0) \cup (0, 1)$$

$$y = \log x^2 - m - n$$

$$\rightarrow (n-1)(m+1) > 0$$

$$D = (-\infty, -1) \cup (1, +\infty)$$

در $(-\infty, -1)$ و $(1, +\infty)$ y صعودی است و در $(-1, 1)$ y نزولی است.

$$F(x) = (x^2 - 1)^n$$

در $x = \pm 1$ $F(x) = 0$

$$x^2 - 1 > 1 \rightarrow x > \sqrt{2} \text{ یا } x < -\sqrt{2}$$

در $x = 0$

$$\rightarrow x^2 - 1 \geq 1 \rightarrow x \geq \sqrt{2} \text{ یا } x \leq -\sqrt{2}$$

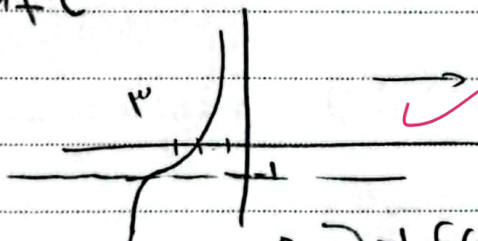
$$x^2 - 1 = 0 \rightarrow x = \pm \sqrt{1}$$

$$x \in (-\infty, -1] \cup [1, +\infty) \cup \{\pm \sqrt{1}\}$$

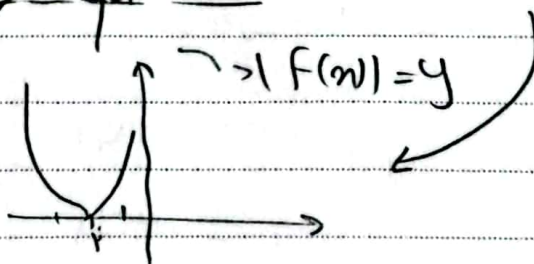
$$F(x) = x^3 + ax^2 + bx + c$$

$$\rightarrow (-1, 0)$$

در $x = -1$ $F(x) = 0$



$$F(x) = (x+1)^3 - 1$$



$$\min K = -1$$

در $x = -1$ $K = 0$

$$F(x) = x + \sqrt{x} - 1$$

$$x > 0, F(x) \geq 0 \rightarrow (\sqrt{x} + 1)(\sqrt{x} - 1) \geq 0$$

$$x = 1 \rightarrow x \in [1, +\infty)$$

$$F(f(x)) \leq F(\sqrt{x})$$

در $x = 1$

$$F(x) \leq \sqrt{x} \rightarrow x + \sqrt{x} - 1 \leq \sqrt{x}$$

$$\rightarrow x \leq 1$$

$$Q \cap P \rightarrow x \in [1, 1]$$

Subject:

Year:

Month:

Day:

page: ()

$$F(m) = r^m \sqrt{1 - 9 \cos^2 m} - r^m \sqrt{1 - 9 \cos^2 m} \quad (9)$$

$$F(m) = t - \frac{1}{t}$$

$$\text{Min: } \cos m = 0 \rightarrow F(m) = r^m - r^m = \frac{1}{r} - r = -\frac{r}{r}$$

$$\text{Max: } \cos m = 1 \rightarrow F(m) = r^m - r^m = r - \frac{1}{r} = \frac{r^2 - 1}{r}$$

$$[a, b] = \left[-\frac{r}{r}, \frac{r^2 - 1}{r} \right] \rightarrow b - a = \frac{r^2 - 1}{r}$$

$$R_f = D_g \quad F(m) = r - [r] - r$$

$$\rightarrow 0 \leq r - [r] \leq 1 \rightarrow -r \leq r - [r] - r \leq -1 \rightarrow R_f = [-r, -1]$$

$$D_{g(m)} = [-r, -1] \rightarrow g(r) = \frac{r^2 - r}{r} = \frac{r(r-1)}{r}$$

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

$$R_{gof} = \left[-\frac{r}{r}, \frac{r^2 - 1}{r} \right]$$