

$$\left( f(-n) - n f(n) = 1/n + 1 \right) \times 2 \rightarrow 2f(-n) - 2n f(n) = 2/n + 2$$

$$f(n) - n f(-n) = 1/(-n) + 1 \rightarrow f(n) - n f(-n) = 1/(-n) + 1$$

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

$$n \rightarrow f(n) = \frac{1/n^2 + 1/n + 1}{1 - n^2} \rightarrow \frac{(n+1)(n+1)}{(1-n)(1+n)} = \frac{n+1}{1-n} \quad n > 0$$

$$n < 0 \rightarrow f(n) = \frac{-1/n^2 - n + 1}{1 - n^2} \rightarrow \frac{(-n+1)(n+1)}{(1+n)(1-n)} = \frac{-n+1}{1-n} \quad n < 0$$

$$f(n^2) = ?$$

$$f(n) + f(0) = n^2 - n + 1$$

$$1 f(0) = 1 \rightarrow f(0) = 1$$

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

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

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

$$xy - y = n^2 + n + 1$$

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

$$1 + y^2 - 2y - 1 + 2y \geq 0 \rightarrow y^2 - 2y + 2 \geq 0 \rightarrow (y-1)^2 + 1 \geq 0$$

$$R_f = (-\infty, -1] \cup [1, +\infty)$$

$$الف) y = 1/n^2 - 2n + 1$$

$$\min \left| \frac{\Delta}{\Sigma} \right|$$

$$1/n^2 - 2n + 1 = -1/n$$

$$R_f = [-1/n, +\infty)$$

$$ب) y = \sqrt{-n^2 + 4n - 3}$$

$$\min \left| \frac{\Delta}{\Sigma} \right|$$

$$4 + 11 - 3 = 12$$

$$\sqrt{(-\infty, +\infty)} = [-, +\infty)$$

$$ج) y = \sqrt{n^4 - 2n^2 - 2n + 1} \rightarrow \text{بزرگترین مقدار} \rightarrow \sqrt{1R} = [-, +\infty)$$

$$د) y = \log \left( \frac{n^2 - 4n^2 + 17n - 4}{n^2} \right) \rightarrow R_f = 1R$$

این بزرگترین مقدار  
1R در آنجا فقط  
جستجو

$$الف) \frac{1/n+1}{1-n} \rightarrow \text{محدوده} = 1R = 1R - \{1\}$$

$$ب) \sqrt{\frac{2n+1}{n-2}} \rightarrow \sqrt{1R - \{2\}} = [-, +\infty) - \{2\}$$

$$ج) y = \frac{n^2+2}{\sqrt{n^2+2}} \rightarrow \sqrt{n^2+2} + \frac{1}{\sqrt{n^2+2}}$$

$$د) y = n^2 + \frac{1}{n^2+2} \rightarrow [-, +\infty)$$

$$[1/2, +\infty) = R_f$$

$$1R = [1/2 + 1/\sqrt{2}, +\infty) = [1/2 + 1/\sqrt{2}, +\infty)$$

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

$$n^2 = \frac{y + \varepsilon}{y - \varepsilon} \rightarrow \frac{-\varepsilon}{+1 - \varepsilon} \rightarrow R_f, (-\infty - \varepsilon) \cup (\varepsilon + \infty)$$

نقطه  $\rightarrow$   $\varepsilon = -\varepsilon$   
 خروج از محدوده  
 $+ \infty = \mu$   
 جزو  $+ \infty$  باز است

$$R_f = (-\infty - \varepsilon) \cup (\varepsilon + \infty)$$

$$f(n) = \frac{2 \ln n + \varepsilon}{2n - \varepsilon}$$

خروج از محدوده

در هر دو طرف

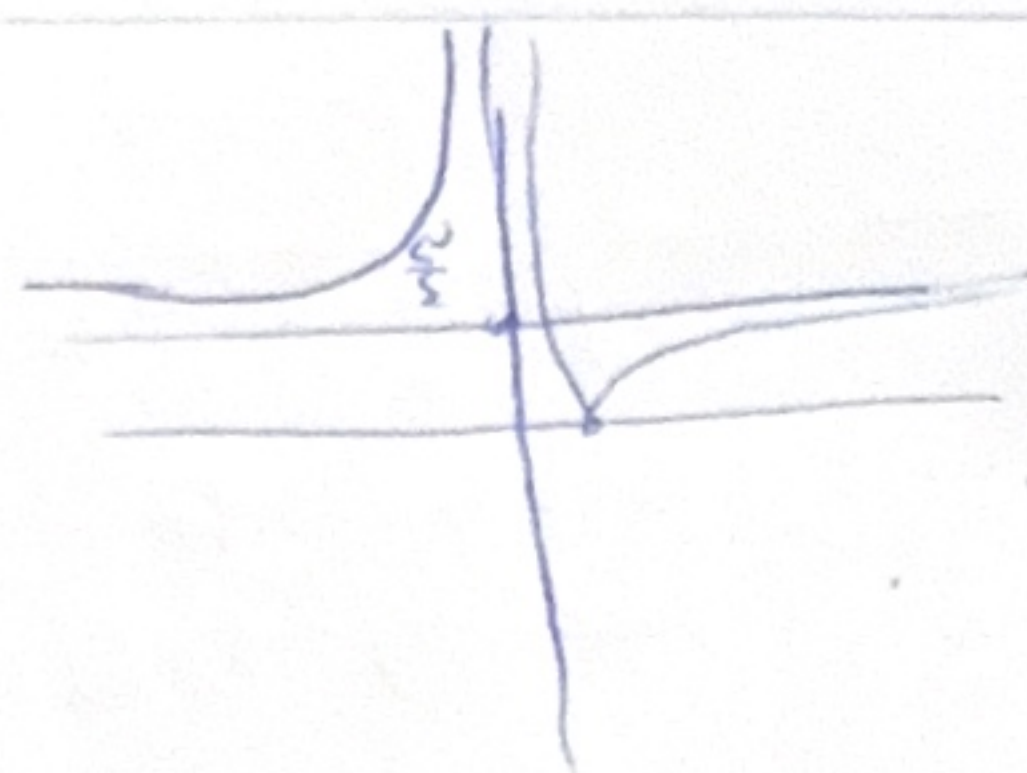
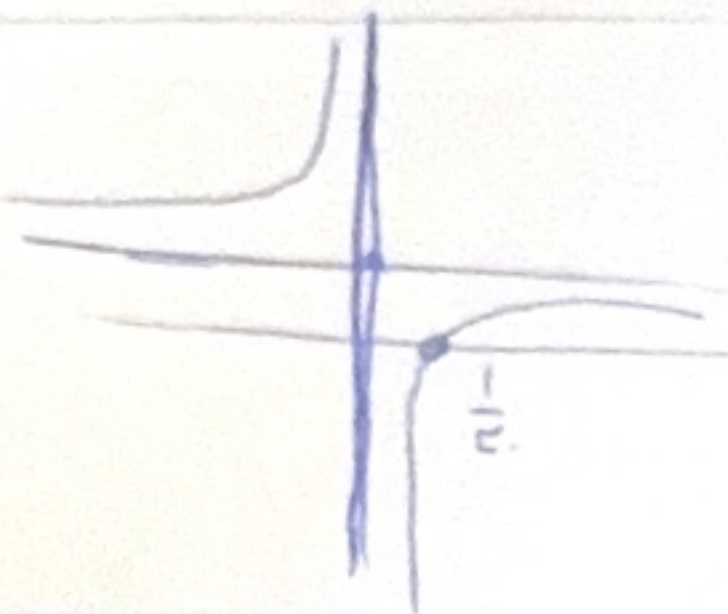
$$P_{max} = 1$$

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

$$[-2, \frac{-1}{2}]$$

$$P_{min} = -1 \rightarrow \frac{1}{-2} = -\frac{1}{2}$$

$$y = \left| \frac{2n-1}{\varepsilon n} \right|$$

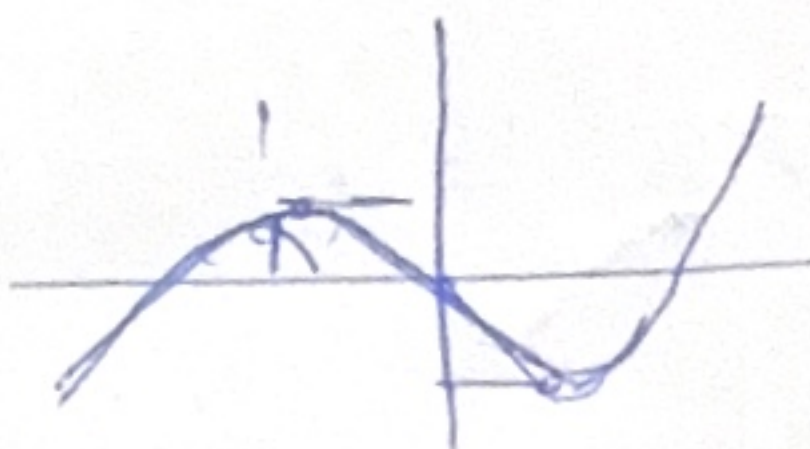


$$IR = [-\infty + \infty)$$

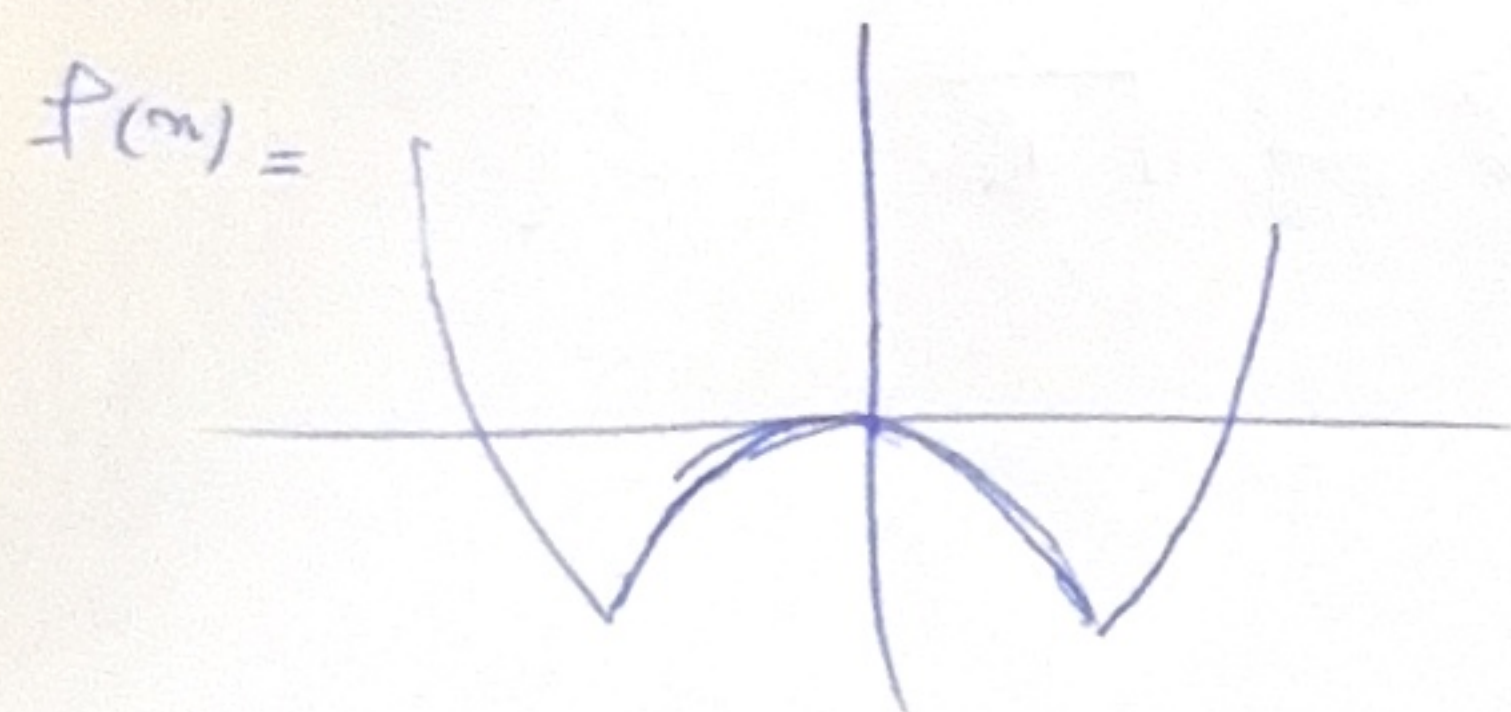
$$b) \sqrt{\frac{4n-1}{\varepsilon n-1}} \rightarrow \sqrt{\frac{4(2n-1)}{\varepsilon(2n-1)}} = \left\{ \frac{2}{\varepsilon} \right\}$$

$$y = n/|n| - 2n \xrightarrow{n > 0} n^2 - 2n$$

$$\begin{aligned} n < 0 & \rightarrow -n^2 - 2n \\ n(-n-2) \end{aligned}$$



$$IR = R_f$$



$$f(|n|)$$

