

$$\frac{1}{n-1} = |n-1| \begin{cases} n \geq 1 & \frac{1}{n-1} = n-1 \Rightarrow x = (n-1)^2 \Rightarrow n^2 - 2n = 0 \\ n < 1 & \frac{1}{n-1} = -n+1 \Rightarrow -n^2 + 2n - 1 = 1 \Rightarrow n^2 - 2n + 2 = 0 \end{cases}$$

معادله دارای ریشه نیست

$n^2 - 2n + 2 = 0 \quad \Delta = (-2)^2 - 4(1)(2) \Rightarrow \Delta < 0$

$n=2$

الف) $\left| \frac{n-1}{n} \right| < 2 \Rightarrow -2 < \frac{n-1}{n} < 2 \quad \frac{n-1}{n} < 2 \quad \frac{1}{n} > 0 \Rightarrow n > 0 \quad \textcircled{I}$

$\textcircled{I} \cap \textcircled{II} = \left(\frac{1}{2}, +\infty \right)$

ب) $\left| \frac{n-2}{n+1} \right| > 1 \Rightarrow \frac{n-2}{n+1} > 1 \Rightarrow \frac{n+2}{n+1} < 0 \quad \left(-2, -\frac{1}{2} \right) \textcircled{I}$

$\frac{n-2}{n+1} < -1 \Rightarrow \frac{n-1}{n+1} < 0 \quad \left(-\frac{1}{2}, \frac{1}{2} \right) \textcircled{II}$

$\textcircled{I} \cup \textcircled{II} \Rightarrow \left(-2, -\frac{1}{2} \right) \cup \left(-\frac{1}{2}, \frac{1}{2} \right)$

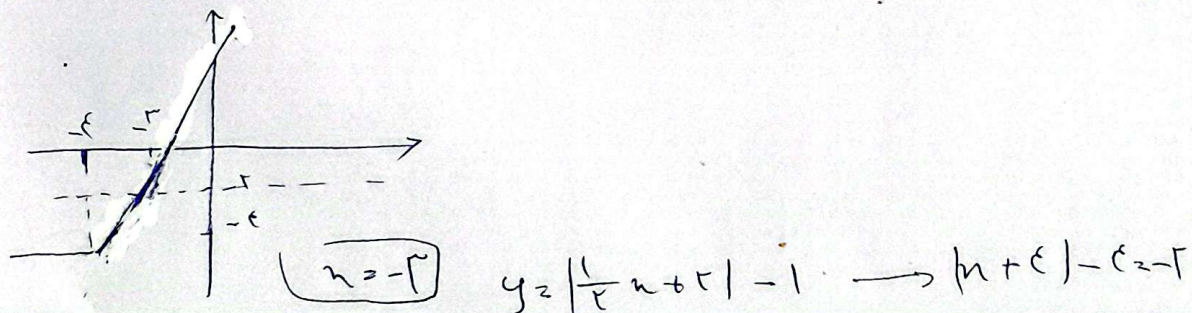
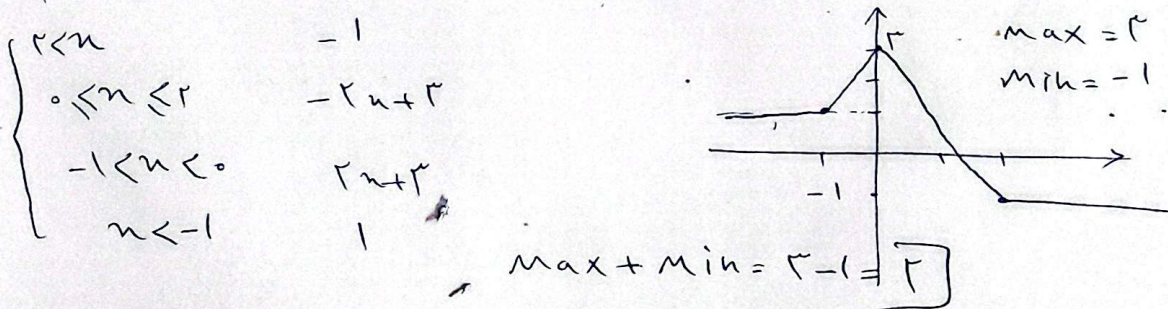
$n^2 < n+6 \Rightarrow n^2 - n - 6 < 0 \quad n \begin{matrix} \nearrow -2 \\ \searrow 3 \end{matrix}$

$(n+2)(n-3)$

$n^2 > -n-6 \Rightarrow n^2 + n + 6 > 0 \Rightarrow \Delta < 0$

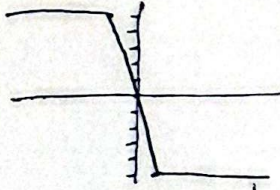
$\frac{n}{+} \quad \frac{-2}{+} \quad \frac{3}{+}$

$\left| n - \frac{1}{2} \right| < \frac{5}{2} \quad \alpha = \frac{1}{2} \quad \beta = \frac{5}{2}$



الف) $f(n) = [1 - n - |n + 4|]$

تقسيم بر ديار رسم
مقدار



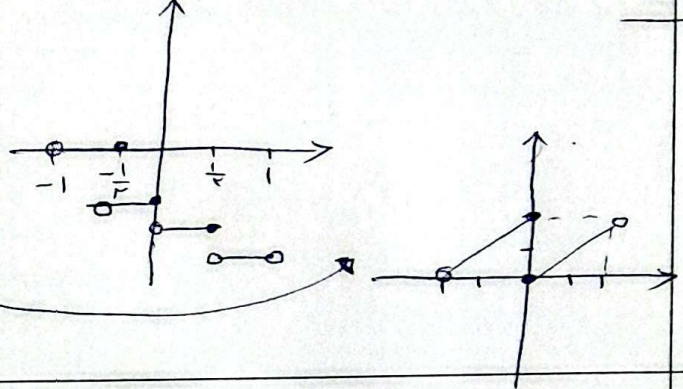
$$\begin{cases} 1 < n & \{5\} \\ -4 \leq n < 1 & [-2n - 2] \\ n < -4 & \{5\} \end{cases}$$

بر $\Rightarrow \{-5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5\}$

ب) $\frac{1}{n} - \left[1 + \frac{1}{n}\right] \Rightarrow \frac{1}{n} - \left[\frac{1}{x}\right] - 1 = y$ $0 \leq \frac{1}{n} - \left[\frac{1}{n}\right] < 1$
 $\Rightarrow -1 \leq \frac{1}{n} - \left[\frac{1}{n}\right] - 1 < 0 \Rightarrow \left[-\frac{1}{n}\right]$

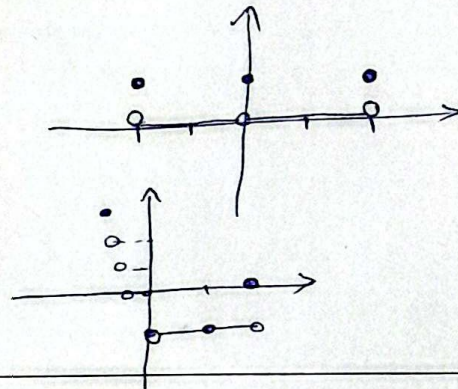
الف) $y = [-2n] - 1$ $n \in (-1, 1)$

ب) $n - 2 \left[\frac{n}{2}\right]$ $n \in (-2, 2)$



الف) $[|n| - 1]$ $n \in [-2, 2]$

ب) $y = n^2 - 2n$ $n \in [-1, 2]$



$b - [a] = 2, 6 \Rightarrow b = 0, 6$

$a + [b] = 6, 7 \Rightarrow a = 0, 7$

$\begin{cases} a = 1, 2 \\ b = 3, 4 \end{cases} \Rightarrow a + b = 4, 6$

$$\begin{cases} [b] - [a] = 2 \\ [a] + [b] = 6 \end{cases}$$

$$\frac{2[b] = 6}{[b] = 3}$$

$$[a] = 1$$

$(1 + \sqrt{2})^2 = 198 - (1 - \sqrt{2})^2 = 198 - [(1 - \sqrt{2})^2] = 198 - [5 - 2\sqrt{2}] =$

$198 - [2\sqrt{2} + \sqrt{2} - 0, 6\sqrt{2} - 14\sqrt{2}] = 198 - [99 - 10\sqrt{2}] =$

$198 - 99 + 10\sqrt{2} = 199, 99$ $[199, 99] = 199$