

Date:

ریاضیات

پاراستو

Subject :

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

①

$$\frac{1}{n-1} \leq -n+1 \quad \frac{1}{n-1} \leq n-1$$

$$-n^2 + 2n - 1$$

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

$$\Delta < 0$$

$$n^2 - 2n = 0$$

منفی

$$n \leq 0 \rightarrow \text{خ}$$

$$n \leq 2 \rightarrow \text{منفی}$$

$$\text{الف) } \left| \frac{2n-1}{n} \right| < 2 \quad |2n-1| < 2|n|$$

②

$$(2n-1)^2 < 4n^2$$

$$4n^2 - 4n + 1 < 4n^2$$

$$-4n + 1 < 0$$

$$\left(\frac{1}{4}, +\infty \right) \leftarrow n > \frac{1}{4}, n \neq 0$$

$$\text{ب) } \left| \frac{n-2}{2n+1} \right| > 1$$

$$|n-2| > |2n+1|$$

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

$$n^2 + 4 - 4n > 4n^2 + 4n + 1$$

$$3n^2 + 8n - 3 < 0 \rightarrow n = -3$$

$$2n+1 \neq 0 \rightarrow n \neq -\frac{1}{2}$$

$$n < \frac{1}{3}$$

$$|n-2| < 3 \leftarrow \text{پایه جواب}$$

③

$$n+4 > n^2 \rightarrow n^2 - n - 4 < 0 \rightarrow \frac{-1 \pm \sqrt{17}}{2} \rightarrow (-2, 3)$$

$$n+4 < -n^2 \rightarrow n^2 + n + 4 < 0 \rightarrow \Delta < 0 \rightarrow \text{خ}$$

$$-2 < n < 3 \rightarrow -\frac{2}{3} < n - \frac{1}{3} < \frac{8}{3} \rightarrow \left| n - \frac{1}{3} \right| < \frac{8}{3}$$

Parastoo

$$y = |m+1| - |2m| + |m-2| \quad (5)$$

$$m < -1 \rightarrow y = -(m+1) + 2m - (m-2) = 1 \rightarrow m < -1 \Rightarrow y = 1$$

$$-1 < m < 0 \rightarrow y = (m+1) + 2m - (m-2) = 2m+3 \rightarrow m < 0 \Rightarrow y < 3$$

$$0 < m < 2 \rightarrow y = (m+1) - 2m - (m-2) = -2m+3 \rightarrow m < 2 \Rightarrow y > -1$$

$$m > 2 \rightarrow y = (m+1) - 2m + (m-2) = -1$$

$$\text{Max} + \text{Min} = 3 - 1 = 2$$

$$y = \left| \frac{m}{p} \right| - 2$$

مقادیر مثبت منفی

(5)

یک واحد مثبت و یک واحد منفی
بنابراین جواب در دو ناحیه طولی بهم تقاطع می‌کند

$$y = \left| \frac{m}{p} \right| - 2 \rightarrow y = \left| \frac{m+4}{p} \right| - 2 + 1 \Rightarrow \left| \frac{m+4}{p} \right| = 1$$

$$\left| \frac{m}{p} \right| - 2 = \left| \frac{m+4}{p} \right| - 1$$

$$\left| \frac{m}{p} \right| \leq \left| \frac{m+4}{p} \right| + 1 \rightarrow |m| \leq |m+4| + 1$$

$$-4 \leq m < 0 \rightarrow -m \leq m+4 \rightarrow m \leq -2 \quad \checkmark$$

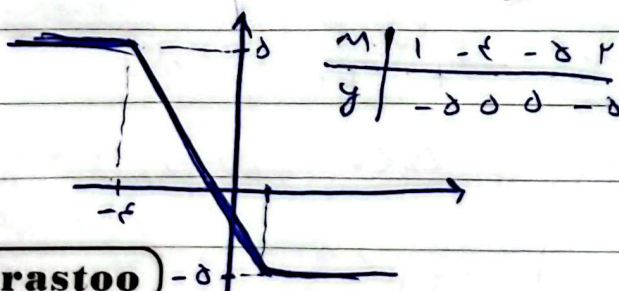
$$m > 0 \rightarrow m \leq m+4 \rightarrow 0 \leq 4 \quad \checkmark$$

$$m < -4 \rightarrow -m \leq -(m+4) + 1 \Rightarrow 0 \leq -2 \quad \times$$

$$f(m) = |1-m| - |m+4|$$

$$|1-m| - |m+4| \leq \frac{-4}{\delta^2 - 2m - 1} - 0$$

$$R = \left\{ -\frac{1}{2}, -\frac{1}{2}, \frac{1}{2}, \frac{1}{2}, 1, 0 \right\}$$



$$f(m) = \frac{1}{m} - \left[\frac{m+1}{m} \right] \quad (6)$$

$$\frac{1}{m} - \left[\frac{1}{m} \right] = 1$$

$$\frac{1}{m} - \left[\frac{1}{m} \right] = 1$$

$$R_p = [-1, 0]$$

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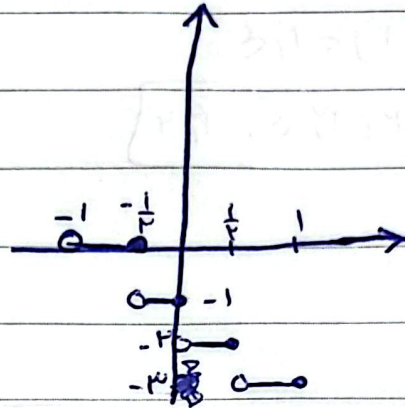
الف) $y = [-r, m] - 1$ $m \in (-1, 1)$ (v)

$-1 < m \leq -\frac{1}{r} \rightarrow y = 0$

$-\frac{1}{r} < m \leq 0 \rightarrow y = -1$

$0 < m \leq \frac{1}{r} \rightarrow y = -r$

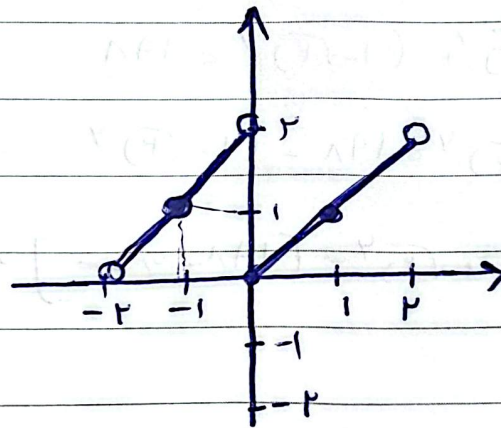
$\frac{1}{r} < m < 1 \rightarrow y = -r$



ب) $y = m - r \left[\frac{m}{r} \right]$ $m \in (-r, r)$

$-r < m < 0 \rightarrow y = m + r$

$0 \leq m < r \rightarrow y = m$



الف) $y = [|m| - 1]$ $m \in [-r, r]$ (A)

$m \leq -r \rightarrow y = 1$

$-r < m \leq -1 \rightarrow y = 0$

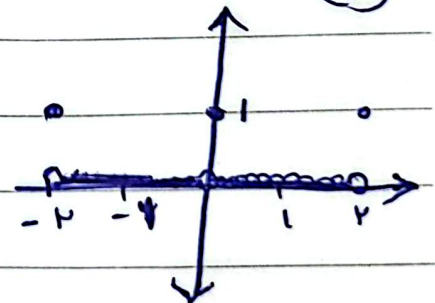
$-1 < m < 0 \rightarrow y = 0$

$m \leq 0 \rightarrow y = 1$

$0 < m \leq 1 \rightarrow y = 0$

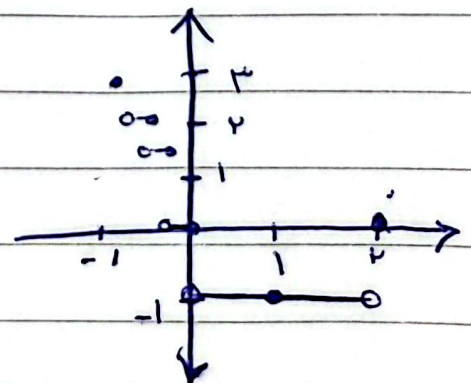
$1 < m < r \rightarrow y = 0$

$m \geq r \rightarrow y = 1$



ب) $y = [m^r - r, m]$ $m \in [-1, r]$

$m \in [-1, r]$



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$$a + (b - 0, \epsilon) \leq \epsilon, \epsilon$$

$$b - (a - 0, \epsilon) \leq \epsilon, \epsilon$$

$$a + b \leq \epsilon + \epsilon \leq \epsilon, \epsilon$$

$$\left. \begin{array}{l} b - [a] \leq \epsilon, \epsilon \\ a + b \leq \epsilon, \epsilon \end{array} \right\} \rightarrow \epsilon b \leq \epsilon, \epsilon, \epsilon$$

ϵ, ϵ

$$\boxed{b \leq \epsilon, \epsilon}$$
$$\boxed{a \leq \epsilon, \epsilon}$$

$$(1 + \sqrt{2})^4 + (1 - \sqrt{2})^4 = 191$$

$$[(1 + \sqrt{2})^4] \rightarrow P$$

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$$(1 + \sqrt{2})^4 + (1 - \sqrt{2})^4 = 191$$

$$(1 + \sqrt{2})^4 \leq 191 - (1 - \sqrt{2})^4 \rightarrow -1 < 1 - \sqrt{2} < 0 \rightarrow 0 < (1 - \sqrt{2})^4 < 1$$

$$[(1 + \sqrt{2})^4 \leq [191 - 0, \dots]] = 191$$