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صفحه: /



سنتا سن مروت راد باردهم ۱۱ - تلیت

$$① \frac{1}{n-1} = |n-1| \quad n \neq 1$$

$$|n-1|(n-1) = 1 \Rightarrow |n-1| = 1 \Rightarrow |n| = 1 \Rightarrow$$

$$|n-1|(n-1) = 1 \Rightarrow n^2 - 2n + 1 = 1 \Rightarrow n = 0 \text{ or } n = 2$$

$$n < 1 \Rightarrow -n^2 + 2n - 1 = 1 \Rightarrow n^2 - 2n + 2 = 0 \Rightarrow \Delta < 0 \Rightarrow$$

$$n = 2$$

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

$$① \rightarrow r_{n-1} - r_n < 0 \Rightarrow \frac{-1}{n} < 0 \Rightarrow n > 0$$

$$② \rightarrow \frac{r_{n-1} + r_n}{n} > 0 \Rightarrow \frac{r_{n-1}}{n} > 0 \Rightarrow \frac{0}{n} > 0 \Rightarrow \left(-\frac{1}{n}, \frac{1}{n} \right) \cup \left(\frac{1}{n}, \frac{1}{n} \right)$$

$$③ \text{ ب) } \left(\frac{1}{r}, +\infty \right)$$

$$④ \rightarrow \left| \frac{n-r}{r_{n+1}} \right| > 1 \Rightarrow$$

$$① \rightarrow \frac{n-r - r_{n+1}}{r_{n+1}} > 0 \Rightarrow \frac{-n-r}{r_{n+1}} > 0 \Rightarrow \frac{-r}{-\frac{1}{r} + \frac{1}{r}} = \left(-r, -\frac{1}{r} \right)$$

$$② \rightarrow \frac{n-r}{r_{n+1}} < -1 \Rightarrow \frac{n-r + r_{n+1}}{r_{n+1}} < 0 \Rightarrow \frac{r_{n+1}}{r_{n+1}} < 0 \Rightarrow \left(-\frac{1}{r}, \frac{1}{r} \right) \cup \left(\frac{1}{r}, \frac{1}{r} \right)$$

$$③ \rightarrow \left(-r, \frac{1}{r} \right) \cup \left(-\frac{1}{r}, r \right)$$

$$④ \rightarrow n^2 < (n+4)$$

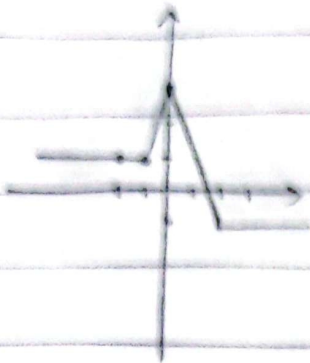
$$① \rightarrow n^2 - n - 4 < 0 \Rightarrow \frac{-r}{+\frac{1}{r} - \frac{1}{r}} = (-r, 0) \checkmark$$

$$② \rightarrow n^2 + n + 4 < 0 \quad \Delta < 0$$

$$-r < n < r \Rightarrow -r/2 < n - 1/2 < r/2 \Rightarrow |n - 1/2| < r/2$$

$$\rightarrow a = \frac{1}{r}$$

$$② \quad y = |n+1| - |p+n| + |n-1|$$



$$n = -1 \rightarrow y = 1 + p + 1$$

$$n = -p \text{ (at } p < -1 \text{)} \rightarrow y = 1 + p + 1$$

$$n = 0 \rightarrow y = 1 + p + 0$$

$$n = p \rightarrow y = p + p + 1$$

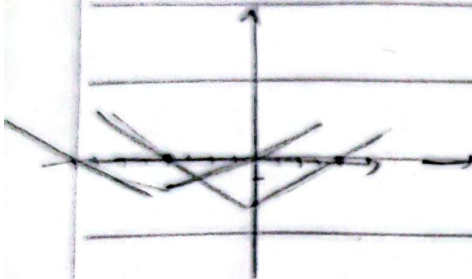
$$n = p \rightarrow y = p - p + 1 = 1$$

$$y_{\min} = -1$$

$$y_{\max} = 1$$

$$p = -1$$

$$③ \quad y = \frac{1}{p}|x| - r \rightarrow y = \frac{1}{p}|n| - r \rightarrow y = \frac{1}{p}|x+p| - 1$$

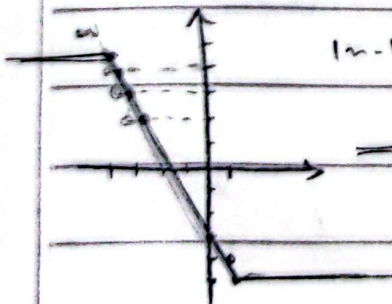


$$x = -p \rightarrow y = -\frac{1}{p}$$

$$\begin{matrix} -p \\ -\frac{1}{p} \end{matrix}$$

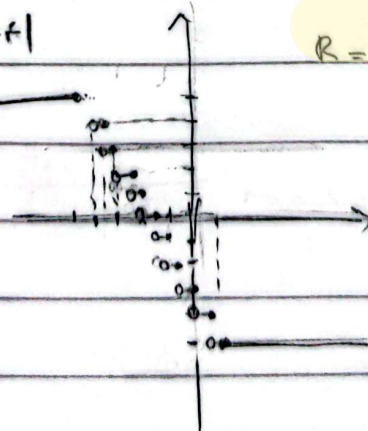
نقطهٔ مینیمم در $(-p, -\frac{1}{p})$ است.

$$④ \quad \text{الف) } f(n) = \begin{bmatrix} |1-n| - |n+p| \\ |n-1| - |n+p| \end{bmatrix}$$



$$|n-1| - |n+p|$$

$\rightarrow$



$$R = \{n \in \mathbb{Z} \mid -8 \leq n \leq 8\}$$



٩) ب) $y = \frac{1}{x} - \left[\frac{x+1}{x} \right] \rightarrow x \neq 0$

$y = \frac{1}{x} - \left[1 + \frac{1}{x} \right] \rightarrow \frac{1}{x} - 1 - \left[\frac{1}{x} \right] = -\left[\frac{1}{x} \right] + \frac{1}{x} - 1$

$\frac{1}{x} = t \rightarrow 0 \leq t - [t] < 1 \rightarrow 0 \leq \frac{1}{x} - \left[\frac{1}{x} \right] < 1 \rightarrow -1 \leq \frac{1}{x} - \left[\frac{1}{x} \right] - 1 < 0$

$R = [-1, 0)$

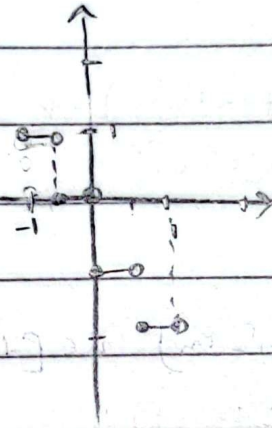
١٠) الف) $y = [-2x] - 1 \quad x \in (-1, 1)$

$-1 < x < -\frac{1}{2} \rightarrow -4 < -2x < -2 \rightarrow$

$-\frac{1}{2} < x < 0 \rightarrow 0 < -2x < 1$

$0 < x < \frac{1}{2} \rightarrow -1 < -2x < 0$

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

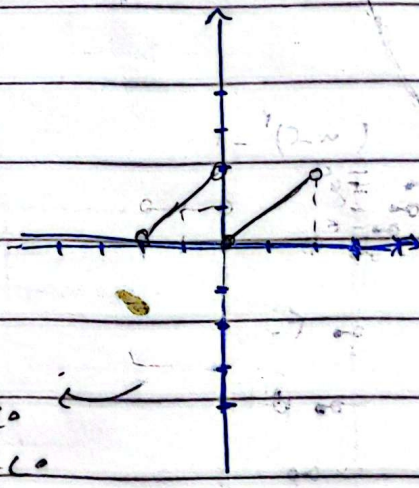


ب) $x = 2 \left[\frac{x}{2} \right] \quad x \in (-2, 2)$

$-2 < x < 0 \rightarrow -1 < \frac{x}{2} < 0 \rightarrow y = -1$

$0 < x < 2 \rightarrow 0 < \frac{x}{2} < 1 \rightarrow y = x$

-2



$-2 < x < 0$

$0 < x < 2$

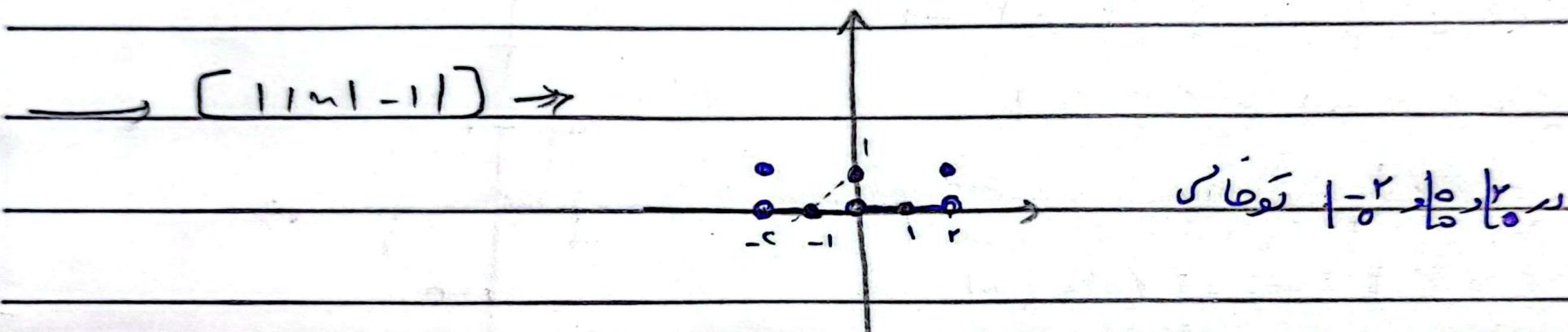
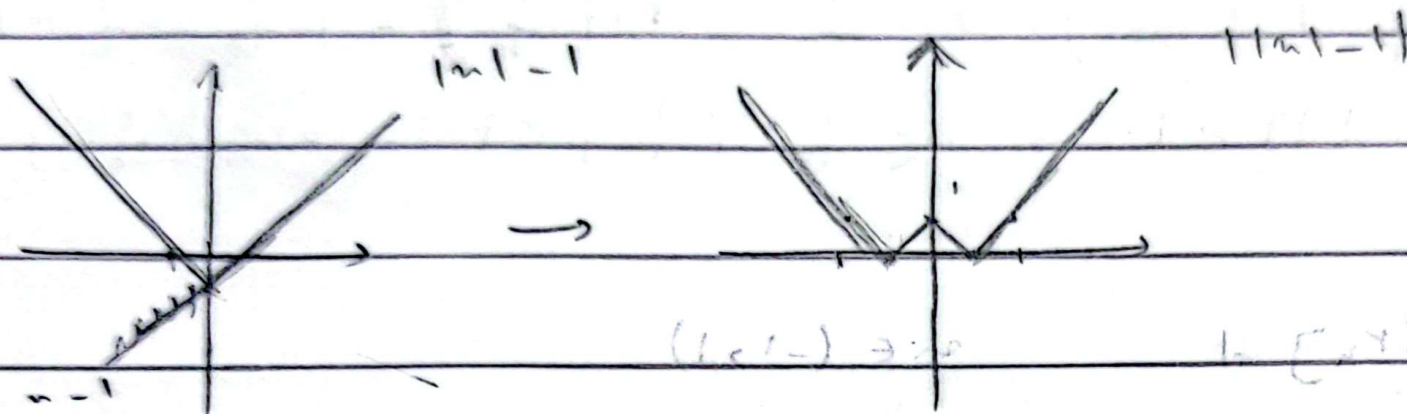


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الف) $g = [11n - 11]$ $n \in [-2, 2]$

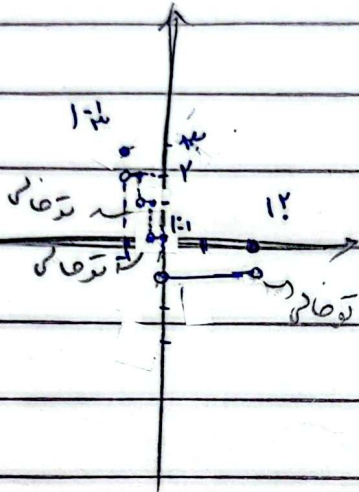




⑧ ب) $y = [x^2 - 2x] \quad x \in [-1, 2]$

$$x = -1 \rightarrow y = 3$$

$$-1 < x < 1 - \sqrt{2} \rightarrow 2 < y < 3$$



⑨ $a + [b] = 4, 2 \quad b - [a] = 2, 4$

$$a + y = 4, 2 \rightarrow x + y = 4$$

$$y - x = 2, 4 \rightarrow y - x = 4$$

$$\left. \begin{array}{l} y - x = 2 \\ y + x = 4 \end{array} \right\} \rightarrow 2y = 6 \rightarrow y = 3 \rightarrow x = 1 \rightarrow a = 1, 2$$

$$b = 2, 4$$

$$a + b = 4, 6$$

⑩ $(1 + \sqrt{2})^4 + (1 - \sqrt{2})^4 = 19 \quad [(1 + \sqrt{2})^4] = ?$

$$3, 2\sqrt{2}$$

$$3 - 2\sqrt{2}$$

کسر کے متبادل زوج

$$1 - \sqrt{2} \approx 1 - 1.4 = -0.4 \rightarrow -1 < 1 - \sqrt{2} < 0 \rightarrow 0 < (1 - \sqrt{2})^4 < 1$$

$$(1 + \sqrt{2})^4 + (1 - \sqrt{2})^4 = 19 \rightarrow (1 + \sqrt{2})^4 = 19 - (1 - \sqrt{2})^4$$

1.50

$$19 - 1 < (1 + \sqrt{2})^4 < 19 - 0 = 19 \rightarrow (1 + \sqrt{2})^4 = 19$$

19