



$$\frac{1}{n-1} = \pm (n-1) \rightarrow (n-1)^2 = 1 \quad n \neq 1 \quad (1)$$

صورت
مخرج

$$\rightarrow -(n-1)^2 = 1 \rightarrow \text{غیر ممکن}$$

یک جواب

الف) $|2n-1| < 2|n|$

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

$$-4n + 1 < 0$$

$$n > \frac{1}{4}$$

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

ب) $|n-2| > |2n+1|$

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

$$3n^2 + 8n - 3 < 0$$

$$n < \frac{-8 - \sqrt{64 + 36}}{6} = \frac{-8 - 10}{6} = -\frac{18}{6} = -3$$

$$n > \frac{-8 + 10}{6} = \frac{2}{6} = \frac{1}{3}$$

$$(-3, \frac{1}{3}) - \{\frac{1}{2}\}$$

$$n^2 < n + 6 \quad -n - 6 < n^2$$

$$n^2 - n - 6 < 0 \quad 0 < n^2 + n + 6$$

$$\Delta < 0$$

$$\begin{array}{c} -2 \quad 3 \\ | \quad | \\ - \end{array}$$

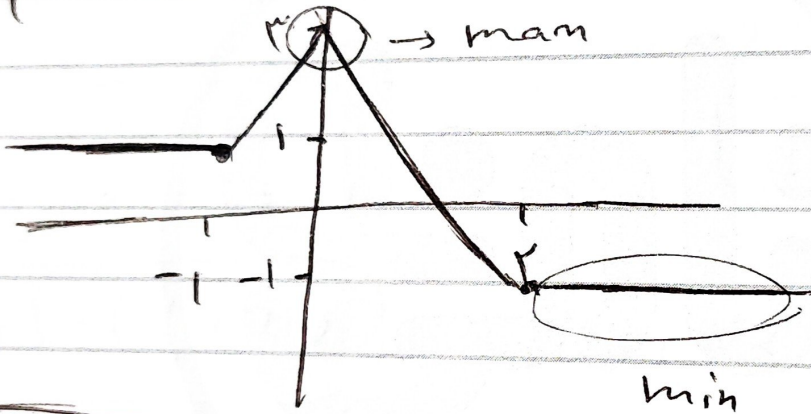
$$\rightarrow -2 < n < 3$$

$$\rightarrow |n - \frac{1}{2}| < \frac{5}{2}$$

$$\alpha = \frac{1}{2}$$

$$y = |m+1| - |2m| + |m-2|$$

-1	0	2
$-m-1$ $+2m-m$ $+2$	$m+1+2m$ $-m+2$ $3m+3$	$m+1-2m$ $-m+2$ $-m+3$
		$m+1-2m$ $+m-2$ -1



$$3-1 = \boxed{2}$$

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

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

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

$$-n - \varepsilon = 1$$

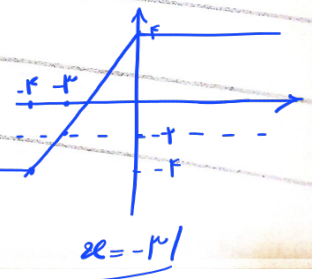
$$-n = 1$$

$$n = -1$$

-1	0
$-\frac{1}{2}n + \frac{1}{2}n$ $+ \varepsilon$ $+ \varepsilon$	$-\frac{1}{2}n - \frac{1}{2}n$ $- \varepsilon$ $-n - \varepsilon$

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

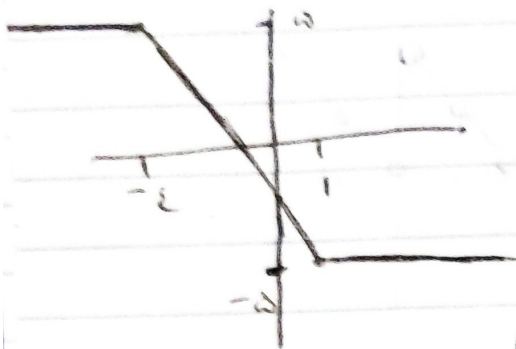
$$|n+2| - |n| = -2$$



الف) $f(n) = [n-1] - [n+4]$

⑥

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$n \geq 1 \rightarrow [n] = -5$

$-1 \geq n \geq -4 \rightarrow [n] \in \{4, 3, 2, 1, 0, -1, -2, -3, -4\}$

$n \leq -4 \rightarrow [n] = 5$

$R_{f(n)} = \{y \in \mathbb{N} \mid -5 \leq y \leq 5\}$

ب) $f(n) = \frac{1}{n} - \left(\left[\frac{1}{n} \right] + 1 \right)$

بین مغز و یک و سادی مغز

$1 \leq \frac{1}{n} - \left[\frac{1}{n} \right] < 2$ $R = [1, 2)$
 $[1, 2)$

الف) $[-2n] - 1 \quad n \in (-1, 1)$

⑦

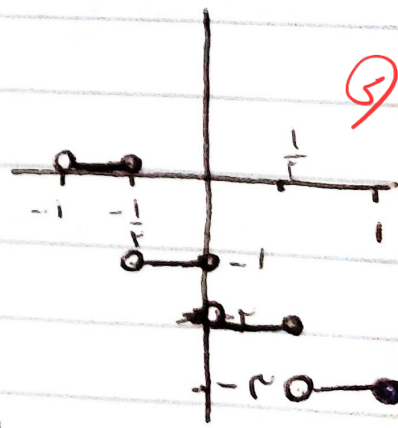
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$-1 < n \leq -\frac{1}{2} \rightarrow y = 0$

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

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

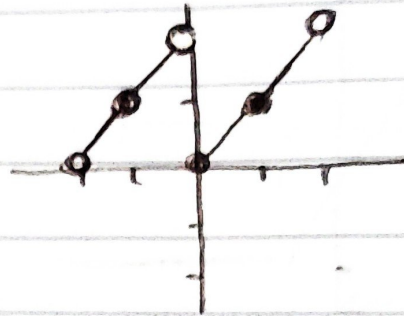
$\frac{1}{2} < n < 1 \rightarrow y = -3$



$$ب) y = m - 2 \left[\frac{n}{2} \right] \quad m \in [-2, 2]$$

$$-2 < m < 0 \rightarrow y = m + 2$$

$$0 \leq m < 2 \rightarrow y = m$$



$$الف) y = [|m| - 1] \quad m \in [-2, 2]$$

$$m = -2 \rightarrow y = 1$$

$$-2 < m < -1 \rightarrow y = 0$$

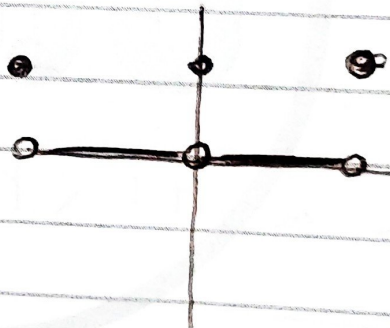
$$-1 < m < 0 \rightarrow y = 0$$

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

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

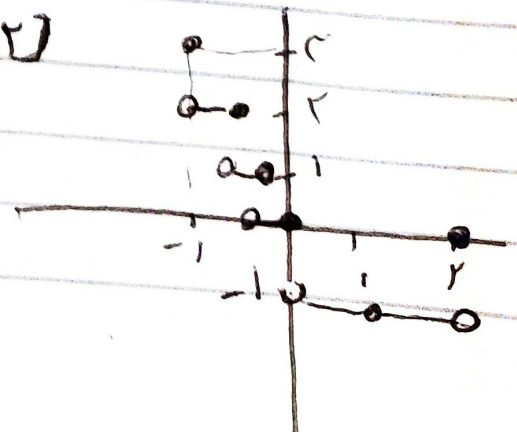
$$1 \leq m < 2 \rightarrow y = 0$$

$$m = 2 \rightarrow y = 1$$



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



$$a + b - 2\varepsilon = 1,1$$

$$b - a + 2\varepsilon = 1,1$$

$$\Rightarrow 2b = 4,1$$

$$b = 2,05$$

$$a = 1,1$$

$$a + b = 1,1 + 2,05 = \underline{3,15}$$

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

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

$$[(1 + \sqrt{2})^4] : [191 - 0 < x < 1] = \underline{191}$$

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