

الف) $f(n) = [|1-n| - |n+4|]$

$\rightarrow Rf = \{-2, -4, -6, \dots, 4, 2\}$ ✓

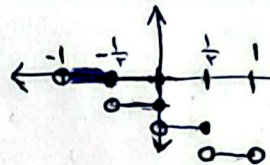
$$\begin{array}{c} -4 \\ +\Delta \quad | = 2n-2 \quad | -\Delta \\ +\Delta \quad -\Delta \end{array}$$

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ب) $f(n) = \frac{1}{n} - \left[\frac{n+1}{n} \right] \rightarrow \frac{1}{n} - \left[\frac{1}{n} \right] - 1 \xrightarrow{\frac{1}{n} \rightarrow 0} (-1) - 1$
 $\left\{ \begin{array}{l} t \in \mathbb{Z} \rightarrow f(n) = -1 \\ t \notin \mathbb{Z} \rightarrow -1 < f(n) < 0 \end{array} \right\} \rightarrow Rf = [-1, 0)$ ✓

الف) $[-2n] - 1 \quad n \in (-1, 1)$

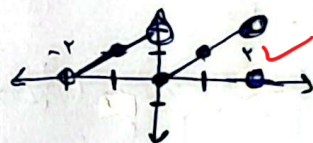
$\begin{array}{l} -1 \rightarrow 1 \\ -\frac{1}{2} \rightarrow 0 \end{array} \quad \begin{array}{l} 0 \rightarrow -1 \\ \frac{1}{2} \rightarrow -2 \end{array} \quad 1 \rightarrow -3$



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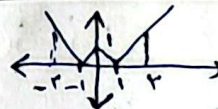
ب) $y = n - 2 \left[\frac{n}{2} \right] \quad n \in (-2, 2)$

$\begin{array}{l} -2 \rightarrow 0 \\ -1 \rightarrow 1 \end{array} \quad \begin{array}{l} 0 \rightarrow 0 \\ 1 \rightarrow 1 \end{array} \quad 2 \rightarrow 0$



الف) $y = [|n| - 1]$ $\rightarrow |n| - 1 \rightarrow$

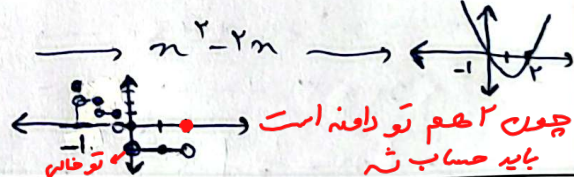
$\rightarrow [|n| - 1] \quad n \in [-2, 2]$ ✓



(1, 2)

ب) $[n^2 - 2n] \quad n \in [-1, 2]$ $\rightarrow n^2 - 2n \rightarrow$

$\rightarrow [n^2 - 2n] \quad n \in [-1, 2]$ ✓



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$a + [b] = 4, 2$

$b - [a] = 2, 4$

$\left\{ \begin{array}{l} a, \text{ اعلى} = 0, 2 \\ b, \text{ اعلى} = 0, 4 \end{array} \right\}$

$\rightarrow a + b = 4, 2 + 0, 4 = 4, 6$

$b - a = 2, 4 - 0, 2 = 2, 2$

$\rightarrow b = 3, 4$ ✓

$a = 1, 2$ ✓

$a + b = 4, 6$ ✓

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$(1 + \sqrt{2})^9 + (1 - \sqrt{2})^9 = 191$

$\rightarrow 1 - \sqrt{2} \approx -0, 4 \rightarrow 0 < (1 - \sqrt{2})^9 < 1$

$\rightarrow (1 + \sqrt{2})^9 = 191 - (1 - \sqrt{2})^9 = 197, \dots$

$\rightarrow [(1 + \sqrt{2})^9] = 197$ ✓

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