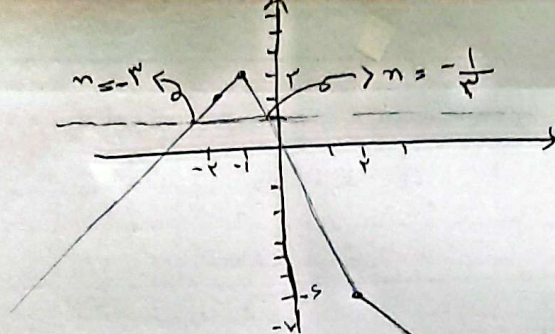


$$y = |n-r| - |r_{n+r}|$$

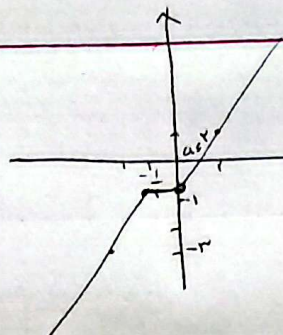


$$\Rightarrow n \in \mathbb{R} - \left(-r, -\frac{1}{r}\right)$$

(2)

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$$y = r_n - |r_{n+1}| + |n|$$

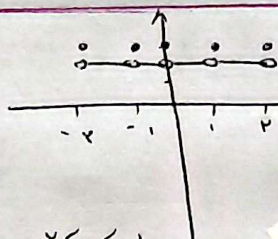


$$\Rightarrow R_f = (-\infty, +\infty)$$

(2)

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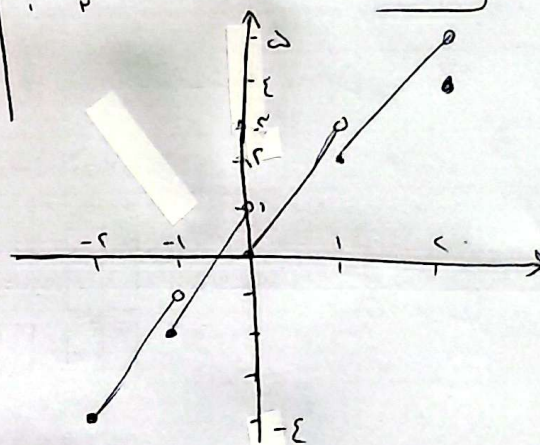
$$\text{الف) } y = r + [n] + [-n]$$



$$R_f = \{r\}$$

$$\text{ب) } y = r_n - [n] \quad \begin{array}{l} r_{n+r} \\ r_{n+1} \\ r_n \\ r_{n-1} \\ \vdots \end{array}$$

$$\begin{array}{l} -r \leq n < 0 \\ -1 \leq n < 0 \\ 0 \leq n < 1 \\ 1 \leq n < 2 \\ n = 2 \end{array}$$



$$R_f = \mathbb{R} \rightarrow \text{درست}$$

$$\hookrightarrow \text{در بازه داده شده } R_f = [-r, \infty)$$

(2)

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$$\text{الف) } \square = \sin n$$

$$\begin{array}{l} \sin n = 1 \rightarrow 1 \\ \sin n = \frac{r}{r} \rightarrow r \\ \sin n = \frac{-b}{ra} \rightarrow \frac{-b}{ra} \end{array}$$

$$\Rightarrow R_f = \left[\frac{r}{r}, r\right]$$

$$\text{ب) } \square = \sin^r n$$

$$\begin{array}{l} \sin^r n = 1 \rightarrow 1 \\ \sin^r n = \frac{r}{r} \rightarrow r \\ \sin^r n = \frac{-b}{ra} \rightarrow \frac{-b}{ra} \end{array}$$

$$\Rightarrow R_f = [1, r]$$

(2)

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