

$$|n| \rightarrow x_{\max} = +\infty \rightarrow y = 1$$

$$x_{\min} = 0 \rightarrow y = \frac{1}{r}$$

درجه اول

$$R_f: (-\infty, -\frac{1}{r}] \cup (1, +\infty)$$

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الف - ۱

$$\frac{x+1}{|n|} = \frac{|n|+1}{|n|} = |n| + \frac{1}{|n|} = a + \frac{1}{a} \rightarrow R_f: [r, +\infty)$$

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$$\frac{x+r-1}{x+r} \xrightarrow{Df: R \setminus \{r\}} \frac{x+r-1}{x+r} = \frac{(x-1)(r+1)+1}{x+r} = x-1 + \frac{1}{x+r}$$

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$$x+r \rightarrow \frac{1}{x+r} \rightarrow (-\infty, -r] \cup [r, +\infty) \rightarrow R_f: (-\infty, -r] \cup [r, +\infty)$$

$$\frac{x^r - x + \frac{1}{r}}{x^r - x + 1} \xrightarrow{x \rightarrow a} \frac{a + \frac{1}{r}}{a+1} \begin{cases} a = \frac{1}{r} \rightarrow y = 0 \\ a = +\infty \rightarrow y = 1 \end{cases}$$

$$R_f: [0, 1]$$

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$$a < 0 \rightarrow x_{\max} = r \rightarrow y_{\max} = r \rightarrow \sqrt{(-\infty, r]} \Rightarrow R_f: [0, r]$$

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$$a > 0 \rightarrow x_{\min} = r \rightarrow y_{\min} = -r \rightarrow \sqrt{[-r, +\infty)} \Rightarrow R_f: [-r, +\infty)$$

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$$x^r - x + 1 \rightarrow R: \text{برای هر } x \text{ در } R \rightarrow \log(R) \Rightarrow R_f: R$$

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$$\frac{x+1}{x} = x + \frac{1}{x} \xrightarrow{x \rightarrow r} [r, +\infty) \rightarrow \log_r [r, +\infty) \Rightarrow R_f: [1, +\infty)$$

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

$$x > 1, x < 2 \rightarrow y = 2x - 1$$

$$x > 2 \rightarrow y = x + 1$$

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

$$x = 2 \rightarrow y = 2$$

$$R_f: [-2, +\infty)$$

$$(الف) \quad \begin{cases} x = 2 \\ x = -1 \end{cases} \quad \begin{cases} y = (-1) = 2 \\ y = 2 \end{cases}$$

$$R_f: [2, +\infty)$$

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$$x = r - 1$$

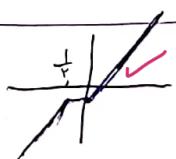
$$\left. \begin{aligned} x < -1 \rightarrow y &= -x + r + r(x+1) \leq 1 \rightarrow x+r \leq 0 \rightarrow x \leq -r \\ r \geq x \geq -1 \rightarrow y &= -x + r - r(x-1) \leq 1 \rightarrow -rx - 1 \leq 0 \rightarrow x \geq -\frac{1}{r} \\ x > r \rightarrow y &= x - r - r(x-r) \leq 1 \rightarrow -x - 1 \leq 0 \rightarrow x \geq -1 \end{aligned} \right\} \cup: Df: (-\infty, -r] \cup [-\frac{1}{r}, +\infty)$$

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$$x \leq -\frac{1}{r} \rightarrow y = r(x+1) - x \rightarrow r(x+1)$$

$$\rightarrow x > -\frac{1}{r} \rightarrow y = -1$$

$$x > 0 \rightarrow y = r(x-1) + x \rightarrow r(x-1)$$



$$R_f: R$$

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$$\begin{cases} [a] + [-n] + r \\ x \in \mathbb{Z} \rightarrow [a] + [-x] = 0 \\ x \notin \mathbb{Z} \rightarrow [a] + [-x] = -1 \end{cases} \rightarrow \begin{cases} y = r \\ y = r \end{cases} \rightarrow R_f: \{r\}$$

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با صفحه دیگر

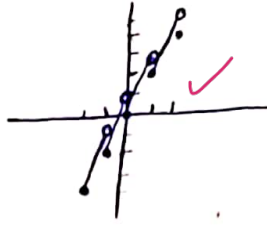
$$x = r \rightarrow y = r^2 x - r$$

$$x = [1, r) \rightarrow y = r^{n-1}$$

$$x = [0, 1) \rightarrow y = r^n$$

$$x = [-1, 0) \rightarrow y = r^{n+1}$$

$$x = [-r, -1) \rightarrow y = r^{n+r}$$



$$R_f = [-r, 1)$$

(2)

$$\sin n \begin{cases} +1 \rightarrow y = 1 \\ -1 \rightarrow y = r \\ \frac{-b}{ra} \rightarrow y = \frac{r}{a} \end{cases}$$

$\rightarrow$

$$R_f = [\frac{r}{a}, r]$$

(2) (2) - 1.

$$\sin^r n \begin{cases} +1 \rightarrow y = r \\ 0 \rightarrow y = 1 \\ \frac{-b}{ra} \rightarrow y = \frac{1}{r} \end{cases}$$

$\rightarrow$

$$R_f = [1, r]$$

(2)