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D

$$\frac{r_n + r}{a + b} + a \geq 0$$

$$\frac{r_n + r + a(a + b)}{a + b} \geq 0$$

$$b \leq -r \quad \text{و} \quad a \leq -r$$

دلیل عبارت $b \leq -r$ نیز شرط لازم ضروری r در شرط ضروری

الف) $x^r - x \geq 0 \quad x(x^{r-1} - 1) \geq 0 \quad \frac{-1}{-1 + 1} = \frac{1}{-1 + 1} \quad D = [-1, 0] \cup [1, +\infty)$

ب) $|x| - 1 > 0 \quad |x| > 1 \quad x > 1, x < -1$

$$D = (1, +\infty) \cup (-\infty, -1)$$

الف) $|x| \neq [n] \quad D = \mathbb{R} \setminus \{0\} \rightarrow D = \mathbb{R} \setminus \{0\}$

$$I \cup II \Rightarrow 0 < x < 1$$

ب) $x \geq 0, \sqrt{y} = a - \sqrt{x} \Rightarrow y = \sqrt{a - \sqrt{x}} \quad a - \sqrt{x} \geq 0 \quad x \leq a^2$

$$y = \frac{1}{\sqrt{[r_n - \frac{1}{r}] + [r_n + \frac{1}{r}]}} \Rightarrow [r_n - \frac{1}{r}] + [r_n + \frac{1}{r}] + 1 = r[r_n + \frac{1}{r}]$$

$$r[r_n + \frac{1}{r}] > 0 \quad r_n + \frac{1}{r} > 0 \quad r_n > -\frac{1}{r} \quad x > -\frac{1}{r}$$

$$D = (-\frac{1}{r}, +\infty)$$

$$1 - f(r_n - a) \geq 0 \quad 1 \geq f(r_n - a) \Rightarrow 1 \geq r_n - a \quad \frac{1 + a}{r} \geq x$$

$$r_n - a > 0 \quad x > \frac{a}{r} \quad D_y = (b, c], \frac{1 + a}{r} \geq x > \frac{a}{r} \quad (b)$$

$$c - b = \frac{1 + a}{r} - \frac{a}{r} = \frac{1}{r} \quad (c)$$

$$\left[x_n - \frac{1}{r}\right] + \left[x_n + \frac{r}{r}\right] > 0 \rightarrow \left[x_n - \frac{1}{r}\right] + \left[x_n - \frac{1}{r} + 1\right] > 0 \quad -9$$

$$r \left[x_n - \frac{1}{r}\right] + r > 0 \rightarrow \left[x_n - \frac{1}{r}\right] > -1 \rightarrow x_n - \frac{1}{r} \geq 0 \rightarrow \boxed{x \geq \frac{1}{r}}$$

$$D = \left[\frac{1}{r}, +\infty\right)$$