

$$y = \frac{n^2 + n + 2}{n-1} \Rightarrow y(n-1) = n^2 + n + 2 \Rightarrow n^2 + (1-y)n + 2 + y = 0$$

$$\Rightarrow \Delta \geq 0 \Rightarrow (1-y)^2 - 4(1)(2+y) \geq 0 \Rightarrow y^2 + 1 - 2y - 8 - 4y \geq 0$$

$$\Rightarrow y^2 - 2y - 7 \geq 0 \Rightarrow (y+1)(y-7) \geq 0 \quad \frac{-1}{+} \frac{7}{-} \quad \boxed{y \in R - (-1, 7)}$$

$$\frac{\Delta}{\Delta_a} = \frac{-(1^2 - 4(1)(1))}{1} = \frac{-17}{1} \Rightarrow y \in \left[-\frac{17}{1}, +\infty\right)$$

$$y^2 = -n^2 + 7n - 8 \quad (y \geq 0) \quad \frac{\Delta}{\Delta_a} = \frac{-(49 - 20)}{-1} = \frac{-17}{-1} = 17 \Rightarrow y^2 \leq 17 \Rightarrow 0 \leq y \leq \sqrt{17}$$

$$n^2 - 7n^2 + 7n + 8 \Rightarrow (n-1)(n^2 - 6n - 1) \Rightarrow R = 1R \quad R = 1R$$

فصلت ج.؟ (0 و +)

$$y, \frac{n+1}{n-1} \Rightarrow R_f = R - \left\{\frac{1}{2}\right\}$$

$$R_f \in (-\infty, 0] \cup (2, +\infty) \rightarrow R_f \in [0, +\infty) - \left\{\frac{1}{2}\right\}$$

$$\frac{n^2 + 2}{\sqrt{n^2 + 2}} + \frac{1}{\sqrt{n^2 + 2}} \Rightarrow y \cdot \sqrt{n^2 + 2} + \frac{1}{\sqrt{n^2 + 2}} \Rightarrow R \in \left[\sqrt{2} + \frac{1}{\sqrt{2}}, +\infty\right)$$

$$n^2 + 2 + \frac{1}{n^2 + 2} \geq 2, 20 \Rightarrow n^2 + 2 + \frac{1}{n^2 + 2} - 2 \geq 0 \Rightarrow R \in [2, +\infty)$$

$$y, \frac{2 \sin n - 1}{\sin n + 2} \quad \begin{cases} \sin = 1 \Rightarrow \frac{1}{3} \\ \sin = 0 \Rightarrow \frac{-1}{2} \end{cases} \Rightarrow \text{مخرج صفری شد} \Rightarrow \left[-\frac{1}{2}, \frac{1}{3}\right]$$

$$y = \frac{2 \sin n - 1}{\sin n + 2} \Rightarrow y \sin n + 2y = 2 \sin n - 1 \Rightarrow (y-2) \sin n = -1 - 2y$$

$$\Rightarrow \frac{-2y-1}{y-2} \leq \sin n \leq \frac{-2y-1}{y-2} \Rightarrow -\frac{2y-1}{y-2} \leq 1 \Rightarrow \frac{-2}{y} \leq y \leq \frac{1}{2}$$

$$\frac{2n^2 + 2}{n^2 - 1} = y \Rightarrow y(n^2 - 1) = 2n^2 + 2 \Rightarrow (y-2)n^2 + 2 + y = 0$$

$$\Delta \geq 0 \Rightarrow -4(y-2)(2+y) \geq 0 \Rightarrow y \geq 2 \quad y \leq -2 \Rightarrow R \in (-\infty, -2] \cup [2, +\infty)$$

$$\frac{2n^2 + 2}{n^2 - 1} \quad \begin{cases} n^2 = +\infty \Rightarrow 2 \\ n^2 = 0 \Rightarrow -2 \end{cases} \Rightarrow \text{مخرج صفری شد} \Rightarrow [-2, 2] \cup (2, +\infty)$$

جای سوال خصوصی

مخرج صفری ندارد Δ مخرج

$$f(n) = \frac{b + \frac{1}{\epsilon}}{b + 1}$$

$$\begin{cases} b = +\infty \Rightarrow 1 \\ b = -\frac{1}{\epsilon} \Rightarrow 0 \end{cases}$$

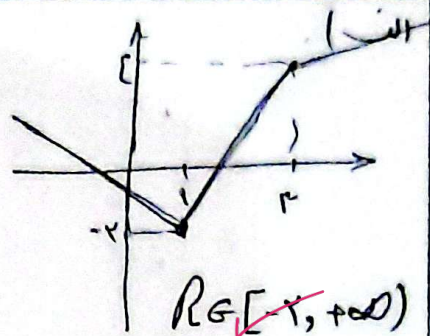
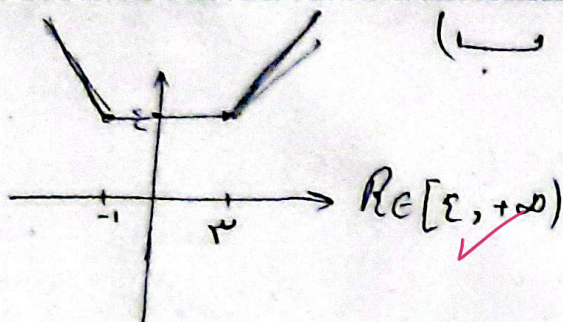
در بردار ندارد $f(n) = 1$

$$\rightarrow R \in [0, 1]$$

$$R_f = [0, 1)$$

1, 7, 8

6



2

7

$$|n-2| - |2n+2| \leq 1$$

$$\frac{-1}{n+2} \mid \frac{2}{-2n} \mid \frac{2}{-n-2}$$

$$-n-2 \leq 1 \Rightarrow n \geq -3$$

$$-2n \leq 1 \Rightarrow n \geq \frac{1}{2}$$

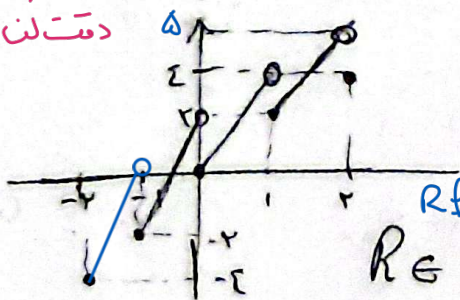
$$n+2 \leq 1 \Rightarrow n \leq -3$$

$$\Rightarrow (-\infty, -3] \cup [\frac{1}{2}, +\infty)$$

2

8

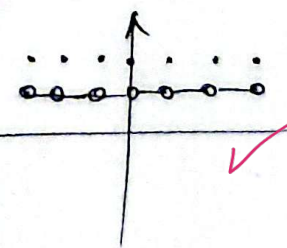
دقت کن!



$$R \in [-\epsilon, +\infty) \cup \{-\epsilon\}$$

(ب)

$$[n] + [-n] + 2$$



$$R = \{2, 3\}$$

1, 8

$$(\sin^2, 0) \Rightarrow 1$$

$$(\sin^2, 1) \Rightarrow 2 \quad R \in [1, 2]$$

$$(\sin^2, -\frac{b}{2a}) = -\frac{1}{2} \rightarrow \text{GUE}$$

(ب)

$$(\sin^2, -1) \Rightarrow 1 + 1 + 1 = 3$$

$$(\sin^2, -1) \Rightarrow 1 + 1 + 1 = 3$$

$$\sin^2, -\frac{b}{2a} = \frac{1}{2} - \frac{1}{2} + 1 = \frac{1}{2}$$

$$R \in [\frac{1}{2}, 3] \checkmark$$

2

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