

Subject:

کتاب

مباحث حسابان

$$F(-n) - nF(n) \leq \sqrt{|n|} + 1 \quad (1)$$

$$F(n) + nF(n) \leq \sqrt{|n|} + 1$$

$$nF(-n) - n^2F(n) \leq \sqrt{n^2} + n$$

$$F(n)(1+n^2) \leq \sqrt{|n|} + 1 - \sqrt{n^2} - n \Rightarrow F(n) \leq \frac{-\sqrt{n^2} + \sqrt{|n|} - n + 1}{n^2 + 1}$$

$$F(n) + F(0) \leq n^2 - 3n + 4 \Rightarrow F(n) \leq n^2 - 3n + 4 \quad (2)$$

$$F(0) = 4 \Rightarrow F(0) = 4 \Rightarrow F(n^2) \leq n^4 - 3n^2 + 4$$

$$\begin{aligned} 0 < y \leq n^2 + 1 \Rightarrow n^2 + n(1-y) + 2y \leq \dots \Rightarrow \frac{-(1-y) \pm \sqrt{(1-y)^2 - 4(y+1)}}{2} \quad (3) \\ (1-y)^2 - 4(y+1) \geq 0 \Rightarrow y^2 - 2y + 1 - 4y - 4 \geq 0 \Rightarrow y^2 - 6y - 3 \geq 0 \Rightarrow (y-3)(y+1) \geq 0 \\ \Rightarrow y \in (-\infty, -1] \cup [3, +\infty) \end{aligned}$$

$$a) y \leq n^2 - \omega n + 1 \quad \frac{-\Delta}{2a} \leq \frac{(\omega-1)}{1} \leq \frac{-1\omega}{1} \Rightarrow \left[-\frac{1\omega}{1}, +\infty\right) \quad (4)$$

$$b) \sqrt{-2x^2 + 3x - 5} \quad \frac{-\Delta}{2a} \leq \frac{-(3x-5)}{-2} \leq \sqrt{(-\infty, 4]} \Rightarrow [0, 2]$$

$$c) y \leq \sqrt{n^2 - 2n^2 + 1} \Rightarrow \sqrt{R} = [0, +\infty)$$

$$d) \log(n^2 - 3n^2 + 4n + 1) \quad R_y \leq R$$

$$a) y \leq \frac{n^2 + 1}{n^2 - 1} \Rightarrow n \leq \frac{-y-1}{2y-1} \leq \frac{y+1}{2y-1} \quad R_y \leq R - \left\{\frac{1}{2}\right\} \quad (5)$$

$$b) y \leq \sqrt{\frac{n^2 + 1}{n-1}} \Rightarrow n \leq \frac{-y-1}{y-1} \leq \frac{y+1}{y-1} \Rightarrow R_y \leq [-1, +\infty) - \left\{\frac{1}{2}\right\}$$

$$c) y \leq \frac{n^2 + 1}{\sqrt{n^2 + 1}} \leq \sqrt{n^2 + 1} + \frac{1}{\sqrt{n^2 + 1}} \leq \sqrt{2} + \frac{1}{\sqrt{2}} \leq \frac{n^2 + 1}{\sqrt{2}} \Rightarrow R_y = \left[\frac{\sqrt{2}}{2}, +\infty\right)$$

IDEA

$$d) y \leq n^2 + \frac{1}{n^2 + 1} + 1 - 1 \Rightarrow n^2 + 1 + \frac{1}{n^2 + 1} - 1 \Rightarrow 1 + \frac{1}{f} \leq \frac{1}{f} - 1 = \frac{1}{f} \Rightarrow R_y \leq \left[\frac{1}{2}, +\infty\right)$$

Subject:

$$n! \leq \frac{y+f}{y-r} \leq \frac{y+f}{y-r} \Rightarrow n \leq \sqrt{\frac{y+f}{y-r}} \quad \frac{-f \cdot r}{y-f-r}$$

$$\Rightarrow \mathcal{R}_y \leq (-\infty, -f] \cup (r, +\infty)$$

$$\sin n \left\{ \begin{array}{l} \frac{y+f}{1-r} \leq \frac{y}{-r} \leq -n \\ -1 \leq \frac{-r+f}{-f} \leq -\frac{r}{f} \leq -\frac{1}{f} \end{array} \right\} [-r, -\frac{1}{f}]$$

$$\lim_{y \rightarrow \frac{r}{f}} \left| \frac{y-n}{r} \right| \quad \text{cell, no} \quad \mathcal{R}_y \leq [r, +\infty)$$

$$\sim \mathcal{R}_y \leq \sqrt{\frac{9n-11}{-1+f}} = \sqrt{\frac{9(n-r)}{f(n-r)}} \leq \frac{r}{f} = \mathcal{R}_y \leq \left[\frac{r}{f} \right]$$

$$y \leq n/n \sim r/n \quad \mathcal{R}_y \leq \mathbb{R}$$

