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B الم

سیستمی بر حسب الباقی

۱) $2(n-1)^2 + (4n-1)^2 = (4n-1)^2$ باقی عدد صحیح باشد

۲) $\rightarrow$ $\checkmark$ سین و این را بکشد

۳) ۲

$a^2 + (a+1)^2 = (a+1)^2$ $(a+1)(a-1) = \begin{cases} a^2-1 \\ a^2-1 \end{cases}$

$\Rightarrow a \leq 1 \rightarrow f(n) = \begin{cases} n^2-1; n \geq 1 \\ n^2-1; n \leq 1 \end{cases} \quad f(1) = 0 \checkmark$

$|n-1| \geq 1 \Rightarrow \begin{cases} n-1 \geq 1 \Rightarrow n \geq 2 \\ n-1 \leq -1 \Rightarrow n \leq 0 \end{cases} \rightarrow f(n) = \begin{cases} n^2-1; n \geq 2 \\ n^2-1; n \leq 0 \end{cases}$ ۴) ۲

در (۳) برابر اند

$\Rightarrow 1-b \leq -4+a \Rightarrow a-b \leq -5 \checkmark$

$n-a \geq 0 \Rightarrow n \geq a$ ۵) ۲
 $b-n \geq 0 \Rightarrow n \leq b$ ۶) ۲
 $\Rightarrow \frac{a}{4} \leq \frac{b}{4} \quad \frac{b}{4} \leq \frac{1}{4} \checkmark$

۱) $\frac{n-1}{|n-1|} \Rightarrow \frac{n-1}{|n-1|} \geq \frac{-1}{-1} \leq \frac{1}{1} \Rightarrow \begin{cases} \frac{n-1}{|n-1|} \geq \frac{-1}{-1} \\ \frac{n-1}{|n-1|} \leq \frac{1}{1} \end{cases} \Rightarrow \begin{cases} n-1 \geq -1 \\ n-1 \leq 1 \end{cases} \Rightarrow \begin{cases} n \geq 0 \\ n \leq 2 \end{cases} \Rightarrow [0, 2] \cup \{1\}$ ۷) ۲
 $\frac{4-n}{(n^2+n+1)} \geq \frac{1}{n-1}$ ۸) ۲
 $\Delta \leq 0$ ۹) ۲

$\rightarrow y = \sqrt{(n)-1} + \sqrt{(n)} \quad (n)-1 \geq 0 \Rightarrow (n) \geq 1 \quad n \geq 1$
 $(n) \geq 1 \Rightarrow (n) \leq 1 \Rightarrow n \leq 1$ ۱۰) ۲
 $\checkmark \quad \mathbb{R} = \emptyset$

$$\frac{n^2 - n - 4}{n^2 - 1} \geq \frac{(n-3)(n-1)}{(n-1)(n+1)(n-1)}$$

$$\frac{-1}{+} \frac{-}{+} \frac{-}{+} \frac{-}{+} \frac{-}{+} \Leftrightarrow \frac{1}{2} \leq (-2, -1) \cup (5, \infty) \cup (5, \infty)$$

$$\Rightarrow \frac{n^2 - 2n - 4}{n^2 + 2n - 4} \geq \frac{(n-1)(n-3)}{(n+1)(n+3)}$$

$$\frac{(n-1)(n-3)(n+1)}{(n+1)(n+3)(n-1)} \geq \frac{-1}{+} \frac{-}{+} \frac{-}{+} \frac{-}{+} \frac{-}{+}$$

$$\frac{1}{2} \leq (-2, -1) \cup (-1, 1) \cup (6, \infty) \cup (5, \infty)$$

$$[n] - 1 \rightarrow [n] \geq 1 \Rightarrow n \geq 1$$

$$\Rightarrow \frac{\Delta n^2 + 4}{[n]^2 - 1} \quad [n]^2 - 1 \geq 0 \Rightarrow ([n] - 1)([n] + 1) \geq 0$$

$$\Rightarrow \left. \begin{aligned} [n] \neq 1 &\Rightarrow n \in [1, \infty) \\ [n] \neq -1 &\Rightarrow n \in (-\infty, -1) \end{aligned} \right\} \Rightarrow \frac{1}{2} \leq (-\infty, -1) \cup [1, \infty) \cup [5, \infty)$$

$$\sin n \neq 0 \Rightarrow n \neq \{k\pi\}$$

$$\cos n \neq 0 \Rightarrow n \neq \{k\frac{\pi}{2}\}$$

$$\tan n \neq 1 \Rightarrow n \neq \{k\pi - \frac{\pi}{4}\}$$

$$y = \sqrt{1 - \epsilon \sin^2 n} \Rightarrow 1 - \epsilon \sin^2 n \geq 0$$

$$\sin^2 n \leq \frac{1}{\epsilon} \Rightarrow \frac{1}{\epsilon} \leq \sin^2 n \leq \frac{1}{\epsilon}$$

$$\frac{1}{2} \leq [k\pi - \frac{\pi}{4}, k\pi + \frac{\pi}{4}]$$

$n \geq 1$ (I)

(4)

(5)

$$1 - \log \frac{n-1}{r} \geq 0 \Rightarrow \log \frac{n-1}{r} \leq 1 \quad n-1 \geq \frac{r}{e}$$

$$D_n(II) \Rightarrow \mathcal{P} \subseteq \left[\frac{r}{e}, +\infty \right) \checkmark$$

$$-5 \leq 1$$

$$\frac{n-m}{r} \geq \frac{r}{e}$$

$$n - n^r \geq r$$

$$n^r - n \leq n^r \leq (n-r)(n-1)$$

(4)

(5)

$$\frac{1}{r} \leq \frac{r}{e}$$

$$\cup) \quad \frac{r n^r}{r n^r} \in \mathbb{W}$$

$$\mathcal{P} \subseteq [1, r] \checkmark$$

$$n \leq \frac{-\varepsilon w + \varepsilon}{r w - r}$$

$$\mathcal{P} = \left\{ n \mid n \leq \frac{-\varepsilon k + \varepsilon}{r k - r}, k \in \mathbb{W} \right\} \checkmark$$

9.1)

$$n(n-1) \geq$$

$$\frac{r}{r-1} \cdot (-\infty, 0] \cup [1, +\infty) \quad (III)$$

$$\frac{n^r - r n}{r} \geq 0$$

$$\log \frac{n^r - r n}{r} \neq 1 \quad (I)$$

$$n^r - r n - r \neq 0 \quad (n+1)(n-r) \neq 0$$

$$n \neq -1, r \quad (II)$$

$$(-\infty, 0) \cup (r, +\infty)$$

$$\mathcal{P} \subseteq (-\infty, -1) \cup (-1, 0) \cup (r, +\infty) \cup (r, +\infty) \checkmark$$