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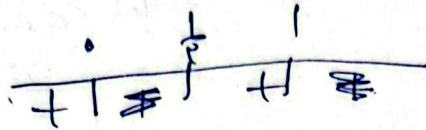
بالرغم

نفسه من غير عبد الوالي

$$f(n) = \sqrt{\frac{n^2 - 2n + 1}{n(n-1)}}$$

$$\frac{-n+1}{n(n-1)} > 1$$

(٢) ①



$$\Rightarrow D = (-\infty, 0) \cup [1, +\infty)$$

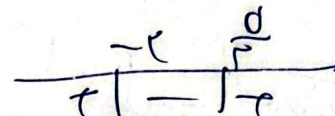
٢١)

$$\frac{\frac{-n-1}{n(n+1)}}{\frac{n+1}{(n+1)(n+2)}}$$

$$\Rightarrow D \subseteq \mathbb{R} - \{-1, 0, 1, -\frac{1}{2}\}$$

(٢) ①

$$\left(\left(\frac{1}{x}\right)^n - a\right) (x^n - 1) > 0$$



(٢) ①

$$D \subseteq (-\infty, -1] \cup [\frac{1}{a}, +\infty)$$

$$x < 1 \Rightarrow x > 1$$

$$x \geq \sqrt[n]{a} \Rightarrow \sqrt[n]{a} \leq x \Rightarrow x \leq 1 \Rightarrow D \subseteq [1, +\infty)$$

(٣) ①

$$\frac{(n-1)(n+1)}{n^2 - n - 1} > 0 \Rightarrow \frac{-1}{1-x} \in (-1, 1) \cup (1, +\infty)$$

$$x^2 - 1 > 0 \Rightarrow x > 1, x < -1 \Rightarrow (-\infty, -1) \cup [1, +\infty)$$

(٢) ①

$$\sqrt{x^2 - 1} = 1 \Rightarrow \text{ليس ممكن}$$

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

(٤) ①

$$-1 < a < 1 \Rightarrow a < -\frac{1}{x}$$

(٢) ①

$$\frac{a}{x} < a < 1 \Rightarrow -1 < -x < 1 \Rightarrow b < \frac{1}{x}$$

$$a + b < 1$$

(٥) ①

$$f(n) = n \begin{cases} \sqrt[n]{a}, n \geq 1 \\ \sqrt[n]{a}, n < 1 \end{cases} \Rightarrow \begin{cases} \text{① } n \geq 1 \Rightarrow n \geq 1 \\ \text{② } n < 1 \Rightarrow -1 < n < 1 \end{cases}$$

$$D \cup (D^c) \subseteq [-1, +\infty)$$

(٢) ①

$$f(a) = a - t + a$$

$$f(a+t) = a-t$$

$$1 \cdot a = -1 \cdot (a-t)$$

(4)

(2)

(✓)

(2)

$$f(n) = \sqrt{n} + \frac{1}{\sqrt{n}} + 1 \Rightarrow f(n) = \sqrt{n + \frac{1}{n} + 1} + 1$$

$$x + \frac{1}{x} \Rightarrow \text{مکمل ہو گا}$$

$$\sqrt{x+x} + \frac{1}{\sqrt{x+x}} + \sqrt{x-x} + \frac{1}{\sqrt{x-x}} + 1 \Rightarrow \text{ہاں } \sqrt{x+x} + \frac{1}{\sqrt{x+x}} + \sqrt{x-x} + \frac{1}{\sqrt{x-x}} + 1$$

$$\sqrt{x+x} + \frac{1}{\sqrt{x+x}} + \sqrt{x-x} + \frac{1}{\sqrt{x-x}} + 1 = f(x)$$

(2) (1)

$$f(n) - f(n-1) = n^2 - n$$

$$f(n) - f(n-1) = n^2 - n$$

$$\begin{cases} f(n) - f(n-1) = n^2 - n \\ f(n) - f(n-1) = n^2 - n \end{cases} \Rightarrow \begin{cases} f(n) - f(n-1) = n^2 - n \\ f(n) - f(n-1) = n^2 - n \end{cases}$$

$$f(n) = -n^2 - \frac{1}{2}n$$

$$-2f(n) = n^2 + n$$

$$n=1 \Rightarrow f(1) = 1 + 1 = 2$$

(9)

$$n=0 \Rightarrow f(0) = 0 - 1 = -1$$

(2)

$$\Rightarrow 0 + 1 \leq 1 - 1 \Rightarrow 1 \leq 0 \text{ ✓}$$

$$\Rightarrow f(1) = 1 + 1 = 2 \Rightarrow f(1) = 2 \text{ ✓}$$

(10)

$$f(-1) = \frac{1}{-1} \Rightarrow f(-1) = -1 \text{ ✓}$$

(2)