

Subject :

Year :

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۲ آفدین

درسها صادق زاده - دوازدهم، فصل B

$$y = \sqrt{f(n) - n + 1}$$

$$f(n) = \begin{cases} 2n-1 & [n] > 2 \quad n \geq 5 \\ 2n+2 & [n] \leq 2 \quad n \leq 5 \end{cases}$$

سوال ۱۱

$$\begin{aligned} n < 5 &\rightarrow 2n+2 - n + 1 \leq 2n+2 > 0 \rightarrow n > -\frac{3}{2} \xrightarrow{\text{① و ②}} -\frac{3}{2} < n < 5 \\ n \geq 5 &\rightarrow 2n-1 - n + 1 = n > 0 \xrightarrow{\text{① و ②}} n > 5 \\ \Rightarrow D_f &= [-\frac{3}{2}, +\infty) \checkmark \end{aligned}$$

$$y = \frac{2 \varepsilon n^3 + 3 \varepsilon n^2 + 11 \varepsilon n + 3}{(\varepsilon n^2 + \varepsilon n + 1)^2} = \frac{(2n+1)^3}{(2n+1)^2} = \frac{2n+1}{1} \checkmark$$

سوال ۲

سوال ۲

$$D_f \subset \mathbb{R} - \{-\frac{1}{2}\}$$

$$f(n) = \begin{cases} \frac{(n^2-1)(n+2)}{n^2-1} \rightarrow \frac{n+2}{n \neq \pm 1} \Rightarrow g(n) = n+2 \\ \frac{an+r}{n+b} \quad n \neq \pm 1 \end{cases}$$

سوال ۳ (۲)

$$\begin{aligned} n=1 &\rightarrow \frac{a+r}{1+b} = r \rightarrow a+r = r+b \rightarrow a-b = 0 \\ n=-1 &\rightarrow \frac{-a+r}{-1+b} = 1 \rightarrow -a+r = -1+b \rightarrow a-b = r-1 \\ \Rightarrow a=b &\rightarrow a=b=r \end{aligned}$$

$$c=r, b=\frac{1}{r} \rightarrow c+b = r + \frac{1}{r}$$

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$$g(n) = \frac{n^2-1}{n^2+an+b} \quad f(n) = \frac{n+1}{n-c}$$

(2) (سوال 2)

$$\frac{(n+1)(n-1)}{(n-1)(n-c)} = \frac{n+1}{n-c}$$

$$a+b+c = -2+1+1 = 0$$

$$D_g = \mathbb{R} - \{1, c\} \quad D_f = \mathbb{R} - \{1\}$$

$$c = 1 \Rightarrow n^2 + an + b$$

$$g(n) = f(n+1) + f(1-n) \quad f(n) = (n-c)^2(n-1)$$

سوال (3)

$$g(n) = (n-2)^2(n) + (-2-n)^2(-n) = (n^2 - 4n + 4)n - (n^2 + 4n + 4)n = -8n^2$$

$$f(-1) + f(1) \quad f(1-n) = \begin{cases} \sqrt{n+1} & n \leq 0 \\ \varepsilon \sqrt{n} & n > 0 \end{cases}$$

$$\varepsilon \sqrt{1} + \sqrt{-1} + 1 \leq \varepsilon - 1 + 1 \leq \varepsilon$$

$$f(4) \quad f(n + \sqrt{n}) = n^2 + 2n$$

$$n + \sqrt{n} \leq 4 \rightarrow n + \sqrt{n} - 4 \leq 0$$

$$t^2 + t - 4 \leq 0 \rightarrow (t+4)(t-2) \leq 0 \rightarrow t = 2$$

$$\sqrt{n} \leq 2 \rightarrow n \leq 4 \Rightarrow f(4) = 4(4) + 12 = 28$$

VAHDAT

$$f(n-1) + f(1-n) \quad f(n) \leq n^3 + n$$

(سوال 1)

$$(n-1)^3 + (n-1) + (1-n)^3 + (1-n) \leq 0$$

(2)

$$f(n) = \sqrt{\varepsilon n - \mu a} + k - 1 \rightarrow \varepsilon n - \mu a \geq 0$$

(سوال 9)

$$g(n) = \sqrt{b - \varepsilon n} + \mu k$$

(2)

$$f - g \in \{(-1, k)\}$$

$$b - \varepsilon n \geq 0 \rightarrow n \leq \frac{b}{\varepsilon}$$

$$\frac{\mu a}{\varepsilon} \leq 1 \rightarrow a \leq \frac{\varepsilon}{\mu}$$

$$\frac{b}{\varepsilon} \leq 1 \rightarrow b \leq \varepsilon$$

$$\mu(\sqrt{\varepsilon/\varepsilon} + k - 1) - (\sqrt{\varepsilon - \varepsilon} + \mu k)$$

$$\mu k - \mu - \mu k \leq k \rightarrow k \leq -1$$

$$\mu \times \frac{\varepsilon}{\mu} - \frac{\varepsilon}{\mu} + 1 \leq \varepsilon - \mu + 1 \leq \mu$$

(سوال 10)

$$f(n) = \sqrt{m - n} + n \quad g(n) = \sqrt{\mu n + \mu}$$

(2)

$$m - n \geq 0 \rightarrow m \geq n$$

$$\hookrightarrow m \leq \sqrt{V}$$

$$\mu n + \mu \geq 0 \rightarrow n \geq -1$$

$$\sqrt{V - \mu} + n - \mu \sqrt{\mu} = \mu + n - \mu \sqrt{\mu} \leq \mu \sqrt{\mu}$$

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$$\Rightarrow n \leq \mu \sqrt{\mu} - \mu$$

$$\sqrt{V} + \mu \sqrt{\mu} - \mu \leq \mu \sqrt{\mu}$$