

۱۴,۱۷۵

A بازده A

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$$\begin{aligned} 2 \times (a+1) \times 1 &= 3a - 1 + a \\ 1(a+1) &= 2a - 1 \\ 1a &= -1 \\ \boxed{a = -1} \end{aligned}$$

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راه حل صنفی آخر

$$\begin{aligned} 2f(x) - 3f(-x) &= 4x^2 - x \xrightarrow{x^2} 4f(x) - 9f(-x) = 8x^2 - 2x \\ 2f(-x) - 3f(x) &= 4x^2 + x \xrightarrow{x^2} 4f(-x) - 9f(x) = 12x^2 + 3x \\ -5f(x) &= 20x^2 + x \\ f(x) &= -\frac{4x^2}{5} - \frac{x}{5} \end{aligned}$$

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ضرایب تأثیر ندارند!

$$\begin{aligned} f(0) &= 3m - 1 \rightarrow x=0 \\ f(0) &= 15 + 2m^2 + 3m - 1 \rightarrow x=-2 \\ f(0) &= \frac{15+9m}{4} \end{aligned}$$

$$\begin{aligned} 15 + 2m - 1 &= 3m - 1 \\ 2m &= -15 \\ m &= -1 \end{aligned}$$

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راه حل صنفی آخر

$$\begin{aligned} 3 + 1 \cdot n &= 11n - 4 \rightarrow 11n = 7 \rightarrow n = \frac{7}{11} \\ f(1) &= \left(\frac{7}{11} - 1\right) \times \frac{1}{2} = \frac{4}{22} = \frac{2}{11} \\ f(-1) &= -9 \end{aligned}$$

$$\begin{aligned} x=-1 \rightarrow f(-1) + f(-1) &= \frac{3+12+3}{-1} = 2f(-1) = -11 \\ f(-1) &= -9 \end{aligned}$$

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$$g(x) = -\sqrt{(1-x)^2(1-x)} = (x-1)\sqrt{1-x} = f(x)$$

$(-1, 0]$ = D

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$$g(x) = \sqrt{x^3} = \sqrt{x^2 \cdot x} = x\sqrt{x} = f(x)$$

$[0, +\infty)$ = D

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$$\begin{aligned} f(x) &= [\sqrt{x} - [\sqrt{x}]] \quad [\sqrt{x} - [\sqrt{x}]] = 0 \Rightarrow g(x) \\ g(x) &= 0 \quad k \in [k, k+1) \rightarrow 0 \leq \sqrt{x} - [k] < 1 \end{aligned}$$

$g(x) \rightarrow$ اگر $x > 0$ و x عدد صحیح نباشد

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$$\begin{aligned} \text{الف) } f(1) &\rightarrow 2 \quad g(1) \rightarrow 1 \rightarrow \frac{2+1}{2-1} = 3 \\ \text{ب) } f(2) &\rightarrow 3 \quad g(2) \rightarrow 2 \rightarrow \frac{3+2}{3-2} = 5 \\ \text{ج) } f(0) &= 0 \quad g(-1) = 1 \rightarrow 0 \times 1 = 0 \end{aligned}$$

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$$x=1$$

$x=1$

$$(-1)^m$$

$$z = z_0$$

$$x^2 - 1 = 0$$

$$x = \pm 1$$

$$x = -\frac{1}{2}$$

$$x^{-1} = x^{-1}$$

$$x = \frac{1}{x}$$

$$x_{n-1} = x^2$$

$$n = \frac{N}{2}$$

$$\{ (1,1), (6,4), (\frac{1}{10}, 2), (\frac{-1}{10}, 2), (\frac{7}{10}, -1) \}$$

$$\{(x, y), (-x, y), (0, w), (x, -1), (-x, -1)\}$$

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$$f(2-\sqrt{3}) = \sqrt{2-\sqrt{3}} + \frac{1}{\sqrt{2-\sqrt{3}}} + 2 \quad (2)$$

$$\xrightarrow{(2-\sqrt{3})(2+\sqrt{3})=1} \frac{1}{\sqrt{2-\sqrt{3}}} = \sqrt{2+\sqrt{3}}$$

$$f(2+\sqrt{3}) = \sqrt{2+\sqrt{3}} + \frac{1}{\sqrt{2+\sqrt{3}}} + 2$$

$$f(2-\sqrt{3}) = \sqrt{2-\sqrt{3}} + \sqrt{2+\sqrt{3}} + 2$$

$$, \quad f(2+\sqrt{3}) = \sqrt{2+\sqrt{3}} + \sqrt{2-\sqrt{3}} + 2$$

اگر $A = \sqrt{2+\sqrt{3}} + \sqrt{2-\sqrt{3}}$ ، داریم:

$$A^2 = 2+\sqrt{3} + 2-\sqrt{3} + 2\sqrt{(2-\sqrt{3})(2+\sqrt{3})} = 4 \rightarrow A = \sqrt{4}$$

$$f(2+\sqrt{3}) + f(2-\sqrt{3}) = \sqrt{4} + 2 + \sqrt{4} + 2 = \boxed{2\sqrt{4} + 4}$$

البته جواب $(\sqrt{2-\sqrt{3}} + \sqrt{2+\sqrt{3}} + 2)$ هم درست است ولی این جواب زیاده ت

$$x=0 \quad 2f(0) = 3m-1 \rightarrow f(0) = \frac{3m-1}{2} \quad (3)$$

$$x=-2 \quad 4f(0) = 4(-2)^2 + 2m + 3m-1 \rightarrow f(0) = \frac{5m+15}{4}$$

$$\frac{5m+15}{4} = \frac{3m-1}{2} \rightarrow 5m+15 = 2m-2 \rightarrow 3m = -17 \rightarrow m = -\frac{17}{3} \notin \mathbb{Z}$$

$$f(0) = \frac{3m-1}{2} \in \mathbb{Z} \quad \frac{15+5m}{4} \rightarrow f(0) = \frac{3(f(0)-1)-1}{2} = \boxed{4, 15 \in \frac{15}{2}}$$