

Date _____

Subject _____

تالیف ۶

«نام خدا»

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$$f(x) = (a+1)(x) \leq x a + x \quad , \quad f'(x) \leq (a+1) \quad -1$$

$$f(-1) \leq a - 1 \quad \rightarrow \quad f'(x) \leq \frac{a+1}{1 \cdot a} = \frac{a+1}{a} + 1$$

$$\rightarrow a \leq -1,1$$

$$y-2 \leq \sqrt{x} + \frac{1}{\sqrt{x}} \quad \rightarrow \quad (y-2)^2 \leq x + \frac{1}{x} + 2 \quad -2$$

$$\rightarrow (y-2)^2 \leq 2 + \sqrt{x} + 2 - \sqrt{x} + 2 \leq 6 \rightarrow y-2 \leq \sqrt{6} \rightarrow y \leq \sqrt{6} + 2$$

$$\rightarrow (y-2)^2 \leq 2 - \sqrt{x} + 2 + \sqrt{x} + 2 \leq 6 \rightarrow y-2 \leq \sqrt{6} \rightarrow y \leq \sqrt{6} + 2$$

$$\rightarrow (\sqrt{6} + 2) \times 2 \leq \boxed{2\sqrt{6} + 4}$$

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$$\underline{x} \rightarrow \begin{matrix} \text{✓} \\ \text{✓} \end{matrix} f(x) - \begin{matrix} \text{✓} \\ \text{✓} \end{matrix} f(-x) = \begin{matrix} \text{✓} \\ \text{✓} \end{matrix} x^2 - x \quad \underline{-x}, \quad \begin{matrix} \text{✓} \\ \text{✓} \end{matrix} f(-x) - \begin{matrix} \text{✓} \\ \text{✓} \end{matrix} f(x) = \begin{matrix} \text{✓} \\ \text{✓} \end{matrix} -x^2 + x$$

$$\rightarrow \begin{matrix} \text{✓} \\ \text{✓} \end{matrix} f(x) - \begin{matrix} \text{✓} \\ \text{✓} \end{matrix} f(-x) = \begin{matrix} \text{✓} \\ \text{✓} \end{matrix} x^2 - x$$

$$- \begin{matrix} \text{✓} \\ \text{✓} \end{matrix} f(x) + \begin{matrix} \text{✓} \\ \text{✓} \end{matrix} f(-x) = \begin{matrix} \text{✓} \\ \text{✓} \end{matrix} -x^2 + x$$

$$\rightarrow -\Delta f(x) = \begin{matrix} \text{✓} \\ \text{✓} \end{matrix} x^2 + x \rightarrow f(x) = \begin{matrix} \text{✓} \\ \text{✓} \end{matrix} x^2 - \frac{x}{4}$$

$$x=0 \rightarrow m-1, f(0)$$

$$x=1 \rightarrow 1 + m-1, f(1)$$

$$f(0) = f(m-1) = m-1 \rightarrow 1 + m-1 = m \rightarrow 1 + m-1 = m$$

$$\rightarrow m = \frac{q}{r} \rightarrow f(0) = r \times \frac{q}{r} = 1 + \frac{r-1}{r} \rightarrow \boxed{f(0) = \frac{r-1}{r}}$$

$$f(x) + f\left(\frac{1}{x}\right) = ax + b + \frac{a}{x} + b = ax + \frac{a}{x} + 2b \quad - \Delta$$

$$ax + \frac{a}{x} + 2b = \frac{rx^2 - 12x + 5}{x}$$

$$\rightarrow a = r, 2b = -12 \rightarrow b = -6$$

$$f(-1) = ax + b = rx - 1 - 6 = \boxed{-9}$$

$$\left\{ \begin{array}{l} 1-x \geq 0 \rightarrow 1 \geq x \\ (1-x)^2 \geq 0 \rightarrow 1-x \geq 0 \rightarrow 1 \geq x \end{array} \right\}$$

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برابرند.

$$-3 \times \sqrt{3}$$

$$-\sqrt{(3)^3}$$

برابرند.

$$\left. \begin{aligned} f(n) &= n\sqrt{n} \rightarrow n, 0 \\ g(n) &= \sqrt{n^3} \rightarrow n, 0 \end{aligned} \right\} \text{ یکسان}$$

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$$\xrightarrow{\text{عدد ۲}} 2\sqrt{2} \quad \sqrt{8} \rightarrow \text{برابرند} \rightarrow \text{۲ تا ۲ برابرند}$$

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$$f(n) = [\sqrt{n} - [\sqrt{n}]] \rightarrow n, 0$$

$$g(n) = \sqrt{n - |n|} \rightarrow n - |n|, 0 \rightarrow n, |n| \rightarrow \frac{n \in \mathbb{R}_+^+ \setminus \{0\}}{n, 0}$$

$$\xrightarrow[\text{۲ و ۲}]{\text{عددگذاری}} [\sqrt{2} - 1], 0 \quad \sqrt{2} - |\sqrt{2}|, 0 \quad \checkmark \text{ برابرند}$$

$$\text{الف)} \left(\frac{f+g}{f-g} \right)(1) \rightarrow f(1), 2 \quad g(1), 1 \quad \frac{2+1}{2-1} = 3$$

$$\text{ب)} \left(\frac{f+g}{f-g} \right)(2) \rightarrow f(2), 3 \quad g(2), 3 \rightarrow \frac{3+3}{3-3} \quad \boxed{\text{تعریف نشده}}$$

$$\text{ج)} f(0) \times g(-1) \Rightarrow f(0), 0 \quad g(-1), 1 \rightarrow \boxed{0 \times 1 = 0}$$

$$\text{الف)} g(n) = f(3n-1) \rightarrow \left\{ (1, 1), (0, 4), \left(\frac{1}{3}, 5\right), \left(-\frac{1}{3}, 2\right), \left(\frac{4}{3}, -1\right) \right\}$$

$$\text{ب)} h(n) = f(|n|) \rightarrow \left\{ (2, 1), (-2, 1), (0, 5), (3, -1), (-3, -1) \right\}$$