

۱۸، ۷۵

نام و نام خانوادگی علی طالبیان پاسخنامه تشریحی تکلیف شماره ۷ کلاس پایه دهم ریاضی

$$f(n+1) = \left(\frac{1}{f}\right)^{n-1} - 1 = 2^{n-1} - 1 \geq 0$$

(۱، ۵)

$$\sqrt{n^2 f(n+1)} \geq \frac{0}{+} \frac{1}{-} \Rightarrow D = (-\infty, 0] \cup [1, \infty)$$

- + -
رفت!

[۰، ۱]

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

$$\frac{2}{-n - n + 2} = \frac{2}{-2n} = -\frac{1}{n}$$

$$-2n + 2 \geq 0 \Rightarrow \frac{1}{+} \frac{-}{-}$$

$$\Rightarrow Df = (-\infty, 1]$$

(۲)

$$\sqrt{\frac{n-1}{f(n)}} \Rightarrow \frac{n-1}{f(n)} \geq 0 \Rightarrow \frac{-4}{-} \frac{1}{+} \frac{2}{-} \frac{3}{+}$$

$$\Rightarrow D = (-4, 1] \cup (2, 3)$$

(۲)

$$\frac{1}{9x^4 - \sqrt{x^2 - 4}x - 2} = \frac{1}{(3x^2 - x - 2)(3x^2 + x + 1)} \Rightarrow \frac{1}{3x^2 - x - 2} = \frac{1}{3x^2 + x + 1}$$

Δ > 0 Δ < 0
ریشه‌ها

$$\Rightarrow a = -1, b = -2$$

$$\sqrt{-(a+b)} = \sqrt{-(-4)} = 2$$

(۲)

$$f(n) - f\left(\frac{f}{n}\right) \geq 0 \Rightarrow \frac{x^6 + x^4 - 4x^2 - 9}{x^2}$$

(۱، ۷۵)

$$x^2 = t \Rightarrow \frac{t^3 + t^2 - 4t - 9}{t^2} = \frac{t^2 - 9}{t^2} + \frac{t(t-4)}{t^2} = \frac{(t-4)(t^2 + 4t + 16)}{t^2} + \frac{t(t-4)}{t^2}$$

$$\frac{(t-4)(t^2 + 4t + 16)}{t^2} \begin{cases} t=4 \rightarrow x=2 \\ t=0 \rightarrow x=0 \end{cases} \Rightarrow Df = [-2, 0] \cup [2, \infty)$$

- 2 0 2
- + -
رفت!

$$f(x^2+x) = 2x^2-1 \quad f(2)+f(1) = 2$$

$$f(2+1) = 1-1 \Rightarrow f(1) = 0 \Rightarrow f(2)+f(1) = 1 \quad \checkmark$$

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

$$g(x) = x^2+9x^2+2\sqrt{x} \Rightarrow (x+2)^2 = x^2+4x^2+2\sqrt{x}+2\sqrt{x} \Rightarrow g(x) = (x+2)^2 - 2\sqrt{x}$$

$$f(x) = x^2-9x^2+12x \Rightarrow (x-2)^2 = x^2-4x^2+12x-4 \Rightarrow f(x) = (x-2)^2 + 4\sqrt{x}$$

$$\frac{g(\sqrt{2}-2)}{f(\sqrt{2}+2)} = \frac{2-2\sqrt{2}}{4} = \frac{-2}{4} = -\frac{1}{2} \quad \checkmark$$

$$f(x) = \sqrt{x+5\sqrt{x-4}} = \sqrt{(x-4) + 9\sqrt{x-4} + 4} = \sqrt{(x-4) + 9\sqrt{x-4} + 4} = \sqrt{x-4} + 3$$

$$g(x) = \sqrt{x-5\sqrt{x-4}} = \sqrt{(x-4) - 9\sqrt{x-4} + 4} = \sqrt{(x-4) - 9\sqrt{x-4} + 4} = \sqrt{x-4} - 3$$

$$\Rightarrow f(x) + g(x) = 2\sqrt{x-4} \Rightarrow \frac{a}{b} = \frac{2}{-4} = -\frac{1}{2} \quad \checkmark$$

$$\frac{g}{f} = \begin{cases} Df \Rightarrow \frac{x+2}{(x-1)(x-2)} \rightarrow \mathbb{R} - \{1, 2\} \\ Dg = \{2, 1, 3, 0\} \Rightarrow \{1, 2\} = \{2, 0\} \end{cases}$$

$$\Rightarrow \frac{g}{f} = \left\{ \left(2, \frac{1}{2}\right), \left(0, \frac{2}{1}\right) \right\} = \left\{ \left(2, -\frac{1}{2}\right), (0, 2) \right\} \quad \checkmark$$

$$الف) f(2x) = \left\{ \left(\frac{1}{2}, 2\right), \left(\frac{3}{2}, -1\right), (2, 2), \left(-\frac{1}{2}, 2\right) \right\} \quad \checkmark$$

$$ب) f(x^2) = \left\{ (1, 2), (\sqrt{3}, -1), (2, 2), (\sqrt{-1}, 2) \right\} \quad \checkmark$$

$$ج) 2g^2(x)+1 = \left\{ (-2, 19), (1, 3), (3, 9), (-1, 1) \right\} \quad \checkmark$$

$$د) \frac{2f}{g} = \left\{ \left(1, \frac{4}{-1}\right), \left(3, -\frac{2}{2}\right), \left(5, \frac{1}{2}\right) \right\} \quad \checkmark$$