

نام و نام خانوادگی: پارسا ضیائی تکلیف شماره ۶۰ - یادهم سیر B

۱۹,۲۵ آفرین

$$2(a+1)(5+2) = 13a - 4 + a \rightarrow 14a + 14 = 13a - 4 \rightarrow 10a = -18$$

$$a = -1,8$$

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

$$f(2-\sqrt{3}) = \sqrt{2-\sqrt{3}} + \frac{1}{2-\sqrt{3}} + 2 = \sqrt{6} + 2$$

$$f(2+\sqrt{3}) = \sqrt{2+\sqrt{3}} + \frac{1}{2+\sqrt{3}} + 2 = \sqrt{6} + 2$$

$$f(2-\sqrt{3}) + f(2+\sqrt{3}) = 2\sqrt{6} + 4$$

$$2f(x) - 3f(-x) = 4x^2 - x \rightarrow 2f(x) - 4f(-x) = 12x^2 - 2x$$

$$2f(-x) - 3f(x) = 4x^2 + x \rightarrow 4f(-x) - 9f(x) = 12x^2 + 3x$$

$$\Rightarrow f(x) = \frac{-4x^2 - x}{5}$$

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

$$\text{if } x=-2 \rightarrow (0)f(-2) + 4f(0) = 14 + 2m + 3m - 1 \Rightarrow 4f(0) = 5m + 15$$

$$\Rightarrow 5m + 15 = 9m - 3 \rightarrow 4m = 18 \rightarrow m = 4,5 \rightarrow f(0) = \frac{3(4,5) - 1}{2} = 4,25$$

$$f(-1) + f\left(\frac{1}{-1}\right) = 2f(-1) = \frac{3+12+3}{-1} = -18 \Rightarrow f(-1) = -9$$

$$f(x) = (x-1)\sqrt{1-x} \rightarrow Df = (-\infty, 1]$$

$$g(x) = -\sqrt{(1-x)^3} \rightarrow Dg = (-\infty, 1] \rightarrow -\sqrt{(1-x)^2(1-x)} = -|1-x|\sqrt{1-x} = (x-1)\sqrt{1-x}$$

$$f(x) = x\sqrt{x} \rightarrow Df = [0, +\infty)$$

$$g(x) = \sqrt{x^3} \rightarrow \sqrt{x^2 x} = |x|\sqrt{x} \rightarrow Dg = [0, +\infty) \rightarrow g(x) = x\sqrt{x}$$

چون $x \geq 0$ است پس $|x| = x$

$$f(x) = [\sqrt{x} - [\sqrt{x}]] \rightarrow Df = [0, +\infty)$$

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$$g(x) = \sqrt{x - |x|} \rightarrow x - |x| \geq 0 \Rightarrow x \geq |x| \rightarrow D(g) = [0, +\infty) \Rightarrow |x| = x \Rightarrow g(x) = 0$$

اگر x مربع کامل نباشد، $\sqrt{x} = a/b$ در نتیجه $[\sqrt{x}] = a$ و $\sqrt{x} - [\sqrt{x}] = 0, b$ و $\sqrt{x} = a/b$ دو تابع برابرند.

$$[\sqrt{x} - [\sqrt{x}]] \xrightarrow[\text{کامل}]{\text{بجای } x} \sqrt{x} - [\sqrt{x}] = 0$$

$$\sqrt{x} \in \mathbb{W}$$

$$g(x) = 0 \text{ در نتیجه } [0, b] = 0$$

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

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ب) $\left(\frac{f+g}{f-g} \right) (2) = \left(\frac{3+3}{3-3} \right) \rightarrow$ تعریف نشده

ج) $f(0) g(-1) = 0 \times 1 = 0$

الف) $3x-1 = \begin{cases} 2 \Rightarrow x=1 \\ -1 \Rightarrow x=0 \\ 0 \Rightarrow x=\frac{1}{3} \\ -2 \Rightarrow x=-\frac{1}{3} \\ 3 \Rightarrow x=\frac{4}{3} \end{cases} \quad g(x) = \left\{ (1, 1), (0, 2), \left(\frac{1}{3}, 5\right), \left(-\frac{1}{3}, 2\right), \left(\frac{4}{3}, -1\right) \right\}$

ب) $|x| = \begin{cases} 2 \Rightarrow x = \pm 2 \\ -1 \Rightarrow \text{تن} \\ 0 \Rightarrow x=0 \\ -2 \Rightarrow \text{تن} \\ 3 \Rightarrow x = \pm 3 \end{cases} \Rightarrow h(x) = \left\{ (2, 1), (-2, 1), (0, 5), (3, -1), (-3, -1) \right\}$

$$r f(n) - r f(-n) = r n^r - n \xrightarrow{x^r} r f(n) - r f(-n) = n^r - r n$$

(r)

$$r f(-n) - r f(n) = r(-n)^r + n \xrightarrow{x^r} r f(-n) - r f(n) = (r n^r + r n$$

$$- \omega f(n) = r n^r + n \rightarrow f(n) = -\frac{r n^r}{\omega} - \frac{n}{\omega}$$

$$x=0 \quad r f(\cdot) = r_{m-1} \rightarrow f(\cdot) = \frac{r_{m-1}}{r}$$

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$$x=-r \quad r f(\cdot) = r(-r)^r + r_m + r_{m-1} \rightarrow f(\cdot) = \frac{\omega_{m+1} \omega}{r}$$

$$\frac{\omega_{m+1} \omega}{r} = \frac{r_{m-1}}{r} \rightarrow 1 \cdot m + r = 1 \cdot m - r \rightarrow 1m = 2r \rightarrow m = \frac{2}{r} \leq r, \omega$$

$$f(\cdot) = \frac{r_{m-1}}{r} \leq \frac{1 \omega + \omega_m}{r} \leadsto f(\cdot) = \frac{r(r, \omega) - 1}{r} = \boxed{4, 2 \omega \leq \frac{r \omega}{2}}$$