

نام و نام خانوادگی (بسته رفت) پاسخنامه تشریحی تکلیف شماره ۳ کلاس بسته رفت

$$f(x) = \begin{cases} k_{n-1} & ; x > \omega \\ k_n x + \mu & ; x < \omega \end{cases} \quad y = \sqrt{f(x) - x + 1} \rightarrow \begin{cases} k_{n-1} - x + 1, x > \omega \\ k_n x + \mu - x + 1, x < \omega \end{cases}$$

$$\begin{cases} x > 0; x > \omega \rightarrow x > \omega \\ x > 0; x < \omega \rightarrow -\frac{\mu}{k_n} < x < \omega \end{cases} \quad D_y = \left[-\frac{\mu}{k_n}, +\infty\right)$$

$$y = \frac{\mu \varepsilon_n^{\frac{1}{k_n}} + k_n \varepsilon_n^{\frac{1}{k_n}} + 1}{(\varepsilon_n^{\frac{1}{k_n}} + \varepsilon_n + 1)^{\frac{1}{k_n}}} = \frac{\mu (1 + k_n^{\frac{1}{k_n}} + \varepsilon_n^{\frac{1}{k_n}})}{(k_n + 1)^{\frac{1}{k_n}}} = \frac{\mu (k_n + 1)^{\frac{1}{k_n}}}{(k_n + 1)^{\frac{1}{k_n}}} = \frac{\mu}{k_n + 1}$$

$$(k_n + 1)^{\frac{1}{k_n}} = 0 \rightarrow x = -\frac{1}{k_n} \quad D_y = \mathbb{R} \setminus \left\{-\frac{1}{k_n}\right\}$$

$$f(x) = \begin{cases} \frac{x^2 + 2x - x - 2}{x^2 - 1} & ; x \neq \pm 1 \rightarrow \frac{(x^2 + 1)(x + 2)}{(x^2 - 1)} \rightarrow x + 2 \xrightarrow{x=1} = 3 \\ \frac{ax + b}{x + c} & ; x = \pm 1 \end{cases}$$

$$\begin{cases} x=1 \rightarrow g(1) = 1 + c = 3 \\ x=-1 \rightarrow \frac{a - b}{b - c} = 1 \end{cases} \rightarrow \begin{cases} a + 2 = 3 \\ b + 1 = a \end{cases} \rightarrow \begin{cases} a = 1 \\ b = 2 - a = 1 \end{cases}$$

$$c = 2 \quad b + c = 2 + 1 = 3$$

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

$$1 - c = 0 \rightarrow c = 1$$

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

$$(x-1)^2 = x^2 - 2x + 1 \rightarrow a = -2 \quad b = 1$$

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

$$x((x-2)^2 - (x+2)^2) = x(1-4)(x) = -11x^2$$

$$f(1-x) = \begin{cases} \sqrt[3]{x} + 1 & x \leq 0 \\ \varepsilon \sqrt{x} & x > 0 \end{cases} \quad f(-1) \rightarrow 1-x = -1 \quad x = 1 \rightarrow \varepsilon \sqrt{1} = \varepsilon$$

$$f(x) \rightarrow 1-x = x \quad x = -1 \quad \sqrt[3]{-1} + 1 = 0$$

$$f(-1) + f(x) = 1 + 1 = 2$$

2
6

$$f(x + \sqrt{x}) = x + \sqrt{x} \quad f(y) = ? \quad x + \sqrt{x} = y \quad x + \sqrt{x} - y = 0 \quad (\sqrt{x} + 1)(\sqrt{x} - 1) = 0$$

$$f(y) = (x) + 1(x) = 2x + 1 = 2y + 1$$

$$x^2 = 2xy$$

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

$$= (x-1)^2 - (x-1)^2 + (x-1) - (x-1) = 0$$

2
8

$$f(x) = \sqrt{\varepsilon x - x^2} + k - 1 \quad g(x) = \sqrt{b - \varepsilon x} + k \quad D_f \cap D_g = 1$$

$$k - \varepsilon a = 0 \rightarrow a = \frac{k}{\varepsilon} \quad b - \varepsilon = 0 \rightarrow b = \varepsilon \quad (f - g)(1) = \sqrt{\varepsilon(1) - 1^2} + k - 1 - (\sqrt{b - \varepsilon(1)} + k) = k$$

$$-k - 1 = k \rightarrow k = -1 \rightarrow k = -1 \quad \psi\left(\frac{k}{\varepsilon}\right) - \frac{(f)}{\varepsilon} - (-1) = k - 1 + 1 = 0$$

2
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$$f(x) = \sqrt{m-x} + n \quad g(x) = \sqrt{x} + 1 \quad D_{f \times g} = [-1, v]$$

$$(\sqrt{m-x} + n) \sqrt{x} + 1 \rightarrow x+1 \geq 0 \quad x \geq -1$$

$$(f-g)(x) = \sqrt{m-x} + n - \sqrt{x} + 1 = 0 \quad m-x = x \quad x \leq m \rightarrow m = v$$

$$m+n = \sqrt{m-x} + 1 + 1 = \sqrt{m-x} + 2$$

1, 1, 1
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