

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

$$\begin{cases} x > 0; x > \omega \rightarrow x > \omega \\ x > -\frac{1}{\mu}; x < \omega \rightarrow -\frac{1}{\mu} < x < \omega \end{cases} \quad D_y = \left[-\frac{1}{\mu}, \omega\right)$$

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$$y = \frac{\mu \varepsilon x^{\mu+1} + \mu \varepsilon x^{\mu} + \mu \varepsilon x + \mu}{(\varepsilon x^{\mu} + \varepsilon x + 1)^{\mu}} = \frac{\mu (\mu x^{\mu} + \mu x^{\mu} + \varepsilon x + 1)}{(k_{x+1})^{\mu}} = \frac{\mu (k_{x+1})^{\mu}}{(k_{x+1})^{\mu}}$$

$$(k_{x+1})^{\mu} = 0 \rightarrow x = -\frac{1}{\mu} \quad D_y = IR - \left\{-\frac{1}{\mu}\right\}$$

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

$$\begin{aligned} x=1 & \rightarrow g(1) = 1+C = \mu \\ C & = \mu-1 \\ x=-1 & \rightarrow \frac{a-1}{b-1} = 1 \quad b = \mu-a \end{aligned}$$

$$\begin{aligned} \frac{a+1}{b+1} & = \mu \quad \mu b+1=a \\ a & = \frac{1}{\mu} \\ b & = \frac{1}{\mu} \end{aligned}$$

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

از آنجایی که $x=1$ صدمت کسر $g(x)$ را صفر می‌کند و $f(x)$ را به سبب هر دو کسر درجه یک این حاصل را داشته‌اند

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

$$1-C=0 \rightarrow C=1$$

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

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$$f(x) = (x-\mu)^{\mu}(x-1) \quad g(x) = f(x+1) + f(1-x) = (x-\mu)^{\mu}(x) + (x+\mu)^{\mu}(-x)$$

$$x((x-\mu)^{\mu} - (x+\mu)^{\mu}) = x(-\varepsilon)(k_{\mu}) = -1x^{\mu}$$

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

$$f(x) \rightarrow 1-x = \mu \quad x = -1 \quad \sqrt{-1} + 1 = 1$$

$$f(-1) + f(x) = 1 + 1 = \underline{2}$$

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$$f(x + \sqrt{x}) = x^{\frac{1}{2}} + \mu_x \quad f(y) = ? \quad x + \sqrt{x} = y \quad x + \sqrt{x} - y = 0 \quad (\sqrt{x} + 1)(\sqrt{x} - 1) = 0$$

$$\sqrt{x} = 1 \rightarrow x = 1$$

$$f(y) = (x)^{\frac{1}{2}} + \mu(\varepsilon) = \varepsilon + 1 = \underline{1 + \varepsilon}$$

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

$$= (x-1)^{\frac{1}{2}} - (x-1)^{\frac{1}{2}} + (x-1) - (x-1) = \underline{0}$$

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

$$k - \mu a = 0 \rightarrow a = \frac{k}{\mu} \quad b - \varepsilon = 0 \rightarrow b = \varepsilon \quad (f - g)(1) = \varepsilon(k-1) - (\mu k) = k$$

$$-k - \varepsilon = k \rightarrow \varepsilon k = -\varepsilon \rightarrow \underline{k = -1} \quad \mu\left(\frac{k}{\mu}\right) - \frac{(\varepsilon)}{\varepsilon} - (-1) = k - \varepsilon + 1 = \underline{\mu}$$

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

$$(\sqrt{m-x} + n) \sqrt{x} + \mu \rightarrow \begin{matrix} x+1 \geq 0 & x \geq -1 \\ m-x \geq 0 & x \leq m \end{matrix} \rightarrow \underline{m \geq \mu}$$

$$(f - g)(\mu) = \sqrt{m-\mu} + n - \sqrt{\mu} + \mu = \varepsilon \sqrt{\mu} \quad n = \sqrt{\mu} - \varepsilon$$

$$m+n = \sqrt{\mu} - \varepsilon + \mu = \underline{\sqrt{\mu} + \mu}$$

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