

$$g(x) = \begin{cases} x^2 - \varepsilon x + k & ; x \geq r \\ -x^2 + 4x + c_k & ; x < r \end{cases} \quad (A)$$

$$\Rightarrow \underline{x=r} \rightarrow r - \Lambda + k = k - r \quad \xrightarrow{x < r} \quad \frac{-b}{2a} = \frac{-4}{-2} = 2, \quad x < r$$

$$-r + 1r + c_k = c_k + \Lambda \xrightarrow{=} g \quad c_k + \Lambda < k - \varepsilon \Rightarrow rk < -1r$$

$$\Rightarrow \underline{k < -4}$$

$$f(x) = \begin{cases} \mu x & x \geq 0 \\ \nu x & x < 0 \end{cases} \rightarrow f^{-1}(x) = \begin{cases} \frac{x}{\mu} & x \geq 0 \\ \frac{x}{\nu} & x < 0 \end{cases} \quad (Y)$$

$$\Rightarrow f^{-1}(x) = \frac{\mu x}{\Lambda} - \frac{1}{\Lambda} |x| \Rightarrow a = \frac{\mu}{\Lambda}, \quad b = -\frac{1}{\Lambda} \Rightarrow ab = \frac{-\mu}{\Lambda}$$

$$f(x) = \frac{\mu x + \varepsilon}{x + m}, \quad A \left| \begin{matrix} \mu \\ -1 \end{matrix} \right| \begin{matrix} \varepsilon \\ 0 \end{matrix} \Rightarrow \frac{10}{r+m} = -10 \Rightarrow m = -r \quad (V)$$

$$f^{-1}(x) = \frac{\mu x + \varepsilon}{x - r} \Rightarrow \cancel{f} \circ \cancel{f}^{-1} + f^{-1}(x) = x + f^{-1}(x) =$$

$$x + \frac{\mu x + \varepsilon}{x - r} = \frac{x^2 - \cancel{rx} + \cancel{rx} + \varepsilon}{x - r} = \frac{x^2 + \varepsilon}{x - r} = x \Rightarrow \cancel{x} + \varepsilon = \cancel{x} - r_2 \Rightarrow \boxed{x = -\frac{\varepsilon}{\mu}} \quad (A)$$

$$f(c - rx) = -r \Rightarrow f^{-1}(-r) = r - rx, \quad g^{-1}(\varepsilon) \Rightarrow$$

$$r = g\left(\frac{x}{c}\right) \Rightarrow g^{-1}(\varepsilon) = \frac{x}{r} \Rightarrow f g^{-1}(\varepsilon) + f^{-1}(-r) = f \times \frac{x}{c} + r - rx = \mu$$

$$y = \frac{\Delta x - 1r}{1-x} \xrightarrow{\text{تبدیل متغیر}} \frac{rx + 4}{x-1} = f(x), \quad f^{-1}(x) = \frac{x+4}{x-r} \quad (A)$$

$$\frac{rx+4}{x-1} = \frac{x+4}{x-r} \Rightarrow x^2 - rx - 4 = 0 \xrightarrow{\text{تبدیل متغیر}} \varepsilon x^2 = \mu$$

$$f(x) = y = x + \varepsilon L(x), \quad f^{-1}(y) \Rightarrow y + \mu L(y) = x \rightarrow y = x - \varepsilon L(y) \quad (10)$$

$$\xrightarrow{y = x + \varepsilon L(x)} y = x - \varepsilon L(x + \varepsilon L(x)) \Rightarrow y = x - \mu L(x)$$

$$\Rightarrow f - g(x) = x + \varepsilon L(x) - x + \mu L(x) = \boxed{\mu \varepsilon L(x)}$$