

$$D_{f(m)} = [-1, 1] \quad -1 \leq \frac{m+1}{\omega} \leq 1 \rightarrow -\omega \leq m+1 \leq \omega$$

$$f\left(\frac{m+1}{\omega}\right) \rightarrow -1 \leq m \leq \omega - 1 \rightarrow -1 \leq m \leq \omega$$

$$\rightarrow D = [-1, \omega]$$

$$D_{f(m-1)} = [-1, \omega] \quad -1 \leq m-1 \leq \omega \rightarrow 0 \leq m \leq \omega$$

$$\rightarrow 0 \leq m \leq \omega$$

$$f(m-1) \begin{cases} m=-1 \rightarrow \omega(-1)-1 = -\omega-1 \\ m=\omega \rightarrow \omega(\omega)-1 = \omega^2-1 \end{cases} \rightarrow D_f = [-\omega-1, \omega^2-1]$$

$f(m-1)$ دامنه $\leftarrow$

$$f\left(\frac{m+1}{\omega}\right) \quad D = [-1, \omega] \quad \begin{cases} m=-1 \rightarrow \frac{-\omega+1}{\omega} = -1 \\ m=\omega \rightarrow \frac{\omega+1}{\omega} = 1 \end{cases} \rightarrow D_f = [-1, \omega]$$

$$-1 \leq \frac{m+1}{\omega} \leq 1 \rightarrow -\omega \leq m+1 \leq \omega \rightarrow -\omega-1 \leq m \leq \omega-1$$

$$\rightarrow D_{f\left(\frac{m+1}{\omega}\right)} = [-\omega-1, \omega-1]$$

$$f(m) \rightarrow D_f = [-1, 1], R_f = [0, 1]$$

$$g = \frac{1}{\omega} f(\omega m + 1) \rightarrow D_g = \left[-\frac{1}{\omega}, \frac{1}{\omega}\right], R_g = [0, 1]$$

$$D_f = [1, \omega] \quad R_f = [0, 1] \quad g(m) = \frac{1}{\omega} f(\omega m + 1)$$

$$1 \leq \omega m + 1 \leq \omega \rightarrow 0 \leq m \leq 1 \rightarrow D_g = [0, 1], R_g = [0, 1]$$

$$y = -\frac{1}{\mu}x^{\mu} + \frac{\mu}{\omega}x + 1 \quad y_s = -\frac{1}{\mu}\left(\frac{\mu}{\omega}\right)^{\mu} + \frac{\mu}{\omega}\left(\frac{\mu}{\omega}\right) + 1 = \frac{\mu}{\omega}, \quad x_s = \frac{\mu}{\omega}$$

$$\left(\frac{\mu}{\omega}, \frac{\mu}{\omega}\right) \quad \left(f - \frac{\mu}{\omega}, \mu - \frac{\mu}{\omega}\right) = \left(\frac{1}{\omega}, \frac{\mu}{\omega}\right)$$

$$y = -\frac{1}{\mu}\left(x - \frac{1}{\omega} - \frac{\mu}{\omega}\right) + \mu = -\frac{1}{\mu}(x - f)^{\mu} + \mu \Rightarrow -\frac{1}{\mu}(x - f)^{\mu} + \mu = 0$$

$$(x - f)^{\mu} = \mu \rightarrow x - f = \pm \mu \Rightarrow x = 1, x = \mu$$

$$\mu x + 1 = 1 \rightarrow x = -\frac{1}{\mu}$$

$$(1, \mu)$$

$$y = 1 - \mu(f) = 1 - 1 = -\mu$$

$$A(x, B) = \left(-\frac{1}{\mu}, -\mu\right) \Rightarrow xB = \left(-\frac{1}{\mu}\right)(-\mu) = \frac{\mu}{\mu}$$

$$D_f = (a, f] \rightarrow a < x - 1 \leq f \rightarrow a + 1 < x \leq \omega \quad \xrightarrow{\omega} (-1, \omega)$$

$$D_g = [-1, b) \rightarrow -1 \leq x + 1 < b \rightarrow -1 \leq x < b - 1$$

$$\Rightarrow a + 1 = -1 \rightarrow a = -2, \quad b - 1 = \omega \rightarrow b = \omega + 1$$

$$a - b = -2 - (\omega + 1) = -\omega - 3$$

$$y_1 = f\left(\frac{x}{\mu} + 1\right) \quad D = [-1, \omega], \quad R = [-1, \mu] \quad -\mu \leq \frac{x}{\mu} + 1 \leq \omega$$

$$\rightarrow -f \leq \frac{x}{\mu} \leq f \rightarrow -1 \leq x \leq 1 \rightarrow D_f = [-1, 1]$$

$$y_2 = \sqrt{\mu f(x) - \mu} \rightarrow -1 \leq y \leq 1 \rightarrow -\mu \leq \mu y - \mu \leq \mu \rightarrow 0 \leq |\mu y - \mu| \leq \mu$$

$$0 \leq \sqrt{|\mu y - \mu|} \leq \omega \rightarrow R_f = [0, \sqrt{\omega}]$$

$$f(x) = \left|\frac{x+1}{\mu x+1}\right| \rightarrow g(x) = \left|\frac{(x-1)+1}{\mu(x-1)+1}\right| + 1 = \left|\frac{x-1}{\mu x - \mu}\right| + 1$$

$$x + g(x) < 0 \rightarrow x + 1 + \left|\frac{x-1}{\mu x - \mu}\right| < 0 \quad x + 1 < 0 \rightarrow x < -1$$

$$\rightarrow x + 1 + \frac{x-1}{\mu x - \mu} < 0 \rightarrow \frac{\mu x^2 - \mu}{\mu x - \mu} < 0 \rightarrow \mu x^2 - \mu < 0 \rightarrow x^2 < 1 \rightarrow x < -1, x > 1$$