

$$2f(\omega) = 2(a+1)(1) = 14a + 14$$

$$f(-2) = 3a - \varepsilon + a$$

$$14a + 14 = 4a - \varepsilon$$

$$10a = -\varepsilon - 14$$

$$10a = -14 \quad a = \frac{-14}{10} = \frac{-7}{5}$$

$$(2-\sqrt{3})(2+\sqrt{3})=1 \rightarrow \text{مکمل شود} \quad \sqrt{2} = \sqrt{2-\sqrt{3}} = \frac{1}{\sqrt{2+\sqrt{3}}}$$

$$a = \sqrt{2+\sqrt{3}} \quad \frac{1}{a} = \sqrt{2-\sqrt{3}}$$

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

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

$$f(2-\sqrt{3}) + f(2+\sqrt{3}) = 2(a + \frac{1}{a}) + 4 \rightarrow \boxed{4+2\sqrt{9}}$$

$$2f(u) - 3f(-u) = \varepsilon u^2 - u$$

$$2f(-u) - 3f(u) = \varepsilon u^2 + u$$

$$\begin{cases} 2f(-u) - 3f(u) = \varepsilon u^2 + u \\ -3f(-u) + 2f(u) = \varepsilon u^2 - u \end{cases}$$

$$\begin{cases} 4f(u) - 9f(u) = 12u^2 + 3u \\ -9f(-u) + \varepsilon f(u) = 12u^2 - 2u \end{cases}$$

$$-5f(u) = 10u^2 + u$$

$$5f(u) = -10u^2 - u$$

$$\boxed{f(u) = -2u^2 - \frac{u}{5}}$$

$$(u+2)f(u) - 3uf(u+2) = \varepsilon u^2 - mu + 3m - 1$$

$$5m + 10 = 9m - 3$$

$$u=0 \rightarrow 2f(0) = 3m - 1 \times 3 \quad 4f(0) = 9m - 3$$

$$14 = \varepsilon m$$

$$m = \frac{14}{\varepsilon}$$

$$u=-2 \rightarrow 4f(0) = 5m + 10$$

$$2f(0) = 3\left(\frac{14}{\varepsilon}\right) - 1$$

$$2f(0) = \frac{42}{\varepsilon}$$

$$f(0) = \frac{21}{\varepsilon}$$

$$f(u) + f\left(\frac{1}{u}\right) = \frac{3u^2 - 12u + 3}{u}$$

$$\text{تابع خطی} \quad f(u) = au + b$$

$$f\left(\frac{1}{u}\right) = \frac{a}{u} + b$$

$$\div \quad 3u - 12 + \frac{3}{u} = au + b + \frac{a}{u} + b$$

$$3u - 12 + \frac{3}{u} = au + b + \frac{a}{u}$$

$$a=3 \quad b=-12 \quad b=-4$$

$$f(u) = 3u - 4$$

$$f(-1) = -3 - 4 = \boxed{-7}$$

$$f(u) = (u-1)\sqrt{1-u} \rightarrow -(1-u)\sqrt{1-u}$$

$$f(u) = -\sqrt{(1-u)^3} \quad g(u) = -\sqrt{(1-u)^3}$$

$$f(u) = g(u)$$

$$f(u) = u\sqrt{u} \quad g(u) = \sqrt{u^3} \quad u \geq 0 \rightarrow \text{دامنه‌های برابر}$$

$$f(u)\sqrt{u \times u^2} \rightarrow f(u) = \sqrt{u^3}$$

$$f(u) = g(u)$$

$$\sqrt[n]{u} - [\sqrt[n]{u}] < 1 \rightarrow f(u) = 0 \quad \text{همواره} \quad Df = [\omega + \infty)$$

$$g(u) = u - |u| \geq 0 \quad \begin{matrix} + = \checkmark \\ - = \times \\ 0 = \checkmark \end{matrix}$$

$$Df = [0, +\infty)$$

$$f(u) = g(u)$$

$$\text{الف)} \frac{f(1) + g(1)}{f(1) - g(1)} = \frac{1 + 1}{1 - 1} = \mu$$

$$\text{ج)} f(0)g(-1)$$

$$f(0) = 0$$

$$g(-1) = 1$$

$$0 \times 1 = 0$$

$$\text{ب)} \frac{f(r) + g(r)}{f(r) - g(r)} = \frac{r + r}{r - r} = \frac{4}{0} = \infty$$

تعریف نشده

$$g(u) = f(r_{n-1}) \quad \begin{matrix} r_{n-1} = 1 & u = 1 \\ r_{n-1} = -1 & u = 0 \\ r_{n-1} = 0 & u = \frac{1}{r} \\ r_{n-1} = -r & u = -\frac{1}{r} \\ r_{n-1} = r & u = \frac{r}{r} \end{matrix}$$

$$g(u) = \left\{ (1, 1) (0, 0) \left(\frac{1}{r}, \omega\right) \left(-\frac{1}{r}, r\right) \left(\frac{r}{r}, -1\right) \right\}$$

$$h(u) = f(|u|)$$

$$|u| = 0 \rightarrow u = 0 \rightarrow h(0) = f(0) = \omega$$

$$|u| = r \rightarrow u = \pm r \rightarrow h(\pm r) = f(r) = 1$$

$$|u| = r \rightarrow u = \pm r \rightarrow h(\pm r) = f(r) = -1$$

$$h = \left\{ (\omega, \omega) (-1, 1) (1, 1) (-1, -1) (1, -1) \right\}$$