

$$\left. \begin{aligned} f(\omega) &= 7a + 7 \\ f(-2) &= 3a - 4 \end{aligned} \right\} \Rightarrow \begin{cases} 2f(\omega) = 14a + 14 \\ f(-2) + a = 4a - 4 \end{cases}$$

$$2f(\omega) = f(-2) + a \Rightarrow 14a + 14 = 4a - 4 \Rightarrow 10a = -18 \Rightarrow a = -1.8 = -\frac{9}{5}$$

$$\left. \begin{aligned} x^2 \rightarrow 2f(x) - 3f(-x) &= 4x^2 - x \\ x+x \rightarrow 2f(-x) - 3f(x) &= 4x^2 + x \end{aligned} \right\} \xrightarrow{+} -\Delta f(x) = 20x^2 + x \Rightarrow f(x) = \frac{20x^2 + x}{-\Delta}$$

$$\Rightarrow f(x) = -2x^2 - \frac{x}{\Delta}$$

$$f(x) = \sqrt{x} + \frac{1}{\sqrt{x}} + 2 = \left(\frac{1}{\sqrt{x}} + \sqrt{x} \right)^2 = \left(\frac{1+\sqrt{x}}{\sqrt{x}} \right)^2 = \frac{1+x+2\sqrt{x}}{\sqrt{x}}$$

$$\left. \begin{aligned} x=2-\sqrt{3} &\rightarrow \frac{1+2-\sqrt{3}+2\sqrt{2-\sqrt{3}}}{\sqrt{2-\sqrt{3}}} \\ x=2+\sqrt{3} &\rightarrow \frac{1+2+\sqrt{3}+2\sqrt{2+\sqrt{3}}}{\sqrt{2+\sqrt{3}}} \end{aligned} \right\} \xrightarrow{+} \frac{2-\sqrt{3}+2\sqrt{2-\sqrt{3}}}{\sqrt{2-\sqrt{3}}} + \frac{2+\sqrt{3}+2\sqrt{2+\sqrt{3}}}{\sqrt{2+\sqrt{3}}} = \frac{2\sqrt{2-\sqrt{3}}+2\sqrt{2+\sqrt{3}}}{1} = 4$$

$$\left. \begin{aligned} x=0 &\rightarrow 2f(0) = 2m-1 \Rightarrow f(0) = \frac{2m-1}{2} \\ x=-2 &\rightarrow 4f(0) = 12 + 2m \Rightarrow \frac{2m-1}{2} = f(0) \end{aligned} \right\} \Rightarrow \frac{2m-1}{2} = \frac{12+m}{2} \Rightarrow 2m-1 = 12+m \Rightarrow m = 13$$

$$\Rightarrow 2m = 13 \Rightarrow m = 6.5 \Rightarrow \frac{2m-1}{2} = \frac{2(6.5)-1}{2} = \frac{13-1}{2} = \frac{12}{2} = 6$$

$$f(x) + f\left(\frac{1}{x}\right) = ax + b + a\frac{1}{x} + b = ax^2 + 2bx + a \rightarrow \frac{ax^2 + 2bx + a}{x} = \frac{2x^2 - 12x + 3}{x}$$

$$\Rightarrow a = 2, b = -6$$

$$f(x) = ax + b \Rightarrow f(x) = 2x - 6 \Rightarrow f(-1) = -2 - 6 = -8$$

$1-x \geq 0 \Rightarrow x \leq 1 \rightarrow D_f$ $(1-x)^3 \geq 0 \Rightarrow 1-x \geq 0 \Rightarrow x \leq 1 \rightarrow D_g$ $-\sqrt{(1-x)^3} = - 1-x \sqrt{1-x} \xrightarrow{x \leq 1} -(1-x)\sqrt{1-x} = (x-1)\sqrt{1-x} = g(x) = f(x)$ <u>۱) دامنه برابر</u> <u>۲) رابطه برابر</u>	۶
$D_f \Rightarrow x \geq 0$ $D_g \Rightarrow x^3 \geq 0 \Rightarrow x \geq 0$ $g(x) = \sqrt{x^3} = x \sqrt{x} \xrightarrow{x \geq 0} x\sqrt{x} = f(x)$ <u>۱) دامنه برابر</u> <u>۲) رابطه برابر</u>	۷
$D_f \Rightarrow x \geq 0$ $D_g \Rightarrow x - x \geq 0 \Rightarrow x \geq x \Rightarrow x \geq 0$ $g(x) = \sqrt{x - x } \xrightarrow{x \geq 0} R_g = 0$ $f(x) = [\sqrt{x} - \lfloor \sqrt{x} \rfloor] \xrightarrow{x \geq 0} R_f = 0$ <u>۱) دامنه برابر</u> <u>۲) رابطه برابر</u>	۸
الف) $\left(\frac{f+g}{f-g}\right)(1)$ $= \frac{f(1)+g(1)}{f(1)-g(1)} = \frac{2+1}{2-1} = \boxed{3}$ ب) $\left(\frac{f+g}{f-g}\right)(2) = \frac{f(2)+g(2)}{f(2)-g(2)}$ $= \frac{3+3}{3-3} = \frac{6}{0} \rightarrow \boxed{\text{تعریف نشده}}$ ج) $f(0)g(-1) = 0 \times 1 = \boxed{0}$	۹
الف) $g(x) = f(x-1) = \boxed{\{(0, 4)\}}$ ب) $h(x) = f(x) = \boxed{\{(2, 1), (0, 2), (-2, 1), (3, -1)\}}$	۱۰