

$$\begin{aligned} 2f(a) &\rightarrow 2(a+1)(7) \\ f(-2) &\rightarrow 3a-8 \\ a &\rightarrow a \end{aligned} \quad \begin{aligned} 14a+14 &= 3a-8+a \rightarrow \\ 10a &= -18 \rightarrow a = -1.8 \end{aligned}$$

1

$$\begin{aligned} f(x) &= \sqrt{x} + \frac{1}{\sqrt{x}} + 2 \\ \frac{1}{\sqrt{2+\sqrt{3}}} &\times \frac{\sqrt{2-\sqrt{3}}}{\sqrt{2-\sqrt{3}}} \rightarrow \sqrt{2-\sqrt{3}} \\ f(2-\sqrt{3}) + f(2+\sqrt{3}) &\rightarrow \sqrt{2-\sqrt{3}} + \sqrt{2+\sqrt{3}} + \sqrt{2+\sqrt{3}} + \sqrt{2-\sqrt{3}} + 4 \\ &= 2\sqrt{2+\sqrt{3}} + 2\sqrt{2-\sqrt{3}} + 4 \end{aligned}$$

3

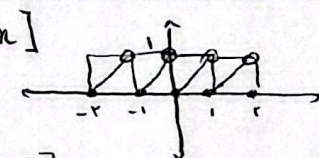
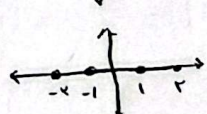
$$\begin{aligned} 2f(x) - 3f(-x) &= \varepsilon x^2 - 2 \xrightarrow{\times 2} \varepsilon f(x) - 4(f(-x)) = 14x^2 - 2x \\ \text{if } x \rightarrow -x \quad 2f(-x) - 3f(x) &= \varepsilon x^2 + 2 \xrightarrow{\times 2} 4f(-x) - 6f(x) = 12x^2 + 3x \\ -2f(x) &= 20x^2 + x \rightarrow f(x) = -\frac{20x^2 + x}{2} \rightarrow f(x) = -10x^2 - \frac{x}{2} \end{aligned}$$

$$\begin{aligned} (2f(0) = 3m-1) &\xrightarrow{\times 4} 4f(0) = 12m-4 \\ (4f(0) = 14+2m+3m-1) &\rightarrow (4f(0) = 14+5m) \\ 12m-4 &= 14+5m \rightarrow 7m = 18 \rightarrow m = 18/7 \\ f(0) &= 4/14 \end{aligned}$$

4

$$\begin{aligned} \text{if } x &\rightarrow -1 \\ 2f(-1) &= \frac{3+12+3}{-1} \rightarrow -18 \\ f(-1) &= -9 \end{aligned}$$

5

$\begin{cases} f(x) = (x-1)\sqrt{1-x} & Df \rightarrow (-\infty, 1] \\ g(x) = -\sqrt{(1-x)^3} & Dg \rightarrow (-\infty, 1] \end{cases}$ متساوی ✓ $\downarrow$ $-\sqrt{(1-x)^3} = -\sqrt{(1-x)^2(1-x)} \rightarrow - 1-x \sqrt{1-x} \rightarrow (x-1)\sqrt{1-x}$ $\leftarrow$ حتماً +	۶
$\begin{cases} f(x) = x\sqrt{x} & Df \rightarrow [0, +\infty) \\ g(x) = \sqrt{x^3} & Dg \rightarrow [0, +\infty) \end{cases}$ متساوی ✓ $\downarrow$ $x \sqrt{x} \xrightarrow{+0} x\sqrt{x}$	۷
$\begin{cases} f(x) = [\sqrt{x} - [\sqrt{x}]] & Df \rightarrow [0, +\infty) \\ g(x) = \sqrt{x - x } & Dg \rightarrow [0, +\infty) \end{cases}$ متساوی ✓ $\downarrow$ $\text{if } x \geq 0 \quad \sqrt{x - x } \Rightarrow 0$ $x - [x]$  $[x - [x]]$ 	۸
$Df \cap Dg \rightarrow \{1, 2, 3, 0\}$ الف) $\left(\frac{f+g}{f-g}\right)(1) \rightarrow \frac{2+1}{2-1} = 3$ ب) $\left(\frac{f+g}{f-g}\right)(2) \rightarrow \frac{3+3}{3-3} = \frac{6}{0} \times$ تن ج) $f(0)g(-1) \rightarrow 0 \times 1 = 0$	۹
$f(x) = \{(2, 1), (-1, 4), (0, 5), (-2, 2), (3, -1)\}$ الف) $g(x) = f(3x-1)$ $g(x) = \{(1, 1), (0, 4), (\frac{1}{3}, 5), (-\frac{1}{3}, 2), (\frac{2}{3}, -1)\}$ ب) $h(x) = f(x)$ $h(x) = \{(2, 1), (-2, 1), (0, 5), (3, -1), (-3, -1)\}$	۱۰