

$$\begin{aligned} f(\Delta), (a+1)(\Delta+2), \forall a \in \mathbb{Z} \Rightarrow 2f(\Delta), 12a+12 \\ f(-2), 3a-2 \Rightarrow f(-2)+a, 3a-2 \end{aligned} \quad \left\{ \begin{aligned} 2f(\Delta), f(-2)+a \Rightarrow 12a+12, 3a-2 \Rightarrow 12a+12 \\ 12a+12, 3a-2 \Rightarrow 12a+12, 3a-2 \end{aligned} \right.$$

$$f(x), \sqrt{x} + \frac{1}{\sqrt{x}} + 2 = \frac{x+1+\sqrt{x}}{\sqrt{x}} \Rightarrow f(\sqrt{x}) + f(\sqrt{x}) = \frac{\sqrt{x}+1+\sqrt{x}}{\sqrt{x}-\sqrt{x}} + \frac{\sqrt{x}+1+\sqrt{x}}{\sqrt{x}+\sqrt{x}} - 2$$

$$\frac{\sqrt{x}+1+\sqrt{x}}{\sqrt{x}-\sqrt{x}} \times \frac{\sqrt{x}+\sqrt{x}}{\sqrt{x}+\sqrt{x}} + \frac{\sqrt{x}+1+\sqrt{x}}{\sqrt{x}+\sqrt{x}} \times \frac{\sqrt{x}-\sqrt{x}}{\sqrt{x}-\sqrt{x}} = \frac{\sqrt{x}+1+\sqrt{x}-\sqrt{x}-1-\sqrt{x}+\sqrt{x}}{1}$$

$$2 + 2\sqrt{x} + 2\sqrt{x}$$

$$\begin{aligned} 2f(x) - 3f(-x), 2x^2 - x \quad \left\{ \begin{aligned} 4f(x) - 9f(-x), 12x^2 - 3x \\ 4f(x) + 3f(-x), 12x^2 + 2x \end{aligned} \right\} \Rightarrow -2f(-x) = x - x^2 - x \Rightarrow f(-x) = \frac{x - x^2 - x}{2} \\ 2f(-x) - 3f(x) = 2x^2 + x \quad \left\{ \begin{aligned} 4f(x) + 3f(-x), 12x^2 + 2x \\ 4f(x) - 9f(-x), 12x^2 - 3x \end{aligned} \right\} \\ \frac{-2x^2 + x}{2} - \frac{2x^2 + 2x}{2} = 3f(x) \Rightarrow \frac{-4x^2 - x}{2} = 3f(x) \Rightarrow f(x) = \frac{-4x^2 - x}{6}$$

$$\begin{aligned} (x+2)f(x) - 3xf(x+2) = 2x^2 - mx + 3m - 1 \Rightarrow x \in \mathbb{Z} \Rightarrow f(x) = 3m - 1 \\ x = -2 \Rightarrow 4f(-2), 14 + 2m + 3m - 1 \Rightarrow 4f(-2), 14 + 5m - 1 \Rightarrow 4f(-2), 14 + 5m - 1 \\ (2 + 5m) \cdot 3m - 1 \Rightarrow 12 + 15m = 4m - 3 \Rightarrow 11m = -15 \Rightarrow m = -\frac{15}{11} \\ f(x) = 12 + (2 + 5m) \cdot 3m - 1 = 12 + (2 + 5(-\frac{15}{11})) \cdot 3(-\frac{15}{11}) - 1 = 12 - \frac{15}{11} + \frac{15}{11} = 12 \end{aligned}$$

$$f(x) + f\left(\frac{1}{x}\right), \frac{3x^2 - 15x + 3}{x} \Rightarrow x = -1 \Rightarrow 2f(-1), \frac{3 + 15 + 3}{-1} = -18 \Rightarrow f(-1) = -9$$

$$D_f, (-\infty, -1] \quad D_g, (-\infty, -1] \quad R_f, (-\infty, 3] \quad R_g, (-\infty, 3] \quad \text{این دو تابع برابرند}$$

$$D_f, [1, +\infty) \quad D_g, [1, +\infty) \quad R_f, [1, +\infty) \quad R_g, [1, +\infty) \Rightarrow \text{این دو تابع برابرند}$$

$$D_f, [1, +\infty) \quad D_g, [1, +\infty) \quad R_g, \cdot \quad R_f, \cdot \quad \text{این دو تابع برابرند}$$

$$\frac{f(1)g(1)}{f(1)-g(1)}, \frac{2+1}{2-1}, 3$$

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$$\frac{f(2)g(2)}{f(2)-g(2)}, \frac{3+3}{3-3} \Rightarrow \times$$

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$$f(-1)g(-1) = 0, f(0)g(0) = 0$$

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