

امکان دارد

$$f(x) = \begin{cases} x^2 - 1 & (x) > 1 \Rightarrow x > 0 \\ x^2 + 1 & (x) < 1 \Rightarrow x < 0 \end{cases}$$

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$$\Rightarrow y = \begin{cases} \sqrt{(x^2 - 1) - 2 + 1} & x > 0 \\ \sqrt{(x^2 + 1) - 2 + 1} & x < 0 \end{cases} \quad (2)$$

$$\Rightarrow y = \begin{cases} \sqrt{x^2 - 2} & x > 0 \Rightarrow x > 0 \\ \sqrt{x^2 + 2} & x < 0 \Rightarrow -\frac{\sqrt{2}}{2} \leq x < 0 \end{cases} \Rightarrow -\frac{\sqrt{2}}{2} \leq x < 0 \Rightarrow y \in \left[-\frac{\sqrt{2}}{2}, 0\right)$$

$$y = \frac{x(1x^2 + 1x^2 + 4x + 1)}{(1x + 1)^2} = \frac{x(1x + 1)^2}{(1x + 1)^2} \Rightarrow y = \frac{x}{1x + 1} \quad (2) - 2$$

$$Dy = \mathbb{R} - \left\{-\frac{1}{2}\right\}$$

$$f(x) = \begin{cases} \frac{x^2 + 1x^2 - 2 + 1}{x^2 - 1} = \frac{x^2(2 + 1) - 1(2 + 1)}{x^2 - 1} = \frac{(x^2 - 1)(2 + 1)}{x^2 - 1} = \frac{2 + 1}{x \neq \pm 1} \\ \frac{a + 1}{2 + b} \end{cases} \quad (2)$$

$$f(2) = g(2) \Rightarrow 2 + c = 2 + 1 \Rightarrow c = 1, \quad g(1) = f(1) \Rightarrow 1 + 1 = \frac{a + 1}{b + 1} \Rightarrow 1b + 1 = a + 1$$

$$g(-1) = f(-1) \Rightarrow (-1) + 1 = \frac{-a + 1}{-1 + b} \Rightarrow b - 1 = -a + 1$$

$$\Rightarrow \begin{cases} 1b - a = -1 \\ b + a = 2 \end{cases} \Rightarrow \begin{cases} b = \frac{1}{2} \\ a = \frac{3}{2} \end{cases} \Rightarrow b + c = \frac{1}{2} + 1 = \frac{3}{2}$$

$$\left. \begin{aligned} g(3) &= \frac{3^2 - 1}{3^2 + a + b} \\ f(2) &= \frac{2 + 1}{2 - c} = \frac{3}{2 - c} \end{aligned} \right\} \Rightarrow \begin{aligned} f(2) &= g(2) \Rightarrow \frac{3}{2 - c} = \frac{3}{2^2 - (c + 1) + c} \\ &\Rightarrow a = -c - 1, b \geq c \end{aligned}$$

$$Df = \mathbb{R} - \{c\} \Rightarrow Dg = \mathbb{R} - \{c\} \Rightarrow g(2) = \frac{2^2 - 1}{(2 - c)^2} \Rightarrow 2^2 - 1c + c = 2^2 + a + b \Rightarrow \begin{cases} a = -1 - c \\ b \geq c \end{cases}$$

$$-c - 1 = -2c \Rightarrow c = 1, b = 1, a = -2 \Rightarrow a+b+c = -1+1+1 = 1 \quad \text{f(5) = 1}$$

$$\begin{aligned} f(2+1) &= (2-1)^2(2) = (2^2 - 2 + 1)(2) = 2^3 - 2^2 + 2 \\ f(-2+1) &= (-2-1)^2(-2) = (2^2 + 2 + 1)(-2) = -2^3 - 2^2 - 2 \end{aligned} \quad \left. \vphantom{\begin{aligned} f(2+1) \\ f(-2+1) \end{aligned}} \right\} + \quad \text{(2) } \Delta$$

$$\Rightarrow g(x) = 12x^2$$

$$f(1-2x) = \begin{cases} \sqrt{2+x} & x \leq 0 \\ \varepsilon\sqrt{2} & x > 0 \end{cases} \quad \begin{aligned} x=1 &\Rightarrow f(1) = \varepsilon\sqrt{1} = \varepsilon \\ x=-1 &\Rightarrow f(-1) = \sqrt{1+2} = 1 \end{aligned} \quad \text{(2) } \Delta$$

$$f(2+\sqrt{2}) = 2^{\varepsilon} \cdot \varepsilon \Rightarrow f(4) = \varepsilon^{\varepsilon} \cdot \varepsilon \cdot \varepsilon = \varepsilon^2 \cdot \varepsilon + 1 \Rightarrow f(4) = \varepsilon^3 + 1 \quad \text{(2) } \Delta$$

$$\begin{aligned} f(2-1) &= (2-1)^2 \cdot (2-1) \\ f(1-2) &= (1-2)^2 + (1-2) = -((2-1)^2 \cdot (2-1)) = -f(2-1) \end{aligned} \quad \text{(2) } \Delta$$

$$\Rightarrow \underbrace{f(2-1) + f(1-2)}_{-f(2-1)} = 0 \quad \checkmark$$

$$f-g = \{(1, k)\} \Rightarrow D_{f+g} = 1 \quad \begin{aligned} D_f: x \geq \frac{\varepsilon}{2} &\Rightarrow D_f = \left[\frac{\varepsilon}{2}, +\infty\right) \\ D_g: x \leq \frac{b}{\varepsilon} &\Rightarrow D_g = (-\infty, \frac{b}{\varepsilon}] \end{aligned} \quad \text{(2) } \Delta$$

$$\Rightarrow \frac{\varepsilon}{\varepsilon} a = \frac{b}{\varepsilon} = 1 \Rightarrow b = \varepsilon, a = \frac{\varepsilon}{\varepsilon} \quad \checkmark$$

$$\begin{aligned} f(1) &= k-1 \Rightarrow f(1) = 2k-2 \\ g(1) &= \varepsilon k \end{aligned} \quad \left. \vphantom{\begin{aligned} f(1) \\ g(1) \end{aligned}} \right\} \Rightarrow \begin{aligned} f(1) - g(1) &= 2k-2 - \varepsilon k = -k-2 \\ -k-2 &= k \Rightarrow k = -1 \quad \checkmark \end{aligned}$$

$$\Rightarrow \varepsilon a - \frac{b}{\varepsilon} - k = \varepsilon\left(\frac{\varepsilon}{\varepsilon}\right) - \frac{\varepsilon}{\varepsilon} - (-1) = \varepsilon \quad \checkmark$$

$$P_{f \times g} = P_f \cap P_g = \{1, \sqrt{5}\}$$

(4) = 10

$$\left. \begin{array}{l} P_f: m-x \geq 0 \Rightarrow x \leq m \Rightarrow P_f = (-\infty, m] \\ P_g: x^2 + x \geq 0 \Rightarrow x \geq -1 \Rightarrow P_g = [-1, +\infty) \end{array} \right\} \Rightarrow [-1, m] = \{1, \sqrt{5}\}$$

$$\Rightarrow m \geq \sqrt{5} \Rightarrow f(x) = \sqrt{5-x} + n$$

$$f - g(x) = f(x) - g(x) = 4\sqrt{x}$$

$$g(x) = \sqrt{x(x)+x} = x\sqrt{x}$$

$$f(x) = \sqrt{5-x} + n = x + n$$

$$\Rightarrow 4\sqrt{x} = x + n - x\sqrt{x} \Rightarrow n = 1\sqrt{x} - x$$

$$\Rightarrow n+m = 1\sqrt{x} - x + \sqrt{5-x} = 1\sqrt{x} + 5$$