

$$\left. \begin{aligned} x \geq 0 &\rightarrow 2x-1 = f(x) \rightarrow \sqrt{x} \rightarrow x \geq 0 \rightarrow [0, +\infty) \\ x < 0 &\rightarrow (x+3) = f(x) \rightarrow \sqrt{3x+9} \rightarrow x \geq -\frac{9}{3} \rightarrow \left[-\frac{9}{3}, 0\right) \end{aligned} \right\}$$

$$D_f = \left[-\frac{9}{3}, +\infty\right)$$

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$$\frac{3(1x^2 + 1x^2 + 4x + 1)}{((2x+1)^2)^2} = \frac{3(2x+1)^3}{(2x+1)^4} = \frac{3}{2x+1}$$

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

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$$\frac{x(x^2-1) + 2(x^2-1)}{(x^2-1)} = x+2 \rightarrow x+2 = x+c \rightarrow \boxed{c=2}$$

$$x=1 \rightarrow \frac{a+2}{b+1} = c+1 = 3 \rightarrow 2b+3 = a+2 \rightarrow a-2b=1$$

$$x=-1 \rightarrow \frac{2-a}{b-1} = c-1 = 1 \rightarrow b-1 = 2-a \rightarrow a+b=3$$

$$\boxed{b+c=3} \quad \boxed{2b=2 \rightarrow b=1}$$

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$$f(x) = \frac{x+1}{x-c} \cdot \frac{x(x-1)}{x(x-1)} \rightarrow \frac{x^2-1}{(x-c)(x-1)}$$

$$D_f = D_g = \mathbb{R} - \{c\} \rightarrow \underbrace{(x-c)(x-1)}_{\text{مخرج}} \rightarrow c=1 \rightarrow x^2+ax+b = x^2-2x+1$$

$$\Rightarrow a=-2, b=1$$

$$a+b+c = -2+1+1 = \boxed{0}$$

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$$g(x) = (x-2)^2(x) + \underbrace{(-x-2)}_{(x+2)^2}(-x) = x[(x-2)^2 - (x+2)^2]$$

$$x(x^2-4x+4 - x^2-4x-4) = -1x^2$$

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$$f(-1) = f(1-2x) \Rightarrow x=1 \Rightarrow \sqrt[3]{x} = \sqrt[3]{1}$$

$$f(3) = f(1-2x) \Rightarrow x=-1 \Rightarrow \sqrt[3]{x+2} = -1+2=1$$

$$\underline{\underline{f+1=2}}$$

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$$x+\sqrt{x}=7 \Rightarrow x=9 \rightarrow x^{\frac{1}{2}}+2x^{\frac{1}{2}}=2\sqrt{9}+12=24 \wedge$$

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$$f(x) = x(x+1)(x-1)$$

$$f(x-1) + f(-(x-1)) = x(x-1)(x-2) - x(x-1)(x-2) = 0$$

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$$\left. \begin{aligned} f(x)-2a \geq 0 &\rightarrow f(x) \geq 2a \rightarrow x \geq \frac{2a}{f} \xrightarrow{x=1} a = \frac{f}{3} \\ b-f(x) \geq 0 &\rightarrow f(x) \leq b \rightarrow x \leq \frac{b}{f} \xrightarrow{x=1} b = f \end{aligned} \right\} \begin{array}{l} \text{نقطه در } a \\ \text{تقریب به بیشترین} \\ \text{اشتراک دو دامنه برابر است.} \end{array}$$

$$2\sqrt{f(x)-2a} + 2K - 2 - \sqrt{b-f(x)} - 3K = 2\sqrt{0} - \sqrt{0} - 2 - K = -K - 2 = K$$

$$2K = -2 \rightarrow K = -1$$

$$2a - \frac{b}{f} - K = f - 2 + 1 = 3$$

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$$\left. \begin{aligned} Dg = [-1, +\infty) \quad \frac{Df \cap Dg = [-1, \sqrt{2}]}{Df \cap Dg = [-1, \sqrt{2}]} \quad Df = (-\infty, +\sqrt{2}] \end{aligned} \right\} m = +\sqrt{2}$$

$$m-x \geq 0 \rightarrow m \geq x$$

$$f-g(x) = \sqrt{f+x} - \sqrt{x} = 2 - 2\sqrt{x} + n = 4\sqrt{x} \Rightarrow n = 4\sqrt{x} - 2$$

$$m+n = 4\sqrt{x} - 2 + \sqrt{2} = 4\sqrt{x} + \omega$$

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