

الف) $f(x) \rightarrow D_f = x | x \geq 0 \cup \frac{1}{x}$ $g(x) = D_g = \mathbb{R}$ برابر نیست

ب) $f(x) \rightarrow \Delta$ $g(x) \rightarrow \mathbb{R}$ برابر

ج) $D_f = \mathbb{R} \setminus \{0\}$ $D_g = \mathbb{R} \setminus \{0\}$ برابر

الف) $f(x) \left[1 - \frac{1}{x^2+1} \right] = 0$ $g(x) = [x - [x]] = 0$ برابر است

ب) $D_f = [2x] \neq 0 \rightarrow x \neq [0, \frac{1}{2}) = \mathbb{R} - \{[0, \frac{1}{2})\}$ $D_g = 2[x] \neq 0 \rightarrow [x] \neq 0 \rightarrow [0, 1)$ برابر نیست

ج) $D_f \rightarrow x - |x| > 0 \rightarrow D_f = \emptyset$ $D_g \rightarrow |x| - x > 0 \rightarrow (0, +\infty)$ برابر نیست

د) $\frac{x^3-x}{x-1} = \frac{x(x^2-1)}{x-1} \rightarrow \frac{x(x-1)(x+1)}{x-1} = x(x+1)$ برابر

$f(x) + g(x) = x^2 + x + 1$ $f'(x) = (x^2+1)' = 2x + 2x + 1$

$f(x) - g(x) = x^2 - x + 1$ $g'(x) = (x)^2 = x^2$

$2f(x) = \frac{2x^2+2}{2(x^2+1)} \rightarrow f(x) = x^2+1$ برابر

$g(x) = x$ برابر

$g(x) \times f(g(x)) = (x + \sqrt{x^2-4})(x - \sqrt{x^2-4}) \rightarrow x^2 - x^2 + 4 = 4$

$x^2 - 4 \geq 0 \rightarrow x \leq -2$ برابر

$g(x) = \frac{x-b}{2x^2-3x-a}$ $D_g = \mathbb{R} - \{\frac{a}{2}, -1\}$ برابر

$f(x) = \frac{ax+2}{(x-\frac{a}{2})(x+1)}$ برابر

$g(x) = f(x) \rightarrow 2ax^3 - 3ax^2 - 2ax + 4x^2 - 4x - 10$ برابر

$am - bn = \frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$ برابر

$$f(x) = c \rightarrow \frac{bx+2}{ax+b} = c \rightarrow bx+2 = c(ax+b) \rightarrow ac = b, c = \frac{b}{a}$$

$$ax+b=0 \rightarrow ax=-b \rightarrow a = -\frac{b}{x} \rightarrow b \times \frac{b}{a} = 2$$

$$\frac{ab}{c} \rightarrow \frac{-b}{\frac{b}{a}} \times b = -b \rightarrow \left(\frac{+1}{-1} \right) \rightarrow (-1)$$

$$\frac{b^2}{a} = 2 \rightarrow b^2 = 2a$$

$$pf = \{(-1, 4), (2, 1), (3, -4), (0, 1)\} \rightarrow f = \{(1, 2), (2, 4), (3, -2), (0, \frac{1}{2})\}$$

$$2g = \{(2, 1), (3, 3), (-1, -1), (0, 0)\}, f+g = \{(-1, -2), (2, 1), (3, 4)\}$$

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

$$a - 3b = c \rightarrow -1 - 3(-2) = 5 \rightarrow a = 5$$

$$3a - 2b = 1 \rightarrow 3(-1) - 2b = 1 \rightarrow -2b = 4 \rightarrow b = -2$$

$$a = d = -1$$

$$d + c = -1 + 5 = 4$$

$$f(x) = g(x) \rightarrow \frac{\sqrt{-a^2+a-m}}{-(a^2-a+m)} = b$$

$$m = \frac{1}{a} \rightarrow \sqrt{-(a-\frac{1}{a})^2} \rightarrow -|a-\frac{1}{a}| = b$$

$$-a + \frac{1}{a} = b$$

$$a + b = \frac{1}{a}$$

$$g(x) = f(x) \rightarrow P_g, P_f = c \rightarrow \text{مخرج } f(x) \text{ را مربع کامل می کنیم}$$

$$x^2 + 4x + b$$

$$\frac{2}{1-(-3)} = \frac{2+a}{14} \rightarrow \text{با عدد 14 برای ابطال مخرج } n=1$$

$$c = -3, b = 9 \rightarrow -3 = -3 \rightarrow (x+3)^2$$

$$22 = 1 + 4a \rightarrow 4a = 21 \rightarrow a = \frac{21}{4}$$

$$a + b + c = 13$$