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نام و نام خانوادگی ......پریناز اسمعیلی...... پاسخنامه تشریحی تکلیف شماره ..۸.. کلاس ...ریاضی گروه c...

	الف	ب	ج	د
۱	$D_f = R^{+} \cup \{0\}$ $D_g = \mathbb{R}$ $D_g \neq D_f$ توابع باهم برابر نیستند	$D_f = \mathbb{R}$, $D_g = \mathbb{R}$ $f(x) = \frac{x^3+4x^2+3+x+4}{x^2+6x+7}$ $f(x) = \frac{x^2+6x+7}{x^2+6x+7} = 1$ $f(x) = g(x) = 1$ توابع باهم برابرند.	$\sin x \neq \frac{3}{2} \rightarrow D_f = \mathbb{R}$ همواره برقرار است $D_g = \mathbb{R}$ $f(x) = \frac{2\sin x(2\sin x - 3)}{2\sin x - 3}$ $f(x) = g(x) = 2\sin x$ توابع باهم برابر هستند	$D_f = \mathbb{R} - \{0\}$ $D_g = \mathbb{R} - \{0\}$ $f(x) = g(x)$ توابع باهم برابرند
۲	$D_f = \mathbb{R}$ $D_g = \mathbb{R}$ $f(x) = g(x) = 0$ توابع برابرند	$[2x] \neq 0 \rightarrow 0 \leq x < \frac{1}{2}$ $D_f = \mathbb{R} - [0, \frac{1}{2})$ $2[x] \neq 0 \rightarrow 0 \leq x < 1$ $D_g = \mathbb{R} - [0, 1)$ $D(f) \neq D_g \rightarrow$ توابع باهم برابر نیستند	$D_f = \oplus x, \ominus x, \odot x \Rightarrow \varnothing$ $D_g = \oplus 2, \ominus ✓, \odot x \Rightarrow R^{-}$ $D_f \neq D_g \Rightarrow$ توابع برابر نیست	$D_f = \mathbb{R}$ $D_g = \mathbb{R}$ $f(x) = \frac{x(x-1)(x+1)}{x-1}$ $f(x) = x^2 + x$ $f(x) = g(x)$ توابع برابر هستند.

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$$\begin{cases} f(x) + g(x) = x^2 + x + 1 \\ f(x) - g(x) = x^2 - x + 1 \end{cases}$$

$$2f(x) = 2x^2 + 2 \Rightarrow f(x) = x^2 + 1$$

$$g(x) = x$$

$$f^2(x) + g^2(x) = x^4 + 2x^2 + 1 + x^2 = x^4 + 3x^2 + 1$$

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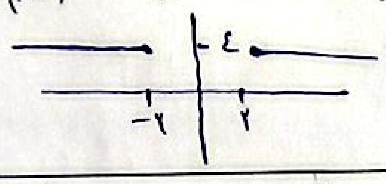
$$f \cdot g = (x - \sqrt{x^2-4})(x + \sqrt{x^2-4}) = x^2 - (x^2 - 4) = x^2 - x^2 + 4$$

مزدوج

$$f \cdot g = 4$$

$$\Rightarrow D_f = \begin{cases} x \geq 2 \\ x \leq -2 \end{cases} \Rightarrow D_f = [2, +\infty) \cup (-\infty, -2]$$



$$g(x) \Rightarrow 2x^2 - 3x - 5 \Rightarrow x^2 - 3x - 10 \neq 0 \Rightarrow x = \frac{5}{2},\ x = -1 \Rightarrow f(x) = \frac{ax+2}{(x-\frac{5}{2})(x+1)} =$$

$$f(x) = \frac{ax+2}{x^2 - \frac{3}{2}x - \frac{5}{2}} \Rightarrow m = +\frac{3}{2},\ n = -\frac{5}{2} \Rightarrow 2x^2 - 3x - 5 = 2(x^2 - \frac{3}{2} - 5)$$

$$g(x) = \frac{x-b}{(2x-5)(x+1)} \quad \begin{cases} x \neq -1 \\ x \neq \frac{5}{2} \end{cases} \Rightarrow D_g = \mathbb{R} - \{-1, \frac{5}{2}\} \Rightarrow \frac{x-b}{2x^2-3x-5} = \frac{ax+2}{x^2 - \frac{3}{2} - \frac{5}{2}}$$

$$2ax + 4 = x - b \quad \begin{cases} x = 0 \Rightarrow -b = 4 \rightarrow b = -4 \\ x = 1 \Rightarrow 2a + 4 = 5 \rightarrow a = \frac{1}{2} \end{cases} \Rightarrow am - bn = \frac{1}{2} \times \frac{3}{2} - (-4)(-\frac{5}{2}) =$$

$$\frac{3}{4} - \frac{40}{4} = -\frac{37}{4}$$

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$\dfrac{bx+2}{8x+b} \xRightarrow{\text{طبق اصل همواره ثابت / و تفقی بین ثابت}} b^2 = 16 \Rightarrow b = \pm 4 \Rightarrow g(x) = f(x) \Rightarrow \dfrac{bx+2}{8x+b} = c \Rightarrow$

$8xc + bc = bx + 2 \Rightarrow \begin{cases} b = 4 \to c = \frac{1}{2} \\ b = -4 \to c = -\frac{1}{2} \end{cases} \Rightarrow x \neq a \Rightarrow$ ؟

$b = 4 \to 8x + 4 \neq 0 \to 4(2x+1) \neq 0 \to x \neq a \neq -\frac{1}{2} \Rightarrow a = -\frac{1}{2} \Rightarrow \frac{ab}{c} = \dfrac{-\frac{1}{2} \times 4}{\frac{1}{2}} = -4$

$b = -4 \to 8x - 4 \neq 0 \to x \neq a \neq \frac{1}{2} \to a = \frac{1}{2} \Rightarrow \frac{ab}{c} = \dfrac{\frac{1}{2} \times -4}{-\frac{1}{2}} = 4$

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$2f = \{(-1,4),(2,8),(3,-4),(0,1)\} \Rightarrow f = \{(-1,2),(2,4),(3,-2),(0,\frac{1}{2})\}$

$f+g = \{(-1,-2),(2,8),(3,4)\}$

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

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$f(x) = g(x) \Rightarrow a = -1 , \quad 3a - 2b = 1 \Rightarrow -3 - 2b = 1 \to -2b = 4$

$b = -2 \Rightarrow a = d = -1 \Rightarrow c = a - 3b \Rightarrow c = -1 + 6 = 5$

$c + d = 5 - 1 = 4$

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$D_f = -x^2 + x - m \geq 0 \Rightarrow -(x^2 - x + m) \geq 0 \Rightarrow x^2 - x + m \leq 0$

$x^2 - x + m \leq 0 \Rightarrow \Delta = 1 - 4m = 0 \Rightarrow 4m = 1 \Rightarrow m = \frac{1}{4}$

$x = \dfrac{-1}{-2} = +\frac{1}{2} \Rightarrow f(x) = \sqrt{-x^2 + x - m} \Rightarrow f(\tfrac{1}{2}) = \sqrt{-\frac{1}{4} + \frac{1}{2} - \frac{1}{4}} = \sqrt{0}$

$\left.\begin{array}{l} a = x = \frac{1}{2} \\ b = f(x) = 0 \end{array}\right\} a + b = \frac{1}{2} + 0 = \frac{1}{2}$

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$D_g = \mathbb{R} - \{c\} \Rightarrow \Delta_{\text{مخرج } f(x)} = 36 - 4b = 0 \to$ زیرا تنها یک ریشه دارد

$36 = 4b \Rightarrow b = 9 \Rightarrow f(x) = \dfrac{2x+a}{x^2+6x+9} = \dfrac{2x+a}{(x+3)^2} \Rightarrow (x+3)^2 \neq 0 \Rightarrow$

$x \neq -3 \Rightarrow D_f = \mathbb{R} - \{-3\} \Rightarrow D_f = D_g \Rightarrow c = -3 \Rightarrow f(x) = g(x)$

$\dfrac{2x+a}{(x+3)(x+3)} = \dfrac{2}{x+3} \Rightarrow (2x+a)(x+3) = 2(x+3)(x+3) \Rightarrow$

$2x + a = 2x + 6 \Rightarrow a = 6 \Rightarrow a + b + c = 9 + 6 - 3 = 12$

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