28 - کتاب سراسری
د (1

$$\frac{a^2+2a}{a^2-4} = a^2+2a = a^2-4$$

$$2a = -4 \rightarrow \underline{a=-2}$$

(2

$$f(2) = 3 \rightarrow \frac{2^2+a}{4-b} = 3 \rightarrow 4+a = 12-3b$$

$$a+3b = 8 \longrightarrow a-3 = 8 \rightarrow \underline{a=11}$$

$$g(2) = 3 \rightarrow 2\times 2+b = 3 \rightarrow 4+b=3$$

$$\underline{b=-1}$$

$$f(1) \rightarrow \frac{1+a}{2-b} \rightarrow \frac{1+11}{2-(-1)} = \frac{12}{3} = 4$$

(3

$$D_f = \mathbb{R} - \{-1, 4\}$$

$$2x^2+ax+b=0 \rightarrow 2-a+b$$

$$2x^2+ax+b=0 \rightarrow 32+4a+b$$

$$2-a+\cancel{b} = 32+4a+\cancel{b}$$

$$2-a = 32+4a$$

$$-30 = 5a$$

$$\underline{-6=a}\ /\ \underline{b=-8}$$

$$f(x) = \frac{4x+1}{2x^2-6x-8}$$

$$f(1) = \frac{4+1}{2-6-8} = \frac{5}{-12} = \frac{-5}{12}$$

(4

$$D_f = \mathbb{R} - \{-1\}$$

$$-4x^2+ax+b=0$$

$$f(x) = \frac{x^3-\sqrt{4}}{-4x^2+ax+a+4}$$

$$(x=-1) \rightarrow -4-a+b=0$$

$$b-a=4$$

$$b=a+4$$

$$a+b=?\ 2a+4$$

$$a+a+4=2a+4$$

$$a^2+16a+64=0$$

$$(a+8)^2 \rightarrow a=-8$$

$$-16+4=\underline{-12}$$

(5

$$\mathbb{R}-\{1\}$$

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

$$x^2+mx+1 \rightarrow \Delta<0 \rightarrow m^2-4<0 \rightarrow m^2<4 \rightarrow -2<m<2$$

$$(-2, 2)$$

۶)

$$f(x) = \sqrt{4 - \frac{1}{x^2}} \to \sqrt{\frac{4x^2 - 1}{x^2}} \to 4x^2 - 1 \geq 0 \to 4x^2 \geq 1 \to x^2 \geq \frac{1}{4} \to \begin{cases} x \geq +\frac{1}{2} \\ x \leq -\frac{1}{2} \end{cases}$$

28 - گزینه یک

$$\begin{cases} 4 - \frac{1}{x^2} \geq 0 \\ x^2 \neq 0 \to x \neq 0 \end{cases}$$

$$\begin{array}{ccccccc} & -\frac{1}{2} & & 0 & & \frac{1}{2} & \\ - & | & + & | & - & | & + \end{array}$$

x آخر $\to (0)$

$$D_f = [-\tfrac{1}{2}, 0) \cup [\tfrac{1}{2}, +\infty)$$

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۷)

$$\Delta \leq 0 \to 4m^2 - 4m \leq 0 \to 4m^2 \leq 4m$$

$$\underline{m = [0, 1]} \leftarrow \text{تمام} \leftarrow \underline{m \leq 1}$$

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۸)

$$f(x) = g(x) \to 2x + 1 = \frac{4x^2 - 1}{2x - 1} \to (2x+1)(2x-1) = 4x^2 - 1$$

به ازای $x \neq \alpha$ باهم برابرند

$$4x^2 - 1 = 4x^2 - 1$$

مخرج به ازای α برابر صفر می‌شود

$$2\alpha - 1 = 0 \to \alpha = \frac{1}{2}$$

$$\alpha + K = \frac{1}{2} \qquad 2x + 1 = 4x + K \to x = \frac{1}{2} \to K = 0$$

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۹)

$$\overset{x \neq \alpha}{f(x) = g(x)} \to \frac{9x^2 - 4}{3x + 2} = 3x + b \to \frac{(3x-2)\cancel{(3x+2)}}{\cancel{3x+2}} = 3x - 2 = 3x + b$$

$$\underline{b = -2}$$

$$3x + b = 3\alpha x + 4$$

$$-2$$

$$3x - 2 = 3\alpha x + 2$$

$$3x - 3\alpha x = 4 \to x(1 - \alpha) = \frac{4}{3} \to 1 - \alpha = \frac{4}{3x} \to \alpha - 1 = \frac{-4}{3x} + 1$$

$$\alpha = \frac{-4}{3x} + 1$$

$$\alpha = \frac{-4}{3 \times \frac{-2}{3}} + 1 = 3 \qquad x = \frac{-2}{3}$$

$$\alpha - b = 3 - (-2) = 5$$

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۱۰)

$$x^2 - 4 \to \frac{(x+2)\cancel{(x-2)}}{\cancel{x-2}} = \underset{f(x)}{x+2} = \underset{g(x)}{x+2} \qquad x \neq 2$$

$$2\alpha^2 + \alpha x = x + 2$$

$$\alpha(2\alpha + x) = x + 2 \to x = 2 \to \alpha(2\alpha + 2) = 4$$

$\alpha \to -2 \to 2\alpha^2 + \alpha x \to 8 - 2x \neq x + 2$ غ.ق.ق

$$2\alpha^2 + 2\alpha = 4$$

$$2\alpha^2 + 2\alpha = 4$$

$$\alpha^2 + 2\alpha - 8 \to$$

$$(\alpha + 4)(\alpha - 2) \to \text{ق.غ} \to \underline{-2, 1}$$

$$\underline{\alpha = 1}$$