نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ۲۸ ..... کلاس ۱۳.....

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$$a^2 + 2a = a^2 - 4 \Rightarrow 2a = -4 \Rightarrow \boxed{a = -2}$$

از این استفاده می‌کنیم

$$\begin{cases} x^2 + 2x & x \geq a \\ ax - 4 & x \leq a \end{cases}$$

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$$g(x) \xrightarrow{(2,3)} 4 + b = 3 \Rightarrow (b = -1)$$

$$f(x) = \frac{x^2 + a}{2x + 1} \xrightarrow{(2,3)} \frac{4 + a}{4 + 1} = 3 \Rightarrow 4 + a = 15 \Rightarrow (a = 11)$$

$$\frac{x^2 + 11}{2x + 1} \longrightarrow f(1) = \frac{12}{3} = (4)$$

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$$2x^2 + ax + b = k(x + 1)(x - 4)$$

$$\Downarrow$$

$$2x^2 + ax + b = k(x^2 - 3x - 4) \Rightarrow k = 2 \Rightarrow 2x^2 - 6x - 8$$

$$\Downarrow$$

$$(a = -6) \quad (b = -8)$$

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

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$$-4x^2 + ax + b = -4(x + 1)^2 \Rightarrow -4x^2 - \underbrace{8}_{a}x - \underbrace{4}_{b} \Rightarrow (a + b = -12)$$

$R - \{$ ریشه‌ی مخرج $\}$

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$$f(x) = \frac{2x}{(x - 1)(x^2 + mx + 1)}$$

$D_{f(x)} = R - \{1\}$ ، $\Delta < 0 \Rightarrow m^2 - 4 < 0 \Rightarrow m^2 < 4$

$$\Downarrow$$

$-2 < m < 2 \Rightarrow (-2, 2)$

$f(x) = \sqrt{4 - \frac{1}{x^2}}$

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$4 - \frac{1}{x^2} \geq 0 \Rightarrow \frac{4x^2 - 1}{x^2} \geq 0$

$x^2 = 0$ (ریشه مخرج)

$4x^2 - 1 = 0 \Rightarrow x = \pm\frac{1}{2}$

x	$-\infty$		$-\frac{1}{2}$		0		$\frac{1}{2}$		$+\infty$
$4x^2-1$		$+$	0	$-$		$-$	0	$+$	
x^2		$+$		$+$	0	$+$		$+$	
$f(x)$		$+$	0	$-$	∄	$-$	0	$+$	

$D_f = (-\infty, -\frac{1}{2}] \cup [\frac{1}{2}, +\infty)$

$mx^2 + 2mx + 1$ ناطق باشد

$m > 0$

$\Delta < 0 \Rightarrow 4m^2 - 4m < 0$

$4m(m-1) < 0$

m	$-\infty$		0		1		$+\infty$
$4m$		$-$	0	$+$		$+$	
$m-1$		$-$		$-$	0	$+$	
		$+$		$-$		$+$	

$0 < m < 1$

$D = \{0 < m < 1\}$

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$\frac{(2x-1)(2x+1)}{(2x-1)} = 2x+1$

$f(x) = \begin{cases} \frac{4x^2-1}{2x-1} = 2x+1 & x \neq \frac{1}{2} \\ 4x + k & x = \frac{1}{2} \end{cases}$

$f(\frac{1}{2}) = 2 \times \frac{1}{2} + 1 = 2$

$4 \times \frac{1}{2} + k = 2 \Rightarrow k = 0$

$\Rightarrow 0 + \frac{1}{2} = \frac{1}{2}$

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$\frac{9x^2 - 4}{6x + 4} = \frac{(6x-4)(6x+4)}{(6x+4)} = 6x - 4 \Rightarrow b = -4$

$g(x) = 6x - 4 \Rightarrow g(-\frac{2}{3}) = -4 - 4 = -8$

$f(-\frac{2}{3}) = -8 \Rightarrow -8a = 4 + 4a \Rightarrow -12a = 4 \Rightarrow a = -\frac{1}{3}$

$a - b = 3$

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$g(x) = 2x + 1 = 5$

$f(x) = 2a^2 + 2a$

$2a^2 + 2a = 5 \Rightarrow 2a^2 + 2a - 5 = 0$

$\div 2 \Rightarrow a^2 + a - 2 = 0$

$(a+2)(a-1) = 0$

$a = 1, -2$

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