نام و نام خانوادگی ....[illegible]........ پاسخنامه تشریحی تکلیف شماره ..۲۸.. کلاس .....دهم [illegible] A........

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$$f(x) = \begin{cases} x^2 + 2x & ; \ x \geq a \\ ax - 4 & ; \ x < a \end{cases}$$

$a^2 + 2a = a^2 - 4$

$a = -2$

$a = -2$

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$f(x) = \dfrac{x^2 + a}{2x - b} \rightarrow f(2) = \dfrac{4 + a}{4 - b}$

$g(x) = 2x + b \rightarrow g(2) = 4 + b$, $b = -1$

$\Rightarrow \dfrac{4 + a}{4 - b} = 4 + b$

$16 - b^2 = 4 + a$

$12 = b^2 + a$

$a = 11$

$f(1) = \dfrac{1 + 11}{2 - (-1)} = \dfrac{12}{3} = 4$

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$f(x) = \dfrac{4x + 1}{2x^2 + ax + b}$

$R - \{-1, 4\} = D_{f(x)}$

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

$x = -1 \rightarrow 2 - a + b = 0 \xrightarrow{4\times} 8 - 4a + 4b = 0$

$x = 4 \rightarrow 32 + 4a + b = 0 \rightarrow 32 + 4a + b = 0$

$40 + 5b = 0$

$5b = -40$

$b = -8$

$-6 = a$

$f(1) = \dfrac{5}{2 - 6 - 8} = \dfrac{-5}{12}$

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

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

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

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

$a^2 + 16b = \Delta = 0$

$(b - 4)^2 + 16b = 0$

$b^2 + 16 + 8b = 0$

$(b + 4)^2 = 0$

$b = -4$ $\quad a = -8$

$a + b = -12$

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

$D_f = R - \{1\}$

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

$m^2 - 4 < 0$

$m^2 < 4$

$m < 2$, $m > -2$ $\Rightarrow -2 < m < 2$

$m \rightarrow -2 < m < 2$

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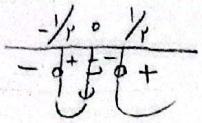
$$f(x)=\sqrt{4-\frac{1}{x^2}}$$

$$\sqrt{\frac{4x^2-1}{x^2}}\geq 0 \qquad D=[-\tfrac{1}{2},0)\cup[\tfrac{1}{2},+\infty)$$

$4x^2-1=0$

$4x^2=1 \quad x\neq 0$

$x^2=\tfrac{1}{4}\rightarrow x=\pm\tfrac{1}{2}$



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$$f(x)=\sqrt{mx^2+4mx+1}\geq 0$$

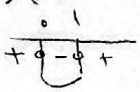
$Df=R \quad m=0 \rightarrow f(x)=1$

$m\rightarrow \quad \Delta\leq 0 \qquad 4m(m-1)\leq 0$

$[0,1] \quad \Delta=4m^2-4m\leq 0$

$m=1$

$m=0$



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$$f(x)=\begin{cases}\dfrac{4x^2-1}{2x-1} & ;\ x\neq a \rightarrow x\neq \tfrac{1}{2} \\ 4x+k & ;\ x=\tfrac{1}{2} \qquad a=\tfrac{1}{2}\end{cases}$$

$\rightarrow 2+k$

$g(x)=2x+1 \rightarrow 2=2+k$

$k=0$

$a+k=\tfrac{1}{2}$

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$$f(x)=\begin{cases}\dfrac{9x^2-4}{3x+2} & ;\ x\neq -\tfrac{2}{3} \rightsquigarrow \dfrac{(3x+2)(3x-2)}{3x+2}=3x-2 \ ,\ x=-\tfrac{2}{3} \\ 3ax+2 & ;\ x=-\tfrac{2}{3} \rightsquigarrow -2a+2\end{cases}$$

$g(x)=2x+b \rightarrow -2$

$-2-2=-2a+2$

$-4=-2a$

$a=2$

$a-b=2-(-2)=4$

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$$f(x)=\begin{cases}\dfrac{x^2-4}{x-2} & ;\ x\neq 2 \quad \dfrac{(x-2)(x+2)}{x-2}=x+2 \\ 2a^2+ax & ;\ x=2 \rightarrow 2a^2+2a\end{cases}$$

$g(x)=x+2 \qquad 4=2a^2+2a \qquad a=\dfrac{-2\pm 6}{4}=\boxed{-2,1}$

$2a^2+2a-4=0$

$\Delta=4-4(-8)=4+32=36$