Mo Tu We Th Fr Sa Su

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فاصله اجرای — تکلیف شماره ۲۸ — دهم دختر A

$$f(x)=\begin{cases} x^2+2x & ; x\geq a \\ ax-4 & ; x\leq a\end{cases} \qquad a=? \qquad -1$$

$x=a \rightsquigarrow \cancel{a^2}+2a=\cancel{a^2}-4 \to 2a=-4 \to a=-2$

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$f(x)=\dfrac{x^2+a}{2x-b}$, $g(x)=2x+b \rightsquigarrow (2,3) \Rightarrow f(1)=?$ -2

$f(2)=\dfrac{4+a}{4-b}=3 \rightsquigarrow 4+a=12-(3\underset{-1}{b}) \rightsquigarrow 4+a=15 \to a=11$

$g(2)=4+b=3 \rightsquigarrow b=-1 \Longrightarrow f(x)=\dfrac{x^2+11}{2x+1}$

$f(1)=\dfrac{12}{3}=4$

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$f(x)=\dfrac{4x+1}{2x^2+ax+b}$ $\quad D=\mathbb{R}-\{-1,4\} \rightsquigarrow f(1)=?$ -3

$8-\cancel{4a}+4b=0$

$\hookrightarrow 2x^2+ax+b\neq 0 \Rightarrow \begin{cases} x=-1 \to (2-a+b=0)\times 4 \\ x=4 \to 32+\cancel{4a}+b=0 \end{cases}$ $\quad 5b=-40 \hookrightarrow b=-8$, $a=-6$

$f(x)=\dfrac{4x+1}{2x^2-6x-8} \rightsquigarrow f(1)=-\dfrac{5}{12}$

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$f(x)=\dfrac{x^3-\sqrt{3}}{-4x^2+ax+b}$ $\quad D=\mathbb{R}-\{-1\}$ $\quad a+b=?$ -4

$-4x^2+ax+b\neq 0$ $\hookrightarrow$ ریشه مضاعف $\to -4(x+1)^2$ [illegible]

$-4(x^2+2x+1)=-4x^2\underset{a}{-8}x\underset{b}{-4}$ $\qquad a+b=-8-4=-12$

ریشه مضاعف

$f(x)=\dfrac{2x}{(x-1)(x^2+mx+1)}$ $\quad D=\mathbb{R}-\{1\}$ $\quad$ حدود $m=?$ -5

ریشه

$\hookrightarrow \begin{cases} x^2+mx+1 \ (\text{بدون ریشه}) \to \Delta=m^2-4<0 \to m^2<4 \to -2<m<2 \ \textcircled{1} \\ x^2+mx+1 \overset{x=1}{\rightsquigarrow} 1+m+1=0 \to m=-2 \ \textcircled{2} \end{cases}$

MRNOTE

اجتماع ①,② $\longrightarrow -2\leq m<2$

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$f(x)=\sqrt{4-\frac{1}{x^2}}$ $\to x\neq 0$, $D_f=?$

$4-\frac{1}{x^2}\geq 0 \to \left(4\geq \frac{1}{x^2}\right)\times x^2 \to 4x^2\geq 1 \to x^2\geq \frac{1}{4}$ $\begin{cases} x\geq \frac{1}{2} \\ x\leq -\frac{1}{2}\end{cases}$

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

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$f(x)=\sqrt{mx^2+2mx+1}$ $D=\mathbb{R}$ $m=?$

$mx^2+2mx+1=0$

$m=0 \rightsquigarrow 1\geq 0$ ✓ / $m\neq 0 \rightsquigarrow \Delta\leq 0 \Rightarrow 4m^2-4m\leq 0 \xrightarrow{\div 4} m(m-1)\leq 0$

$\begin{array}{ccccc} & 0 & & 1 & \\ + & & - & & + \end{array} \rightsquigarrow [0,1]\in m$

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

$g(\frac{1}{2})=2$ / $f(\frac{1}{2})=2+k \rightsquigarrow 2+k=2 \to \underline{k=0}$

$\frac{4(\frac{1}{4})-1}{1-1}\to \frac{0}{0} \rightsquigarrow x\neq\frac{1}{2} \Rightarrow \underline{a=\frac{1}{2}}$ $a+k=\frac{1}{2}$

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$f(x)=\begin{cases}\frac{9x^2-4}{3x+2} & ; x\neq -\frac{2}{3} \\ 3ax+2 & ; x=\frac{-2}{3}\end{cases}$ $g(x)=3x+b$; $a-b=?$

$x=1 \to f(1)=\frac{5}{5}=1$, $g(1)=3+b \Rightarrow 3+b=1 \to \underline{b=-2}$

$x=\frac{-2}{3} \to f(-\frac{2}{3})=-2a+2=-4 \to +2a=+6 \to \underline{a=3}$

$a-b=3-(-2)=\underline{5}$

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$f(x)=\begin{cases}\frac{x^2-4}{x-2} & ; x\neq 2 \\ 2a^2+ax & ; x=2\end{cases}$ $g(x)=x+2$ $a=?$

$x=2 \rightsquigarrow f(2)=2a^2+2a=4 \rightsquigarrow (2a^2+2a-4=0)\div 2 \rightsquigarrow a^2+a-2=0$

$(a+2)(a-1)=0 \rightsquigarrow a=1$ یا -2

MRNOTE