سایناداودی تکلیف ۲۸ دهم دفتر B3

۱) $a^2 + 2a = a^2 - 4 \rightarrow 2a = -4 \rightarrow a = -2$

۲) $g(2) = 4 + b = 3 \rightarrow b = -1 \qquad f(2) = \frac{4+a}{4-(-1)} = 3 \rightarrow 4 + a = 15 \rightarrow a = 11$

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

۳) $\begin{cases} 2(4)^2 + 4a + b = 0 \\ 2(-1)^2 - a + b = 0 \end{cases} \rightarrow \begin{cases} 4a + b = -32 \\ a - b = 2 \end{cases} \rightarrow 5a = -30 \rightarrow a = -6 ,\ b = -8$

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

۴) $-4(-1)^2 = a + b = 0 \rightarrow a - b = -4$

$-4(x+1)^2 = -4(x^2 + 2x + 1) = -4x^2 - 8x - 4 \rightarrow a = -8 ,\ b = -4$

$a + b = -8 - 4 = -12$

۵) $x^2 + mx + 1 = (x+1)^2 \rightarrow x^2 - 2x + 1 \rightarrow m = -2$

$\Delta < 0 \rightarrow m^2 - 4 < 0 \rightarrow m^2 < 4 \rightarrow -2 < m < 2 \Rightarrow m \in [-2, 2)$

۶) $4 - \frac{1}{x^2} \geq 0 \rightarrow 4 \geq \frac{1}{x^2} \rightarrow x^2 \geq \frac{1}{4} \rightarrow |x| \geq \frac{1}{2}$ یا $|x| \leq -\frac{1}{2}$

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

۷) $m > 0$

$\Delta \leq 0 \rightarrow 4m^2 - 4m \leq 0 \rightarrow 4m(m-1) \leq 0 \rightarrow 0 \leq m \leq 1$ $\Big\}\ m \in (0, 1]$

$m = 0 \rightarrow 0x^2 + 2(0)x + 1 \geq 0 \rightarrow 1 \geq 0 \xrightarrow{\text{درست}}$ همواره $\rightarrow m \in [0, 1]$

۸) $g(\frac{1}{2}) = 2(\frac{1}{2}) + 1 = 2 \qquad x \neq a \rightarrow 2a - 1 = 0 \rightarrow a = \frac{1}{2}$

$f(\frac{1}{2}) = 2 + k = 2 \rightarrow k = 0 \qquad a + k = \frac{1}{2}$

۹) $f(\frac{-2}{3}) = g(\frac{-2}{3}) \rightarrow -2a + 2 = -2 + b \rightarrow 2a + b = 0$

$f(0) = g(0) \rightarrow \frac{-1}{-1} = 1 = b \rightarrow b = 1 ,\ a = \frac{-1}{2} \rightarrow a - b = -\frac{1}{2} - 1 = -\frac{3}{2}$

۱۰) $f(x) = \frac{(x+2)\cancel{(x-2)}}{\cancel{x-2}} = x + 2 \quad x \neq 2$

$g(2) = f(2) \rightarrow 4 = 2a^2 + 2a \rightarrow 2a^2 + 2a - 4 = 0 \rightarrow a^2 + a - 2 = 0$

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

$\rightarrow a + 2 = 0 \rightarrow a = -2$

$\rightarrow a - 1 = 0 \rightarrow a = 1$