$a^2+2a=a^2-4 \Rightarrow \boxed{a=-2}$ ✓ (۲)

$4+b=2 \Rightarrow b=-2$ ✓ $\Rightarrow 2=\frac{x^2+a}{2x+1} \Rightarrow \frac{4+a}{3}=6 \Rightarrow a=14$ ✓

(۲)

$\Rightarrow f(x)=\frac{x^2+14}{2x+1} \Rightarrow f(1)=\frac{1+14}{2+1}=\boxed{5}$ ✓

(۲)

$\begin{cases} 2-a+b=0 \\ 12+4a+b=0 \end{cases} \Rightarrow 10+5a=0 \Rightarrow a=-2 \Rightarrow b=-8$ ✓

(۲)

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

$-4x^2+ax+b=-4(x+1)^2=-4(x^2+2x+1)=-4x^2-8x-4$ (۲)

$\Rightarrow a=-8, b=-4 \Rightarrow a+b=-12$ ✓

$\begin{cases} x^2+mx+1=(x-1)^2=x^2-2x-1 \Rightarrow m=-2 \\ \Delta<0 \Rightarrow m^2-4<0 \Rightarrow m^2<4 \Rightarrow -2<m<2 \end{cases} \Rightarrow -2 \le m < 2$ ✓ (۲)

$x^2 \neq 0 \Rightarrow x \neq 0$

$4-\frac{1}{x^2} \ge 0 \Rightarrow \frac{1}{x^2} \le 4 \Rightarrow 1 \le 4x^2 \Rightarrow x^2 \ge \frac{1}{4} \Rightarrow x \ge \frac{1}{2}$ (۲)

$\Rightarrow x \le -\frac{1}{2}$

$\Rightarrow D=\mathbb{R}-\left(-\frac{1}{2}, \frac{1}{2}\right)$ ✓

$D=\mathbb{R} \Rightarrow mx^2+2mx+1 \ge 0 \Rightarrow m \ge 0$ (۲)

$\Rightarrow \Delta \le 0 \Rightarrow 4m^2-4m \le 0 \rightarrow$

	0	1	
	−	0	+
	0	−	+

$\Rightarrow m \in [0,1]$ ✓

$2 = 2 + k \Rightarrow k = 0$ ✓

$2x - 1 \neq 0 \Rightarrow x \neq \frac{1}{2} \Rightarrow a = \frac{1}{2}$ ✓

$\Rightarrow a + k = \frac{1}{2}$ ✓

(۲) ۱۸ نمره

$x=1 \longrightarrow \frac{9-4}{2+2} = 2 + b \Rightarrow 1 = 2 + b \Rightarrow b = -1$ ✓

$\Rightarrow 2\left(\frac{-2}{c}\right) - 2 = 2\left(\frac{-2}{c}\right)a + 2 \Rightarrow -4 = -2a + 2 \Rightarrow a = 3$ ✓

(۲) ۱۹ نمره

$a - b = \boxed{4}$ ✓

$4 = 2a^2 + 2a \Rightarrow 2(a^2 + a - 2) = 0 \Rightarrow a = 1$ ✓

$\Rightarrow a = -2$

(۲) ۱۰ نمره