1. James Bond added $2x^3 + 5x - 6y - 6y^3$ to the unknown homogeneous function $f(x, y)$. The new function was homogeneous once again! Please help the Secret Service agent recover the function f if $f(1, 1) = 1$.

2. Find the global minimum of the function

$$2x^2 + 4y^2 + xy + 8z^2 + 2yz,$$

   subject to $x + y + z \geq 1$, $x + y + 3z \geq 2$.

3. Solve differential equation $y'' - 2y' + y = -x + 3e^x\sqrt{x+1}$.

4. Given the difference equation $3y_{t+2} + 4y_{t+1} + \gamma y_t = 3$ with the real parameter γ, find all the values of γ for whose the time path of this equation is convergent.