1. Given that \( y = 2x - 1 \) is a solution of \((x^2-x)y'' + (2x-1)y' - 2y = 0\), find a second linearly independent solution by reduction of order and write the general solution.

2. Given that \( y = 3x + 5 \) is a solution to \((\frac{9}{2}x^2 + 15x + 13)y'' - 3(3x + 5)y' + 9y = 0\), find a second linearly independent solution by reduction of order and write the general solution.

3. Find the general solution to \( y^{(4)} + 19y^{(3)} + 126y'' + 324y' + 216y = 0 \)

4. Solve the initial value problem \( y'' + 4y' + 68y = 0 : y(0) = 6, \ y'(0) = -84. \)