1. Find a series solution about \( x = 0 \) for the initial value problem
\[ y' + 2xy = 0, \quad y(0) = 5 \]

2. Find a series solution about \( x = 0 \) for
\[ 2y'' + xy' + y = 0. \]

3. Find a series solution about \( x = 0 \) to the initial value problem
\[ (x^2 - 4)y'' + 3xy' + y = 0, \quad y(0) = 4, \quad y'(0) = 1. \]

4. Find a series solution about \( x = 0 \) for the differential equation
\[ (1 - x^2)y'' - 6xy' - 4y = 0. \]