MATHEMATICAL ANALYSIS 2
Test 2, version B.

1. Find the solution to the Cauchy problem

$$y - y' = y^2 + xy', \quad y(1) = 2.$$

Find the maximal interval where the solution is determined.

2. Find the general solution to equation

$$x^2 y' = y(x + y).$$

3. Find the solution to the Cauchy problem

$$y^{(4)} - 2y'' + y = 0, \quad y(0) = 1, \quad y'(0) = 1, \quad y''(0) = -1, \quad y'''(0) = 1.$$

4. Find the general solution to the following system:

$$\begin{cases} \dot{x} = 2x - 3y \\ \dot{y} = x - 2y + e^t \end{cases}$$