McGill University
Math 325A: Differential Equations
Assignment 2B: due Thursday, September 21, 2000

1. Find the solution of the initial value problem
$$yy' = x(y^2 - 1)^{4/3}, \quad y(0) = b > 0.$$
What is its interval of definition? (Your answer will depend on the value of b.) Sketch the graph of the solution when $b = 1/2$ and when $b = 2$

2. Find the general solution of the differential equation
$$\frac{dy}{dx} = y + e^{2x}y^3.$$

3. Solve the initial value problem
$$\frac{dy}{dx} = \frac{x}{y} + \frac{y}{x}, \quad y(1) = -4.$$

4. Solve the initial value problem
$$(e^x - 1)\frac{dy}{dx} + ye^x + 1 = 0, \quad y(1) = 1.$$