MATH 3430-02 QUIZ 2

Name: _____

1. For each of the following 1-st order ODEs, decide whether it is exact. Explain briefly.

(1) $(x^2 + y\cos x)\dfrac{\mathrm{d}y}{\mathrm{d}x} + (\sin x + 2y + 1) = 0.$

(2) $(5x + 3xy^2 + e^x) + (3x^2y + 1 + \sin y)\dfrac{\mathrm{d}y}{\mathrm{d}x} = 0.$

(3) $p(x) + q(y)\dfrac{\mathrm{d}y}{\mathrm{d}x} = 0, \quad p(x), q(y)$ being certain given functions.

2. Solve the following Initial Value Problem:

$$(2xe^y + 1) + (x^2e^y - 2y)\frac{\mathrm{d}y}{\mathrm{d}x} = 0, \qquad y(1) = 0.$$