Math107L - Project 2
Due: May 31,2007

$$y'' = 2y' - y + xe^x - x, \quad 0 \le x \le 2, \quad y(0) = 0, y(2) = -4 \tag{1}$$

1. (30 points) Use Linear Shooting Algorithm to solve (1) with the step size $h = 0.2$.

2. (30 points) Use Linear Finite Difference Algorithm to solve (1) with the step size $h = 0.2$.

$$y'' = 2y^3 - 6y - 2x^3, \quad 1 \le x \le 2, \quad y(1) = 2, y(2) = 5/2, \tag{2}$$

3. (40 points) Use NonLinear Shooting method with $TOL = 10^{-4}$ to solve (2) with the step size $h = 0.1$.