Math 4233
Homework Set 2

1. (a) Use the Euler method with a step size of 0.1 to determine an approximate value of the solution of

$$x' = 2x - 3t \quad , \quad x(0) = 1 \tag{1}$$

at $t = 0.4$. (b) Repeat using a step-size of 0.01.

2. Use the Huen method (also known as the second order Runge-Kutta method) with a step-size of 0.01 to compute an approximate value for the solution of (1) at $t = 0.4$.

3. Use the fourth order Runge-Kutta method with a step-size of 0.01 to compute an approximate value for the solution of (1) at $t = 0.4$.

4. Use the fourth order Adams-Moulton multi-step method with a step-size of 0.01 to compute an approximate value for the solution of (1) at $t = 0.4$. (Use the results of problem 3 to get a set of initial data points.)