EE202 Numerical Methods for Engineers
Laboratory Assignment: 7

** Find solutions of the following questions in Matlab:

Question 1:

Using Runge-Kutta Method of Order 4, solve $\frac{dy}{dx} = \frac{5x^2-y}{e^{x+y}}$ with y(0)=1 by using step size of h=0.1 for $0 \leq x \leq 1$.

Question 2:

Using Runge-Kutta Method of Order 4, solve $\frac{dy}{dx} = (x + y)\sin xy$ with y(0)=5 by using step size of h=0.2 for $0 \leq x \leq 2$.

Question 3:

Using both the Runge-Kutta Method of Order 4 and Euler's method, compare the solutions with exact solution for $\frac{dy}{dx} = \frac{4-y^2}{2x}$ with y(0) =1 by using step size of h=0.2 for $2 \leq x \leq 3$. (exact solution: $y = \frac{2(3x^2-4)}{3x^2+4}$