Numerical Methods (ECE 204)
Simulation Assignment # 3
Due date: 04.11.2019

Q1. Create a generic function to solve a system of nonlinear equation using newton Raphson method. The function should accept any acceptable initial condition, variables as symbolic variable and nonlinear equation. Use your program to solve the following two non-linear equations:

f=[4*x^2+y^2-13, x^2+y^2-10];

f=[2*x-y-exp(-x), -x+2*y-exp(-y)];

The iteration should stop when the relative approximate error is less than 0.5%.

(**Note: Do not use built-in function for newton Raphson algorithm e.g., fsolve, etc. You can use built in function to obtain Jacobian**.)

Q2. Using the information in example 9, in the set of notes titles "Roots of nonlinear equations", find the temperature of an RTD that measure a resistance of:

75Ω and 250Ω

Use both bisection and Newton Raphson method. The iteration should stop when the relative approximate error is less than or equal 0.1%. Show the needed number of iterations of both methods. The program should be general and accept any resistance value.