INC 341 System Modelling and Analysis **In class assignment 1**
Assign: 24 Jan 22 **Due for all: 26 Jan 22 (24.00)**

Instruction: This is an in class assignment.
Member:

1. Name:_____Code:_____

1. Let $f(x) = \sqrt{1+2x}$

   (a) Find a linear approximation to approximate $f(4.3)$

   (b) Find the error in the approximation of $f(4.3)$, the percentage error in the approximation of $f(4.3)$ and the percentage error in the approximation of Δx.

2. Plot the data using Matlab (show your code) and find the suitable function $y = f(x)$

x	25	30	35	40	45
y	0	250	500	750	1000

3. The useful life of a machine bearing depends on its operating temperature, as shown by the follow data. Plot the data and obtain a functional description of the data. Estimate a bearing's life if it operates at 150°F. What are the sum of square error J, and the r^2 of your estimating function.

Temperature ($^\circ F$)	100	120	140	160	180	200	220
Bearing life (hours $\times 10^3$)	28	21	15	11	8	6	4