ECOR 2606 Lab 8

1. File *data.txt* (provided) contains the data shown below arranged in two columns. The first column contains the x values and the second column contains the y values.

x	4.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0
y	0.0451	0.0538	0.0629	0.0662	0.0695	0.0728	0.0766	0.0782	0.0794

Find the third order polynomial in x that best fits the data. There is an x value between 6 and 12 for which the fitted curve is exactly equal to 0.065. What is this value?

Output the required value and the coefficients of the fitted polynomial. Produce a plot (figure 1) that shows both the data points and the fitted curve.

2. Text 13.31:

Andrade's equation has been proposed as a means of modelling the effects of temperature on viscosity. The equation is

$$\mu = De^{B/T_A}$$

where μ is the dynamic viscosity
             T_A is the absolute temperature (K)
             D and B are unknown parameters

Create a function fitExp that takes as inputs μ and T_A and outputs D and B. Use the data below and the function to produce a "best fit" estimate for D and B.

T (°C)	0	5	10	20	30	40
μ i	1.787	1.519	1.307	1.002	0.7975	0.6529

Recall that K = °C + 273.15

Produce a plot showing both the data points and the fitted curve.

The submission system has been configured to accept a single file called work.m