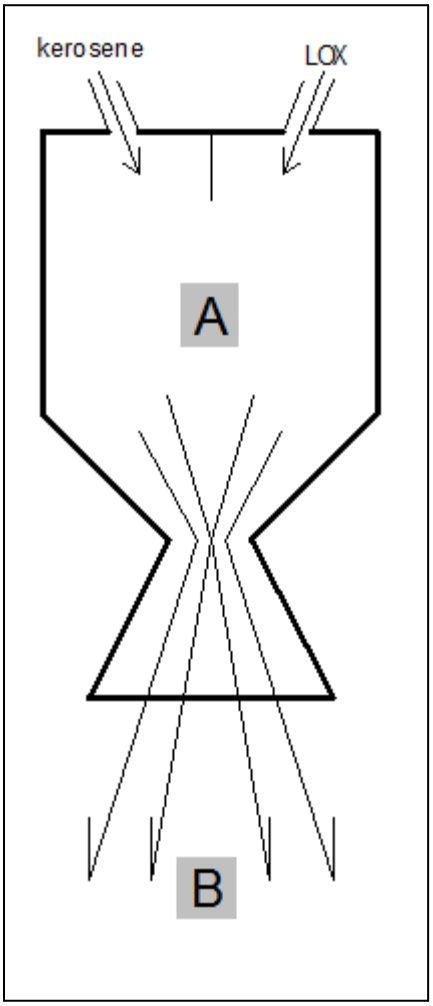
Rocket Regression Lab

Name: _____

9/5/2016

A typical liquid fueled liquid oxygen-kerosene rocket engine is shown schematically to the right. The exit velocity of the gasses at Point B are primarily a function of the temperature at Point A. Empirical data for the test engine is provided in the table.



Temp (F) at A	Velocity (m/sec) at B
400	337
800	372
1200	409
1600	405
2000	418
2400	427
2800	441
3200	440
3600	447
4000	455
4400	457
4800	461
5200	
5600	469
6000	470
6400	478
6800	479
7200	
7600	484
8000	487
8400	485
8800	492
9200	501
9600	505
10000	
10400	499
10800	502
11200	504
11600	508
12000	
12400	509
12800	511

Using regression analysis, develop an equation from the data which best describes the velocity at Point B as a function of temperature at Point A.
Fill in the missing data points using interpolation.
Extrapolate the temperature required at Point A for the gas velocity at Point B at be 550 m/sec.
Discuss the potential errors of predicting a temperature to produce a gas velocity of 550 m/sec.

Create a single, professional MS Word document as a solution for this project and e-mail this document as an attachment to mheinen_1@msn.com.

Use the following format for your file:

LastName_FirstInitial-RocketLab

Example: HeinenM-RocketLab.docx

Include all calculations, data, graphs, and include explicit answers.

Visit my website for my solution.