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Homework Example

* 1. Find the flow index behavior and consistency index for the given fluid and shear viscosity data.

First take the natural log of viscosity and shear rate and then plot them in Figure 1. Fit the data using a linear relationship trendline.

**Figure 1:** Linearized data of viscosity vs. shear rate.

Fitting the data using a power law behavior in equation 1 we can take the natural log of each size to give a linear equation 2. From equation 2, the flow behavior index n and consistency index K can be solved for.

Equation 1

Equation 2

So taking the slope of the trend line and adding 1 the flow behavior index n is .23. Also taking the exponential of intercept the consistency index k is 500.

1-2 Problem Statement

Steps taken to solve the problem. Data, Figures, and Equations used. State where the equations came from if they are not well known or trivial and reference any assumptions or constants used. Then state solutions.

Note scanned hand derived solutions will result in a large point deduction. Well commented code and explained solutions can be used as long as they clearly detail what was done and are easy to follow.

Note you can hand derive solutions, but make sure the final submission is typed up and articulates how you obtain your solution along with what equations and graph were needed. For homework you can use excel, Mathcad, Matlab, etc.. However, for the algorithms/designs we are asking you to only use MATLAB.

Note algorithms will be a more detailed step by step report.