

Petroleum Engineering 310 Reservoir Fluid Properties

Technical Requirements for HOMEWORK and REPORTS

Fall 2009

Problem Format (Homework and Lab Reports)

Your demonstrated ability to properly analyze and solve problems will determine your grade in this course. There are three objectives which you must satisfy for full credit on each problem: (The three C's).

1. Is it **CLEAR**? The definition of the problem, the methods and procedures you apply, and your results should be clearly presented so that anyone who is unfamiliar with the problem could easily follow what you have done by looking at your paper (report). If I can't tell what you did, it must be wrong.
2. Is it **COMPLETE**? - All given data and unknowns, all symbols, all equations representing the principles you use, all calculations with units, and all results should be identified and presented in a logical, complete and comprehensive form.
3. Is it **CORRECT**? - The right answer is important. You may get partial credit for wrong answers in school, but there is no partial credit for wrong answers in the real world.

To achieve these objectives, the following elements should be included in each solution (where appropriate).

1. Draw a diagram (better than 1000 words). This needs not to be a "work of art", but it is usually a graph or a block diagram which represents the process you are analyzing, with appropriate lines representing "paths", and "outputs" to the problem, and all reference points are properly identified.
2. Label the Diagram. Symbols representing all variables and parameters of significance in the problem should be placed at appropriate points on the diagram. Values of quantities which are given or known should be indicated, and those quantities which are to be found should be identified. The symbols used to represent the physical quantities should be obvious, or clearly defined.
3. State your Assumptions. Major assumptions as to the nature of the system, fluid properties, pressure and temperature conditions, etc. which limit or restrict the range of application of your solution should be stated explicitly.
4. Write Equations. All general principles which are applied to problem solutions that should be expressed in equation form. These general equations can then be reduced to a form consistent with your assumptions, and should be written using the symbols which you have used to label the diagram.
5. Solve Equations. The equations should be solved for the unknown quantities in terms of the known quantities. The solution should be carried out in terms of the symbols representing the variables, whenever possible, before introducing any numbers or data. This procedure often saves a lot of time doing unnecessary calculations. Sometimes, for complex problems, doing

some intermediate calculations will simplify the solution, but otherwise save the "number crunching" until last.

6. Calculate Answers. Introduce known quantities and appropriate data with units in consistent form (including conversion factors where needed) into the equations and calculate the answer. All answers should be clearly identified, and expressed in a number of significant digits consistent with given data.

Remember G.I.G.O. – (**G**arbage **I**n **G**arbage **O**ut)

Nitty Gritty:

1. Use 8 1/2" x 11" paper, and write on one side only.
2. Number each page, indicating the total number of pages, e.g. 1/6, 2/6, 3/6 ... etc.
3. Fold lengthwise, and put your name on outside.
4. When making graphs or plots, use a scale which spreads the plot as far as possible in the "x" and "y" direction. The scale should be such that the precision to which the plot can be read is comparable to the implied precision of the values being plotted, whenever possible. You must make the plots in Excel and attach to your HW. Lab reports must be completely electronic
5. **ALL LAB REPORTS MUST BE TURNED IN AS A SINGLE DOCUMENT, IF YOU USE WORD, EXCEL, POWER POINT, ETC. YOU MUST KNOW HOW TO CUT AND PASTE AND MAKE SURE THAT THE FILE PRINTS LEGIBLE**

Come to class. Participate, ask questions don't be afraid, KNOWLEDGE is acquired, is not hereditary.

Study your lessons and chapter guides.

Remember!

"I hear	I forget"
"I see	I remember"
"I do	I understand"

"The aim of education is to enable one to continue learning".

"Ho-boy you spend a lifetime learning all the answers, and then you find they changed the questions!"

Have Fun!!