**Pressure Vessel - Worksheet**

1. Analyze the experimental results from the thin-walled pressure vessel using the step by step directions in the “Calculations” portion of your lab handout and complete the following:

* 1. What are the slopes of the regression lines , , and ?

* 1. Calculate , , and using the 00, 450, 900 strain rosette equations. (show calculations)

* 1. Calculate , , and using the biaxial Hooke’s Law equations. (show calculations)

* 1. Calculate , , and using the stress transformation equations or Mohr’s circle. (show calculations)
1. Analyze the thin-walled pressure vessel theoretically using the step by step directions in the “Calculations” portion of your lab handout and complete the following:

* 1. Calculate and using the thin-wall theory equations. (show calculations)
	2. Calculate and using the thick-wall theory equations. (show calculations)

1. Analyze the experimental results from the thick-walled pressure vessel using the step by step directions in the “Calculations” portion of your lab handout and complete the following:

* 1. What are the slopes of the regression lines and ?
	2. Calculate and using the biaxial Hooke’s Law equations. (show calculations)
1. Analyze the thick-walled pressure vessel theoretically using the step by step directions in the “Calculations” portion of your lab handout and complete the following:

* 1. Calculate and using the thick-wall theory equations. (show calculations)

* 1. Calculate and using the thin-wall theory equations. (show calculations)
1. Analyze the results and make the following comparisons by completing the following tables:



1. Are there any out of place data points or large percent errors? If so, give some possible reasons why? Which theory is more accurate? Why?
2. After the analysis be sure to back up your results by completing the following tasks:
	1. Attach the Lab Data Sheet completed in full to the end of this worksheet.
	2. Attach a printout of the Excel analysis. This should include tables of the all the measured and calculated values necessary for the analysis, and all the strain vs. pressure plots with the regression lines and equations. (Label the tables and graphs appropriately.)