MET 330, Exam 2 Test Reflection

1.) Exam required us to test our knowledge of Bernoulli principle by finding unknown flow rates, pressure drops, increases in flow rates, and minor losses.

2.) Upon comparing my exam to the solution posted by Dr. Ayala, major differences were found. For the exam, the rubric was followed as well as I was able to understand. Every section of the rubric was included in the problem. The major areas where my test differed from the provided test solution was that with my test I attempted to solve using imperial units. In the test solution the imperial units were converted to SI units. This made the solution much easier to manipulate. My test solution began similar to the provided solution in that the energy loss for the single pipe was found. The "f" value found in the moody chart was the same as the value given. The provided pressure loss from point A to B was determined to be 437.06 kPa. This was the value I found but in different units. Once the pressure loss was found I did not know how to further proceed. The solution showed the process to solve Bernoulli equation for both branches. The solution then shows how to combine with the total flow rate equation to get 3 equations with 3 unknowns then use Microsoft Excel to solve the calculations. I now understand what is required to solve such a complex problem by manipulating and using Bernoulli equation.

3.) Test #1 Self grade:

<u>WRITING RUBRIC</u>

1.	Purpose	0.5/10.0
2.	Drawings	1.0/10.0
3.	Sources	1.0/10.0
4.	Design considerations	1.0/10.0
5.	Data and variables	0.5/10.0
6.	Procedure	2.0/10.0
7.	Calculations	2.0/10.0
8.	Summary	0.5/10.0
9.	Materials	0.5/10.0
10.	Analysis	1.0/10.0
TOTAL		**10.0/10.0**

PROBLEM 1 or 2)

1. Reasonable assumptions (reductions, valve, tubing diam, lengths) 1/10
2. Apply Bernoulli twice or get 2 equations from Bernoulli .5/10
3. Consider ALL minor losses? Handled them correctly? 1.5/10
4. Handled correctly the pipe losses? 1/10
5. Obtained 3 equations with 3 unknowns? 0/10
6. Solved system of equations correctly (Excel?)? 0/10
7. Final results 1/10

TOTAL **5/10**

FINAL GRADE:

10.0 + (80/1)*(5/10) = 50

4. In completing this test I learned that all dimensions and reference points must be closely followed at every step. The problems presented, were real world problems that a mechanical engineer would be expected to be able to solve at any time. These concepts are used in areas such as engineering an HVAC system, fluid pipe lines, hydraulic systems, and ship design. In my current job, I have the opportunity to apply what I've learned in this class every day. My 6 colleagues are all Professional Mechanical Engineers. Each and every day I hear the importance of learning as much as I can, regarding the concepts of the Fluid Mechanics class. I will soon need to use the skills required to solve this problem to assist on a piping project. I have also used the concepts I've learned thus far in preparing lab reports for my fluids lab class. Additionally, I will need all the knowledge gained in this course to prepare for the Fundamentals of Engineering exam as well as various tasks during my senior project.