- 1. In exam one, we demonstrated our skills of deriving equations using equations of gamma*h and Bernoulli's. For the first problem, we used gamma*h equation to find the deflection of manometer when mercury was used. We already had a constant of pressure, we knew the gammas, and the heights were the only variables which we had to solve for. Problem two, we used a couple of equations. First we used q=v*a to solve for the diameter of the pipe we needed for the system. Then referencing Bernoulli's, we had to solve for energy losses, which used the equation, (k*v^2/2g). After getting energy losses using k values from lecture notes. We solved for pump head which used Bernoulli's and the sum of the energy losses. Again, we manipulated Bernoulli's again to find the pressure at the pump inlet. Excell calculations were fairly simple and using previous steps and equations, we solved operation costs for each pipe diameter.
- 2. I honestly think I did alright on the exam, the first problem manipulated gamma*h and was straight to the point, so I feel good about the firest problem, and my answer was very close to the solution given, this error could be due to different constant values.
 - a. The second problem I had a lot of trouble with. Solving for pipe diameter needed was simple which was easy to calculate. Also the calculations for operation, installation and total cost were easy. However I did make a huge mistake. I did not solve velocity in the pipe for any diameter pipe. This affected my calculations for the velocity in each pipe changes as it grows or shrinks. These values directly affect the pressure at inlet, HP, and energy loss portions of the exams. These portions were 3/5th of the exams which upset the balance of grade in my opinion. Also the affected HP also affected the cost of the system. Since a smaller pipe might have needed a higher HP, but due to my error, my values were wrong.
- 3. Discuss the following:
 - a. What issues did you encounter in completing the test? How did you troubleshoot them?
 - i. I had a big problem finding K values for energy loss equations, after checking my notes trying to find an equation, I noticed they were constant values which I had taken note of. That solved that problem
 - b. What steps did you take to complete the whole test? Would you change something?
 - i. I panicked a little, and I got heavily overwhelmed due to the amount of work and steps that needed to be completed. This is something I need to fix and we were encouraged by Dr. Ayala many times via email. But I believe this sort of stress always accompanies this kind of exam.
 - c. What new concepts have you learned?
 - i. At first, I had trouble understanding these equations. The problems I solved have helped me get a better grasp and manipulating them and understanding what values to expect from which derivative.

- d. Where you think engineers use those concepts (provide specific examples)?
 - i. I work in the shipyard, so I see proof of concept. To be more specific, there are vanes worth of piping on dry docks, those things go up and down into the water to lift ships out of the water. The abundance of pipes and the power needed to execute water using those pipes from the ballast tanks all have once been calculated. So when dock master clicks a button to raise the drydock, the system works.
- e. Where do you think you will be using everything you learned?
 - i. I plan to work for the shipyard, and one thing all the maritime industry has is the fluid water. So not only the things I learned from this exam but I need to learn the whole of fluid mechanics to ensure a great carrier.
- f. Do you think what you learn is important for your professional career?
 - i. Definitely. I have stated as such one so I will not repeat myself.
- g. How, when, where and why you might use this information or skill in the future?
 - i. For example, in the shipyard I work for, the motor which empties water from ballast tanks burns up, I need information from fluid mechanics to accurately calculate the power needed to kickstart the system again.
- h. Have you been able to apply concepts you have learned in the course to what you do at work or in other courses?
 - i. Yes, at the shipyard I work at.
- What areas did you feel you were most successful, or improved the most?
 Definitely gamma*h feels good.
- j. How do you see this course's content intersecting with your field or career?i. I expect it to pave my future.
- k. How much time did you spend on the test? How was the time organized? What would you do differently? Why?
 - i. Actually more than I wished I had. I had to start working on It Sunday night. My father is an Oldman, and he needs help at the shipyard, the work we do is HEAVLY LABOR intensive. The test opened Thursday, so Sunday I had lost 3-4 days. I worked all night Sunday, all day Monday, and worked all day Tuesday as well, and with the extension, I had to stay up overnight to finish the exam. This had to be the hardest exam I have taken.

WRITING RUBRIC		
1. Purpose	0.5/10.0	
2. Drawings	1.0/10.0	
3. Sources	1.5/10.0)
4. Design consid	lerations 1.0/10.0	
5. Data and varia	ables 0.5/10.0	
6. Procedure	2.0/10.0	
7. Calculations	2.0/10.0	
8. Summary	0.25/10.0	0
9. Materials	0.5/10.0	
10. Analysis	1.0/10.0	
TOTAL	10.25/10.0	
PROBLEM 1)		
1. Identify all un	known dimensions in drawing	1/7 out of 1/7
2. Cancel the dis	stance with water (x)	1/7 out of 1/7
3. Solve for the c	Solve for the gasoline distance (y) 1/7 out of 1/7	
4. Correct excel	Correct excel spreadsheet 1/7 out of 1	
5. Using excel, a	iet mercury case	1/7 out of 1/7
6. Why results m	6. Why results make sense and manometer length 1/7 out of 1/7	
7. Final results		, 1/7 out of 1/7
TOTAL	-	7/7 out of 7/7
PROBLEM 2)		
1. Select pipe dia	ameter using 3 m/s 1/9) out of 1/9
2. Compute all e	nergy losses 1/	/9 out of 1/9
3. h_A and pump	power .7	'5/9 out of 1/9
4. Pressure at pu	ump inlet .75	5/9 out of 1/9
5. Correct excel	spreadsheet .2	5/9 out of 1/9
6. Pump power f	or 4 other pipe sizes .80	/9 out of 1/9
7. Installation, or	Installation, operating, and total costs .80/9 out of 1/9	
8. What is the be	est pipe diameter? 1/9	out of 1/9
9. Final results	9. Final results 1/9 out of 1/9	
(I failed to calculate velocity in pipe for each pipe.)		
TOTAL	7.35/9 o	out of 9/9
FINAL GRADE:		

 $\overline{10.0 + (80/2)^*(7/7+7.35/9)} = 82.67$