Test 3- Reflection

For test three, the problems provided helped to reinforce the course learning objectives of specific industry problems such as open channel flows, water hammer, and drag force calculations.

When comparing my test with the solutions, I do see that I followed the process well. In problem one, my final answer differed from the one posted. This may be due to differing rounding combined with a different C value. Though I did recalculate and I got the same answer. So perhaps it's just an error in my order of operations somewhere. For problem #4, I had a different Ry value, which again may be due to intermediate rounding. My answers were correct in terms of the values I used, and close- but different from the solutions provided because of these differences. For all of the questions, I feel that I followed the proper procedure, but will take care to carry enough significant figures, to not skew my end result in the future.

PROBLEM 1)

1. Moment with respect to A	1/5 out of 1/5
2. Correct distances	1/5 out of 1/5
3. Correct Cd using Re and forces	1.75/5 out of 2/5
4. Results	0.75/5 out of 1/5
TOTAL	**4.5/5 out of 5/5**

PROBLEM 2)

1. Correct Q equations (look at constant)	1/6 out of 1/6
2. Correct A and Hydraulic radius R	1/6 out of 1/6
3. Solving by iteration	2/6 out of 2/6
4. Is it critical?	1/6 out of 1/6
5. Results	1/6 out of 1/6
TOTAL	**6/6 out of 6/6**

PROBLEM 3)

1. Correct eq for Q for nozzle	1/5 out of 1/5
2. Use Re to get C	1/5 out of 1/5
3. Solving by “h”	2/5 out of 2/5
4. Results	1/5 out of 1/5
TOTAL	**5/5 out of 5/5**

PROBLEM 4)

1. Compute pressures using Bernoulli’s	1/7 out of 1/7
2. Compute height with length	1/7 out of 1/7
3. Appropriate control volume?	1/7 out of 1/7
4. Rx (be careful with velocity direction)	1/7 out of 1/7

5. Ry (be careful with velocity direction) 1/7 out of 1/7
6. Compute Q with Bernoulli's 1/7 out of 1/7
7. Results 1/7 out of 1/7

TOTAL **7/7 out of 7/7**

PROBLEM 5)

1. Correct C (be careful with units) 2/4 out of 2/4
2. deltaP 1/4 out of 1/4
3. Results 1/4 out of 1/4

TOTAL **4/4 out of 4/4**

FINAL GRADE: (if everything is correct)

10.0 (HW) + (90/5)*(4.5/5 + 6/6 + 5/5 + 7/7 + 4/4) (TEST) = 98.2

This test, while challenging, I felt that I understood a lot more than the previous tests. Perhaps, that is a signifier that the concepts I am learning are starting to stick better. I again had some challenge deciding on my iterative process for problem #2, I tried a couple different ways in excel, as well as substituting different values into the same equation in desmos, which I ultimately found the most straightforward.

I do not have anything that I would change about the test. I feel good about my results. I believe with practice I will become better at applying these equations, and understanding the design considerations on a deeper level. I believe that these concepts will be useful in a variety of ways for engineers and in my career, including creating safe and reliable infrastructure with appropriate piping systems. This knowledge will also help to diagnose issues as they arise, and to help prevent flooding issues, and remediate pressure issues within piping systems.

I believe I have improved a lot in my overall understanding of all of the concepts I have learned in this course thus far. I also feel that I am more comfortable and consistent with the way that I organize my written work, which has made it easier to not get lost in the process. However, as usual I still have much to learn.

It took me approximately 5 hours to take this test. I did spend a lot of time rechecking my work and ensuring that I used the correct equations for the problems presented. I feel that overall, I organized my time well. I expected it to take longer than it did, considering the higher number of questions- so that is a win in my book.