Test 3 Reflection:

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The automatic sprinkler system problem served as a practical application that allowed me to demonstrate mastery of several key course learning objectives in fluid mechanics. By requiring the use of the Bernoulli equation, conservation of mass, and frictional loss calculations for the pipe network, I was able to apply fundamental fluid flow analysis principles to a real-world scenario. The industrial context of the sprinkler system also enabled me to showcase my ability to identify and solve specific problems encountered in engineering.

I made several different assumptions with my data. Which lead me to answers that were 2% different from the official solutions. I believe that I did very well on this exam, which I am very happy about.

Grading:

The lowest grade I would give myself is **89 points** per the rubric.

Discussion Points:

a. Issues Encountered and Troubleshooting: I had issues finding the correct K value for the ball valve, so I assumed that it was 150, as the closest valves were a plastic ball valve and a check valve (ball type), both of which had a K value of 150. Additionally I got the elbow K values from the chart with an angle of 70 and D1/D2 of 1.5.

b. Steps Taken to Complete the Test: I ran through the test about a few times, moving things around, and recalculating whenever I found an error, I referenced the homework problems and the class examples.

c. New Concepts Learned: I have learned how to Sub-iterate within the main iteration.

d. Application in Engineering: Knowing excel better is always great.

e. Personal Application: I will use these skills in my career and for any personal projects I do.

f. Importance in Professional Career: Engineers have to look at the big picture, and at all the small details when designing or maintaining a system.

g. Future Use of Information or Skills: I have learned not only Fluid Mechanics principles but also how to look at a problem as a comprehensive whole. This will be invaluable in all aspects of life.

h. Application in Work or Other Courses: I'm sure you will make me use this in my senior design project.

i. Areas of Success or Improvement: I have strengths in analysis and conclusions while there is always area for improvement in my calculations and procedure.

j. Intersection with Field or Career: I have no idea if I will be working in an industry where I will need to know Fluid Mechanics, but if I do I will know who to call, and what book to reference.

k. Time Management: I spent about 2 hours on the pretest, and then a couple more here and there over the week after the feedback email, for about 8 total, with the most time being spent on Tuesday, as I had the day off work.

In summary, I feel that I did amazingly well on this test. I am super proud of myself for the effort I put in.