Test 2 reflection

1) Test 2 covered Compute pressure and the forces (magnitude, location, and direction) associate with it in a stagnant fluid, Discuss what buoyancy is and determine object stability while floating or submerged in a fluid, Explain the fluid dynamics in pipes and fittings, Identify and solve for different very specific industrial problems, such as, open-channel flow, cavitation, water hammer, drag, lift, forces in pipes, and learn about different instruments to measure fluid flow quantities (such as, pressure, fluid velocity, flow velocity, etc.).
2) For part 1, I used the OD to calculate the area and should have used the ID. To calculate the Hc needed to get the hydrostatic force I didn't account for the 30-degree angle. Therefore, I got slightly smaller number than the solution for the hydrostatic force. When calculating how big the buoy needs to be I used the OD and the solution used the ID; therefore, I got a slightly larger number than the solution.
   For part B, when calculation the forces I didn't not account for the force of the weight. I didn't not account for the pressure at the beginning of the pipe. I instead calculated the velocity flowing through the pipe. Therefore, I didn't get the values as the solution.
   Part C, the solution used a different equation to get the pressure change however, we both got the same result.
   Part D, I used the exact same equation, but my math was incorrect since I did not receive the same result.
   For part E, when calculating for C in the water hammer equation I used a different bulk module of the fluid. I was thinking the gasoline would behave as ethyl alcohol, and I used the wrong diameter. Therefore, a different result for water hammer pressure was received verse the solution. I didn't realize that to get the max pressure you needed to add the water hammer pressure to pressure at the pump, so max pressure was not calculated. Along with not having the correct max pressure and choosing the wrong value for longitudinal joint quality factor I didn't get the correct thickness size. My minimum thickness size was larger than pipe thickness size, so I said it would fail if water hammer would have happened. I completely missed the mark on cavitation.
   Part F, I got a different depth for the open channel flow therefore, I got different L and B lengths, so the area value was different. Velocity was not calculated using the area of the block but with the area of the pipe. And Cd was obtained using Reynold number not the chart. Therefore, I got the whole thing wrong.

3) Based on the rubric provided for the test I gave myself a 35. My strength for this test was part on design the buoy to the open gate, calculating the flow-nozzle flowmeter pressure drop, and the open channel flow. Those part are the one I seemed to do okay on. My weakness was the water hammer and cavitation.

a) An issue when taking the test was figuring out water hammer and cavitation. I sure those the book and the note the teacher gave until it made sense.
b) I just too it one step at a time. Focused on the physics of it and what I knew and the solve for the unknown.
c) I learned the following new concepts open channel flow, forces of moving fluids, drag and lift forces and water hammer.
d) Any time a pipe system is being designed.

e) I might use the buoyance force and determining if a vessel is stable if I get a job as engineer at NNS.
f) I think everything I learn is going to be useful for my career since I'm keeping an open mind on what I'm going to do when I get done.
g) I might use this information to determine if vessels are stable or determined the forces of a moving fluid in any pipe system if I decided to go that direction in my career.
h) I have not been able to apply any of what I have learn to my current job.
i) I need to improve at water hammer and cavitation.
j) There is a good possibility that this course content will be used in my future. Option open.
k) First, I reviewed the test and the next day I started working on it and completed it for pre-test on the second day. Made correction based on feedback and submitted it. I probably spent a total of 20 hours on the test. The time was organized to work around my job. No I wouldn't change anything.