Test Reflection #2

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1) The second test demonstrated the practice of solving specific industrial problems, like open-channel flow, drag, forces in a pipe, water hammer, and cavitation and so one. It is important to be able to solve problems like these when working.
2) When looking at the first problem, I used the wrong flow rate equation. The given number in the right equation is 1, but in the equation I used the number given is 1.49. I should have made sure I was using the correct equation for this particular problem. This caused my solution to be a bit off. In the second problem, since my number was a bit off from the first problem it caused the rest of this problem to be off. I also chose the wrong coefficient number. In the third problem, I mistakenly added F_e in the equation for equilibrium. For some reason I thought the weight of the tube and the weight of the person were two separate variables instead of adding them together. When calculating for the stability I forgot to include the difference in diameters when calculating for the volume. For problem four, I was a bit confused about the wording of this problem, so I didn't do it right at all. In the fifth problem, I used the correct equations but didn't quite calculate everything right, so my solution was off. For problem six, I didn't solve the coefficient properly, so it threw off the end result. For the seventh problem, I didn't solve for pressure properly, so my calculations were incorrect.
3) Possible Grade

1.	Purpose	0.5/10.0 out of 0.5/10.0
2.	Drawings	1.0/10.0 out of 1.0/10.0
3.	Sources	0.5/10.0 out of 1.0/10.0
4.	Design considerations	0.75/10.0 out of 1.0/10.0
5.	Data and variables	0.5/10.0 out of 0.5/10.0
6.	Procedure	2.0/10.0 out of 2.0/10.0
7.	Calculations	1/10.0 out of 2.0/10.0
8.	Summary	0.5/10.0 out of 0.5/10.0
9.	Materials	0.5/10.0 out of 0.5/10.0
10.	Analysis	1.0/10.0 out of 1.0/10.0
	TOTAL	**8.25/10.0** out of 10.0/10.0

1. Flow in the open channel
    a. Lazy river dimensions — 1/28 out of 1/28
    b. Correct equation — 0.5/28 out of 1/28
    c. Area and hydraulic radius — 1/28 out of 1/28
    d. Correct results? — 0/28 out of 1/28
2. Drag force on the child
    a. Correct equation to use — 1/28 out of 1/28
    b. Correct area and velocity — 0.5/28 out of 1/28
    c. How Cd was obtained? — 1/28 out of 1/28

    d. Correct results? 0/28 out of 1/28
3. Lazy river tube floating – stability
    a. Realize Fb=W and solve for distance into water 0/28 out of 1/28
    b. Compute metacenter location 1/28 out of 1/28
    c. Realize metacenter will always be above cg 1/28 out of 1/28
    d. Correct results? 0.5/28 out of 1/28
4. Force on the channel walls and floor per 1m-length
    a. Vertical force (weight) & location 0/28 out of 1/28
    b. Horizontal force magnitude 0/28 out of 1/28
    c. Horizontal force location 0/28 out of 1/28
    d. Correct results? 0/28 out of 1/28
5. Pipe-elbow forces
    a. Free body diagram and correct forces 1/28 out of 1/28
    b. Force in x – solve for Rx 1/28 out of 1/28
    c. Force in y (weight) – solve for Ry 0.5/28 out of 1/28
    d. Correct results? 0/28 out of 1/28
6. Flow-nozzle flowmeter pressure drop
    a. Right equation and A1/A2 0.5/28 out of 1/28
    b. C value 0.5/28 out of 1/28
    c. Correct results? 0/28 out of 1/28
7. Water hammer pressure increase and cavitation
    a. Wave velocity (units?) 0/28 out of 1/28
    b. Pressure increase and Pmax 0/28 out of 1/28
    c. Pipe thickness 1/28 out of 1/28
    d. Lowest pressure & compare to sat pressure (cavit) 0/28 out of 1/28
    e. Correct results? 0 /28 out of 1/28

FINAL GRADE:
If getting everything right:
8.25 + (80)*(12/28) = 42.65

4) a. I had some confusion during the test, but I made sure to read through the textbook and tried to solve the problems as best as I could.
b. I set a whole day to finish the test. I would probably have given myself some more time.
c. I learned a lot more about being able to design things, like the lazy river.
d. Engineers have to design things all the time, like the piping layout of a building or other things similar.
e. I might use what I learned when I get a job in engineering.
f. Yes, I think it what I learned will be very important in a professional career.
g. If I ever get a job where I need to design the layout of a system, I will use some of the new skills I learned and apply them to the task.
h. No I have not.

i. I felt pretty successful in choosing the right equations and following through with them accordingly.
j. I would like to design things in the future, so I might be completing tasks similar to what was in the test in a job.
k. I spent about a day on the test. This day was set to be the day I worked on the test, so I made sure I didn't have anything else to do that day. I would have started sooner if I could, but I am in the process of moving so I didn't really have the option to.