

1) Connection to Course Learning Objectives

This test shows how I'm working toward understanding steam power cycles and how to analyze them. I had to deal with a regenerative Rankine cycle, which included turbines, pumps, and both open and closed feedwater heaters. This connects to the course objectives because we're supposed to be able to calculate things like thermal efficiency and net work, and understand how changes in a system affect performance.

2) Comparison to Solution & Mistakes

When I compare my test to the solution, I think I understood the main idea, but I made some mistakes in how I set things up and solved them.

- One mistake I made was mistaking h_5 was the same as h_{7a} . which caused my q_{in} to be way off and domino effect into my other answers that required q_{in} .
- Another problem was my organization. My work wasn't very clear step-by-step, which made it harder to follow and probably led that mistake.

If I could do this test again, I would:

- Draw the system first and label everything
- Define all variables before solving
- Go slower and check each step before moving on

3) What My Grade Should Be

Looking at my test compared to the rubric I have missed a couple things like a P-V diagram, a material section, a table showing all the y-values. Looking at my writing I think I did good for the writing, it looks nice. I probably could have added more writing in all the sections. I also could have been more organized in shown my work for how I solved the problems.

Purpose	0.5/10.0
Drawings	0.7/10.0
Sources	1.0/10.0
Design considerations	1.0/10.0
Data and variables	0.5/10.0

Procedure	2.0/10.0
Calculations	1.5/10.0
Summary	0.5/10.0
Materials	0/10.0
Analysis	1.0/10.0
TOTAL	8.7/10.0

PROBLEM 1)

P-v and T-s diagrams	1/18
State calculations (11 of them)	4/18

PART 1)

Calculate y6, y7, and y9	2/18
Net work	1.5/18
Thermal efficiency	1/18

PART 2)

Realize that y7 is zero and that 4=5	2/18
Calculate y6, and y9	0.5/18
New net work and thermal efficient	1/18
Final results	2/18

TOTAL	15/18
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FINAL GRADE:

$$8.7 + (80) \cdot (15/18) = 75$$

Strengths:

- I understood the main concept of both problems but just made a calculation error and that screwed all my answers up for the first problem.
- I was able to compare the two systems correctly
- My formulas were correct and used correctly

Weaknesses:

- My work wasn't very organized
 - Some calculations were wrong
 - I probably should have gone into detail in some sections
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4) Reflection Questions**a. Issues I had & how I handled them**

I had trouble keeping track of the different extraction points. The 7a and 7b were kind of confusing for me. I just replaced with number numerically first then after the test changed them

b. Steps I took & what I'd change

I started with h1 and worked my way down to h9. I don't think I would change anything In my opinion I thought it worked really well.

c. New concepts I learned

I learned more about the diagrams since I drew them out.

d. Where engineers use this

This is used in power plants, like coal or nuclear plants, where they want to make systems more efficient.

e. Where I'll use this

I'll probably use this in a job related to mechanical systems.

f. Is this important for my career?

Yeah, especially if I go into anything related to thermal systems.

g. How I might use this in the future

I could use this when working on systems that need to save energy or be more efficient.

h. Have I used this anywhere else?

None that I can recall. I have definitely used this before but I cant remember.

i. Where I did best / improved

I think I did well understanding the overall concept, but I need to improve on calculations and organization.

j. Connection to my field

This is directly related to mechanical engineering, especially anything involving power or energy systems.

k. Time spent & organization

I spent 6 hours on this trying to take my time. Next time I will be more organized.

Final Thoughts

Overall, I think I understand the main ideas, but I need to be more organized and careful with my calculations. I was able to correctly explain the difference between the two systems, which shows I got the concept. But I need to check my work more to avoid mistakes.