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# PROBLEM 6-8N QUESTION

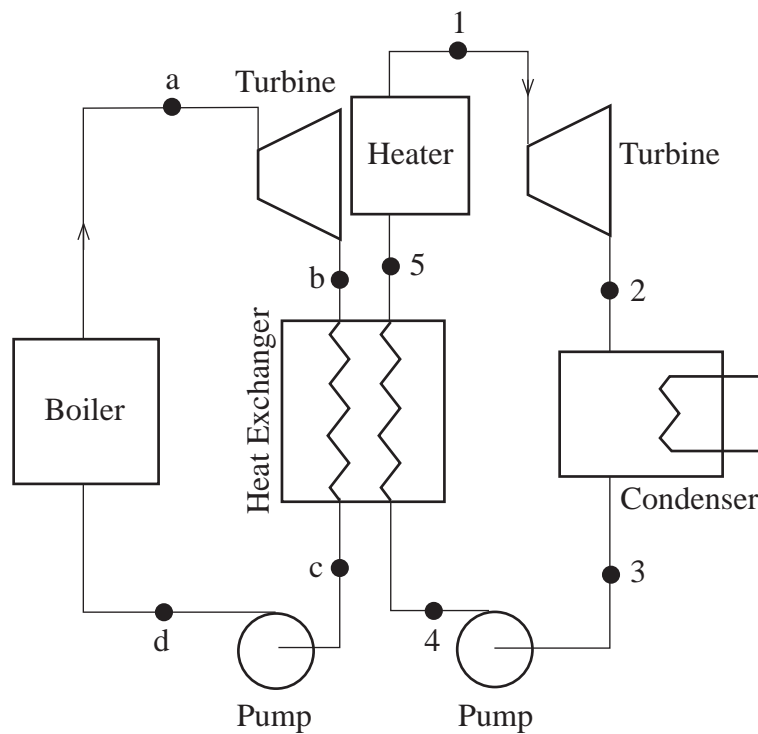
## Thermodynamics Of Binary Cycle Involving Sodium And Steam Water

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Consider the binary cycle using the sodium and steam/water in the sketch below and operating at conditions in Table 1. Sodium properties are in the text Appendix E.

1. Draw T-S diagram of the cycle.
2. Compute the cycle thermal efficiency.



Schematic Diagram of Binary Cycle

Table 1. Operating Conditions

Points	Pressure (psia)	Condition
a	105.2	Saturated Vapor of Sodium
b	1.317	
c	1.317	Saturated Liquid of Sodium
d	105.2	
1	600.0	Superheated Steam at $T = 680^{\circ}\text{F}$
2	1.0	
3	1.0	Saturated Liquid
4	600.0	
5	600.0	Saturated Vapor

Turbine Isentropic Efficiency = 90%

Pump Isentropic Efficiency = 85%