HW7 Tips

Problem 1

* Insulated valves are modeled as isenthalpic (meaning enthalpy is constant across the valve). This means that h\_1 = h\_2. If you know the state entering the valve you can find the enthalpy at state 1. Exiting the valve you know the enthalpy and pressure (two independent, intensive properties), which should be enough to define state 2. You can find x\_2 by using h\_2, h\_f2, and h\_g2 from the tables.
* To find the temperature at state 2, remember the temperature and pressure characteristics of 2-phase mixtures when under the dome. What is the temperature of saturated liquid at 1.00 MPa? What is the temperature of saturated vapor at 1.00 MPa?

Problem 2

* Use molar specific volume at critical point (there is a table for critical point data in your booklet), then convert from m^3/kgmol to m^3/grams. Knowing the volume and specific volume you can find the mass.
* You might gain some insight by sketching the process on a P-v diagram.

Problem 3

* There are five states provided. You need to figure out the missing information in the table.
* Use Table 3.9 to help guide your discovery of the state.
* Once you know the state, use the appropriate tables in your booklet to find the properties
* You may want to work on these in a study group
* Make sure to sketch each state on a diagram.