Tips for HW5

1. For this problem you will want to assume beta is constant over the specified temperature range. You can find this value in Table 3.2 (paying close attention to the order of magnitude). Expect a slight increase in volume (~0.00002, or 0.002%)
2. You can find values for beta and kappa in Table 3.2. Make sure to choose the column with appropriate units for this problem, and keep track of units in your calculations (that’s true for every problem). Also, be purposeful about your units for pressure and temperature. Do these need to be in absolute units? Or can they be in relative units? For this material the expansion due to temperature change is smaller than it is due to pressure change. So if the pressure change is ~986 psi, you should expect that the temperature change needs to be greater than 986 °F. Expect a final temperature value greater than 2500°F.
3. One of the purposes for this question is for you to identify differences between a superheated vapor, a gas, and a super-critical fluid. While a gas is also a superheated vapor, a superheated vapor is not necessarily a gas. What defines something as a superheated vapor? What defines something as a gas? What defines something as a super-critical fluid?