Assignment problems I

- **P4.5:** Calculate the difference in slope of the chemical potential against pressure for water on either side of (a) normal freezing point (b) normal boiling point. The densities of ice and water at 0⁰C are 0.917 g cm^{-3} and 1.0 g cm^{-3} and those of water and water vapour at 100⁰C are 0.958 g cm^{-3} and 0.598 g cm^{-3}, respectively. By how much the chemical potential of water vapour exceed that of liquid water at 1.2 atm and 100⁰C.

- **P4.7**: 50 dm^3 of dry air is slowly bubbled through a thermally insulated beaker containing 250g of water initially at 25⁰C. Calculate the final temperature assuming the vapour pressure of water constant at 3.17kPa, its heat capacity 75.5 J·K^{-1}mol^{-1} and it behaves as a perfect gas. Assume that the temperature of air is constant.

If you need any extra data to solve the problems, search for them in the Data section in the end of the Atkins book!