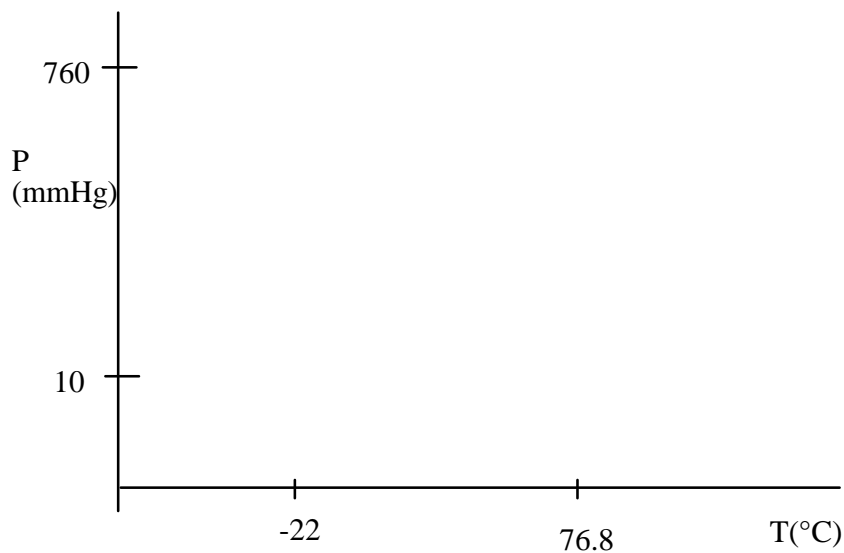


Handin Homework 10: Phase transitions and Ideal Solutions

1. When 640. mg of naphthalene is dissolved in 40.0 g of chloroform, the boiling point of the solution is 0.455°C higher than that of pure solvent (61.2°C). Calculate (a) the molal boiling point elevation constant, and (b) the molar enthalpy of vaporization of chloroform.

2. The normal melting point of CCl_4 is -22.0°C . At -22.0°C the vapor pressure is 10.0mmHg . The liquid and solid densities are 1.63 and 1.80 g cm^{-3} , respectively. The normal boiling point is 76.8°C .

a. Make a qualitative plot of the phase diagram for CCl_4 . Use several specific points to guide the drawing of your lines. Mark the liquid, vapor, and solid regions.



b. Calculate the enthalpy of vaporization of CCl_4 .