## Assignment problems I

- **P4.5:** The enthalpy of fusion of mercury is 2.292 kJ/mol and it's normal freezing point is 234.3 K with change in the molar volume of +0.517 cm<sup>3</sup>/mol on melting. At what temperature will the bottom of a column of mercury (density 13.6 g/cm<sup>3</sup>) of height 10m be expected to freeze.
- P4.7: 50 dm<sup>3</sup> of dry air is slowly bubbled through a thermally insulated beaker containing 250g of water initially at 25°C. Calculate the final temperature assuming the vapour pressure of water constant at 3.17kPa, its heat capacity 75.5 J·K<sup>-1</sup>mol<sup>-1</sup> and it behaves as a perfect gas. Assume that the temperature of air is constant and the air bubbles are sufficiently small to reach equilibrium with the surrounding water.

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