PHYS 324 – Thermodynamics
Spring 2008

Homework 1: (due Jan 23rd)

1. A state function for a *Van der Waals* gas is given by an equation between thermodynamic variables that depend on model parameters ***A***, ***B***, and a physical constant ***R***:

$$\left(P + \frac{AN^2}{V^2}\right)\left(V - NB\right) = NRT$$

where $\boldsymbol{AN^2/V^2}$ is referred to as the internal pressure due to the attraction between molecules and ***NB*** is an extra volume, sometimes associated with the volume per molecule.

   a. Write out a differential expression for ***dN*** in terms of differentials of the thermodynamic variables. (Hint: we did this for the state function that defined how far I was from the corner of the room.)