3. Do problem 1.16 in the text, parts a, b, and c only. Note that this problem assumes that the temperature in the Earth's atmosphere is constant; this is clearly not true but the variation in temperature is much less than the variation in pressure so your results should be approximately correct.

(d) In class, I said that the pressure difference between the lower and upper parts of the room was negligible. How high would you have to go before the pressure changed by 5%? Adopt $T = -20\,^\circ C$.

4. Specify which quantities are extensive and which are intensive: Pressure, Temperature, molar volume, kinetic energy, electric charge.