[tex52]**Triple point phase changes**

A vessel with insulating and rigid walls contains 1g of water, 1g of ice, and 1g of H_2O vapor in thermal equilibrium. Now we add the amount $\Delta Q = 251$J of heat to the vessel. Find the amount (in grams) of ice, water, and vapor in the new equilibrium state.

Triple point temperature: $T = 273$K.

Triple point pressure: $p = 611$N/m^2.

Latent heat of fusion: $L_{sl} = 335$J/g.

Latent heat of vaporization: $L_{lg} = 2495$J/g.

Latent heat of sublimation: $L_{sg} = L_{sl} + L_{lg} = 2830$J/g.

Densities of ice and water: $\rho_s \simeq \rho_l \simeq 1.00$g/cm^3.

Molar mass of H_2O: $m = 18$g/mol.

Gas constant: $R = 8.314$JK^{-1}mol^{-1}.