The peak of the electromagnetic spectrum from a black body (#1) at temperature $T_1=2000K$ is at a frequency ω_1. The peak of the spectrum from a second black body (#2) is at $3\omega_1$.

i)   What is the temperature of the second black body?

ii) What is e_2/e_1 where e_i's correspond to the energy densities $(U/V)_i$?