1. **(a)** Find the radiative lifetime in ns for the excited state of the system for which the transition rate per molecule was found in Lecture 35 (for which the transition dipole length = 1 Å and would have an emission wavelength near the maximum of the mirror image of the absorption (in energy), which would be about 738 nm.

**(b)** Do the same for a transition energy of 1 cm⁻¹ (which is in the microwave region), assuming the same transition moment as in (a)

2. Calculate the oscillator strength for the two transitions of problem 1.