Homework 7

Astronomers use several different units to measure brightnesses: fluxes per unit wavelength (F_λ), fluxes per unit frequency (F_ν), and magnitudes, both integrated and per unit wavelength and frequency (m = -2.5logF). Since magnitudes are logarithimic units, differences in magnitude correspond to ratios in fluxes.

1 **A Jansky is a unit used to measure flux density, most often in the radio; one Jansky is 10-26Wm-2Hz-1 (note that this is an F_ν quantity). How bright is Vega at 5500 in Janskys, using the fact that the flux density of Vega at 5500 is 3.6 x 10-9ergs/cm2/sec/ (note that this is an F_λ quantity)?**

2 **If a star has a flux density of 3.6 x 10-9ergs/cm2/sec/ at 8500 , how bright is it in Janskys?**

3 **If a star has a flux density of 7.2 x 10-14ergs/cm2/sec/ at 5500 , how much fainter is it than Vega in magnitudes?**