Atmospheric Sciences 101
Homework 4
Due November 16, 2006


Name_____          Section_____


1.      A blackbody warms from 250°K to 300°K and the amount of radiation it emits
        changes.  What is the ratio of the amount of radiation emitted at these two
        temperatures?   (radiation at 300K/radiation at 250K)




2.      If Jupiter's upper cloud deck has a temperature of 173°K and the temperature
        of Mercury's surface is 533K, what is the wavelength of peak emission for each body?

        To what part of the electromagnetic spectrum does each of these two
        wavelengths belong?




3.      An object of mass 2 kg is being accelerated from rest at an acceleration of 5 m s$^{-2}$ ·
          What is its new speed 30 minutes later if the acceleration is always along the
        direction of motion?

4.       If mankind added some gas to the atmosphere that got rid of the "IR window" between 8 and 12 microns, how would the earth's climate change?

5.       Suppose the rate of rotation of the Earth was increased. What effect would this have on the Coriolis force and the strength of the geostrophic wind?