Astr 350 Homework Set #2 – Due: Tuesday, Sept. 27

Each problem is worth 10 points.

1. Show numerically that the U-B vs B-V relationship is a straight line for the Planck spectrum. For simplicity, assume that the filter pass-bands are nearly monochromatic with a central frequency, ν_o, and a width, $\Delta\nu$, such that the flux is given by $B(\nu_o,T)*\Delta\nu$. ν_o and $\Delta\nu$ can be estimated from the curves given in Figure 3.10 in your textbook. Show analytically that this line ends at a point corresponding to infinite temperature.

2. Problem 5.14.

3. Problem 5.15.

4. Problem 5.17.

5. Problem 7.1.

6. Assume that the spin axes of stars are randomly oriented in space. Calculate the average inclination of a star viewed from Earth.

7. Problem 7.3. Also, add a part (c) to this which is to calculate the resulting value of sin*i*.

8. Problem 7.5.

9. Answer problems 7.10 and 7.11 using complete sentences.

10. Problem 7.13.