Phys 10 Homework 2 (Due Wed Jan 20 by 10am in PHY10 mailbox in room 218 physics)
Assigned: Jan 12

2.1 Look at figure 5.19 on page 160 of The Cosmic Perspective. When viewed by the human eye,
   a) what color does the 15,000K star appear to have, compared with our sun?
   b) what color does the 3,000K star appear to have, compared with our sun?

Hint: Think about which color in the visible spectrum appears with the highest intensity.

2.2 Suppose an astronomer sees a familiar pattern of spectral lines, except the wavelength of each feature is shifted in the blue direction by 1%, as compared with the familiar pattern observed in the lab. How fast is the observed object moving, and in what direction?

Hint: Use the formula for “Doppler shift” discussed in lecture and on p. 165 of The Cosmic Perspective. You can get an answer without knowing the actual wavelength because I give the shift as a %.

2.3 Chapter 5 Problem 52 in the text Hint: pay close attention to the units

2.4 Chapter 5 Problem 57 Hint 1: For part a., please interpret “how much more thermal radiation” as “how much more power”. Also, Math Insight 5.2 is useful for this problem. Hint 2: There is no single right answer for part c. Just write a sentence or two stating what you think and why. Answers that show you have thought about the impact of parts a) and b) of this question will get full credit.