PHYSICS 380

HOMEWORK #4

For discussion in class Sept. 27 and submission on Oct. 4 (remember, no class Sept. 29).

1. In astronomy, we define a parameter, z, as :

$$z = \frac{\Delta\lambda}{\lambda}$$

where $\Delta\lambda$ is the wavelength shift due to the Doppler effect. Can values of z ever exceed 1? Explain your reasoning. Then review the abstract of this article : http : // www.nature.com/nature-/journal/v474/n7353/full/nature10159.html

focusing particularly on the z values of quasars they studied. Speculate how can quasars have such large z values?

2. 3.16 on pp. 82 - 83 in the text. The instruction to ignore the constant C means that you cannot simply say "the UBV system is calibrated such that U=B=V=0 for Vega").

3. 5.1 on p. 138.

4. 5.8 on p. 139

5. 5.14 on p. 139

6. 5. 17 on p. 140

7. 7.3 on p. 199

8. 7.4 on p. 200