AST322 Chapter 4 Homework (Due 2/15/18)

NOTE: These questions are intended for Ryden's Cosmology, 2nd Edition

4a: Prove equations (4.17) and (4.18).

4b: Use Ryden equations (4.26) and (4.33) to show that

$$\left(1 - \frac{1}{\Omega(t)}\right) = (1+z)^{-1}\left(1 - \frac{1}{\Omega_0}\right)$$

Also prove (4.35) and (4.36). Discuss the implication of these equations, particularly as they relate to the theory of inflation.

4c: Do Ryden Exercise 4.2