Homework problems #3

1. Find the present universe age in terms of Ω_m^0 and H_0 assuming matter domination and non-zero curvature ($k \neq 0$).

2. Confirm the result (shown in the lecture notes 2b, page 24) for the present universe age assuming $k = 0$, and presence of matter with cosmological constant.

3. Plot in a single figure the present universe age assuming matter domination and radiation domination for non-zero curvature ($k \neq 0$) as a function of the corresponding Ω^0.

4. Find a relation between time t and redshift z for mater dominated and radiation dominated flat universes.

5. Assuming numbers accepted by the concordance model $\Omega_m^0 = 0.3$ and $\Omega_\Lambda^0 = 0.7$ find the redshift at which the observed presently acceleration began.