Problem Set 1 - Simple observations

1. Use the observed properties of the universe given in Section 1.2 to show that there is some missing energy if we assume that the universe is flat as predicted by inflation.

2. Calculate the age of the universe using the observed values, $H_0 \simeq 65\,\mathrm{km\,s^{-1}\,Mpc^{-1}}$, $\Omega_{\Lambda 0} \simeq 0.65$ and $\Omega_{\mathrm{m}0} \simeq 0.35$. What do you get if you use, $H_0 = 65\,\mathrm{km\,s^{-1}\,Mpc^{-1}}$, $\Omega_{\Lambda 0} = 0$ and $\Omega_{\mathrm{m}0} = 1$?