For a supernova at redshift z, its *distance modulus*, μ_b, is given by the formula

$$\mu_b(z) = 25 + 5\log_{10} D_L(z),$$

where

$$D_L(z) = \frac{2998}{h}(1+z)\int_0^z \left(\frac{\mathrm{d}x}{\sqrt{\Omega_\Lambda + \Omega_M(1+x)^3 + (1-\Omega_\Lambda - \Omega_M)(1+x)^2}} \right)$$

Now use the Python MCMC code to find joint constraints on the parameters $\{\Omega_M, \Omega_\Lambda, h\}$.

The physical meaning of these parameters are:

- Ω_M is the fraction of the present Universe contained in dark matter. This is a positive quantity.
- Ω_Λ is the fraction of the present Universe contained in dark energy. This is also a positive quantity.
- h is the Hubble parameter. It roughly quantifies how fast the Universe is expanding at present.

You can form your own opinions on the priors by researching on the internet.