Class problems #6

1. Find and draw luminosity/angular distances in matter-dominated universe with curvature.
2. Find and discuss time-evolution of proper momentum, i.e., $p \propto 1/a$ from geodesic equation.
3. Find and draw apparent luminosity of supernovae as a function of the redshift z for flat universes with the following composition of matter and cosmological constant $(\Omega_m, \Omega_\Lambda) = (0, 1), (1, 0)$. Compare with fig. 1 in https://arxiv.org/abs/astro-ph/9812133.