

ASTR 5460, Fall 2013: Problem Set 8

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Directions: This problem set includes material from Ryden chapters 9 and 10. Again, it's okay to work together, but do your write-ups independently. LaTeX is encouraged but not required. Due date: Tuesday, November 26.

1. Write a history of the universe from the epoch of neutrino decoupling to the epoch (surface) of last scattering at $z \sim 1100$. Be both qualitative and quantitative where appropriate.
2. Ryden 10.1, on the neutron decay time and how it affects the primordial Helium fraction.
3. Ryden 10.2, on baryon rest energies and their effect on the primordial Helium fraction.