

HOMWORK #3

1. Problem 8.6 of the text.
2. Problem 9.2a of the text.
3. Problem 9.3a of the text.
4. Problem 9.5 of the text.
5. Problem 9.6 of the text.
6. Problem 9.7 of the text.
7. Consider the spherical shell below shown in cross-section. Assume this is a shell of gas that has constant density ρ and constant opacity κ , that is not a function of wavelength. Derive the optical depth $\tau(p)$ for any ray parallel to the observer's z -axis (see figure) through the shell as a function of cylindrical radius p . The observer is located at $+\infty$. The inner and outer radii of the shell are R_1 and R_2 , respectively.

