

AST 301

Homework #7

Due Friday March 25

1. (Problems 4 & 5 in chapter 10, but I'll repeat it here for people with a different edition of the book.)

a) The Ring Nebula in Lyra (p. 192) is a planetary nebula with an angular diameter of 72 arcseconds and a distance of 5000 light-years. What is its linear diameter? You could give your answer in kilometers, light-years, or AU. (Hint: see By The Numbers 3-1, or convert 72 arcsec to degrees and use the formula we used on Homework 1.)

b) If the Ring Nebula is expanding at 15 km/s, typical of a planetary nebula, how old is it? For this calculation you will want to convert your answer to part a) into km. Give your answer to this question in years.

c) If we wanted to measure the expansion speed of the Ring Nebula, how could we do it?

2. In a few sentences say what a planetary nebula is and how it forms.