

HW #6 - due Tuesday, 11/8 in class**Kutner:****Ch. 10: Problems 7, 9, 10, 13 (for #13, assume an average mass per particle of m_{proton})**

Plus these:

1. Arrange the following stars in order of evolutionary stage:
 - a) A star with no reactions going on in the core, which is made primarily of carbon and oxygen
 - b) A star of uniform composition, containing hydrogen but with no nuclear reactions going on in the core
 - c) A star that is fusing hydrogen to helium in its core
 - d) A star that is fusing helium to carbon in its core and hydrogen to helium in a shell around the core
 - e) A star that has no nuclear reactions going on in the core but is fusing hydrogen to helium in a shell around the core
2. A spherical planetary nebula is observed to be expanding uniformly at 20 km/sec. Its diameter is 1 light year. Find its age in years.
3. The Galaxy is about 10 billion years old. What must be true of the original main sequence masses of stars that are now white dwarfs? Put another way, could a currently observed white dwarf have been a $1 M_{\text{sun}}$ main sequence star? Why or why not?