

Star death.

1. The event which marks the end of a star's life before becoming a white dwarf is
 - a) A planetary nebula
 - b) A nova
 - c) The helium flash
 - d) Exhaustion of hydrogen in the core
2. Which of the following is probably oldest?
 - a) A 1 solar mass main sequence star
 - b) A 1 solar mass white dwarf
 - c) A 10 solar mass main sequence star
 - d) A 10 solar mass red giant
3. Which of these stars ends its main sequence life most rapidly?
 - a) A very massive star because it burns its fuel very fast
 - b) A star like the sun because its fuel consumption balances its mass
 - c) A low mass star because they have less hydrogen to burn
 - d) None of the above: all stars have a main sequence lifetime of about 10 billion years.
4. Suppose that a planetary nebula is 1pc in diameter and the Doppler shifts in its spectrum show that it is expanding with a velocity of 30 km/s. How old is it?
5. The radius of supernova remnant Cassiopeia A is expanding at an observed rate of 0.5 seconds of arc a year. Doppler shifts show that the expansion velocity is 5700 km/s. How far away is the nebula?