

Astronomy 301 – Fall 2019

Homework 7

Due Date: Wednesday, October 23, 2019, 9:00 AM

You must turn in your homework answers electronically via Canvas. A .pdf or .docx file would be best, but if you can get a good image of your hand-written homework, a .jpg or .png file would okay also. Make sure your name and eid appear at the beginning of your homework.

We encourage you to work together on the homework but you are not allowed to copy from each other. You must write out the answers in your own words.

1. According to typical models for the interior of the sun:
 - (a) What is its temperature at the surface and the center of the sun?
 - (b) What is the density at the center of the sun?
 - (c) What nuclear reactions are responsible for most of the energy of the sun?
 - (d) Where is most of the energy of the sun produced?
 - (e) How does the energy in the sun get from its center to its surface?
2. How old is the sun? How do we know? How much longer will the sun remain a main-sequenced star? How do we know?
3. Protostars are often surrounded by disks of gas. What is the most direct observational evidence for the disks? What causes these disks to form?
4. Describe the two ways we have found most of the planets around other stars.
5. List at least three pieces of evidence that planet formation is a common byproduct of star formation.