

Physics 1311  
Spring 2020  
Homework/Study 7 (two-sided)

Chapter 10

1. Do we have to assume anything (something we do not **know**) when measuring parallax? If so, what? If not, write NO.
2. Why is the parsec 3.26 light-years in length?
3. Write the definition of absolute magnitude.
4. Briefly describe proper motion and how it is measured.
5. Suppose there is a star of absolute magnitude ( $M$ ) of  $-1$  lying 2,000 parsecs away. What will its apparent magnitude ( $m$ ) be? Show your calculation.
6. There is a star with  $m=-1.8$  and  $d=600\text{LY}$ . Find its absolute magnitude. Show your calculation.
7. How are spectral type (on the Main Sequence) and stellar mass related?
8. Which type of star (from O B A F G K M) has the longest lifetime?

9. Describe a visual binary.
  
10. In stellar terms, what do we mean when we describe a star as a giant?
  
11. What situation allows astronomers to measure the mass of stars?
  
12. If the parallax angle of a star is 0.03 seconds of arc, how far away is it (in parsecs)?
  
13. What two motions add up to a star's space velocity?
  
14. Mars orbits 1.5 AU from the Sun. Using 1 for the sunlight intensity on Earth, find the sunlight intensity on Mars. (Recall the demo in class). Show your calculation.