

Cepheid Variables

1. Given the graph on the next page, what is the general trend of period versus luminosity?
2. Two variable stars (star A and star B) are known to lie within the same globular cluster. Star A has a measured period of variability of 5 days while star B has a measured period of variability of 20 days. Which star appears brighter? Explain your reasoning.
3. Two variable stars (star C and star D) lie at unknown distances. Both have the same measured period of variability (10 days). Star C appears 4 times brighter than star D. Which star is closer? How much closer? Explain your reasoning.
4. In general, how are Cepheid Variable stars used as distance indicators, i.e., how can you determine the distance to a Cepheid Variable star? (Hint: There are two steps involved; explain both of them).

