Homework 09

Problem 1 (5 points)

Consider a star with mass of 4.5 M_{\odot} and radius of 44.5 R_{\odot} . Find the period of pulsation of this star governed by pressure support. Does this period matches δ Cephei.

Problem 2 (5 points)

Does this star has a larger magnitude when it is compressed or when it is expanded. Why so?

Problem 3 (5 points)

 δ Cephei changes its magnitude from 2 to 10 over the period. What is required relative radius change to achieve such luminosity modulation? Assume that process is adiabatic and linearization holds even for large deviations.