

Homework 7

Due Tuesday 11/10/2009 at 5:30pm in my box in physics. These may also be handed in at the end of Justin Mitchell's office hours in PHYS 228 from 4:00-5:30pm Tuesday or at the SPS meeting starting at 5:30pm in PHYS 134.

Fowles Problems

10.13

10.18

11.1

11.2

11.18 Find only normal frequencies.

11.20

E1 The system below has two masses each of mass m and three springs with spring constants $k_1 = k$, $k_2 = 2k$, and $k_3 = 3k$. Let the equilibrium location of the masses be given by x_1 and x_2 , measured from the left support. The masses oscillate in a line.

- Write the Lagrangian for the system.
- Find the frequencies of the normal modes of the system.
- Find the eigenvectors of the normal modes.
- How must the system be prepared for it to oscillate only with the lowest normal frequency?

