

Physics 505 - Autumn 2005

HW VI

Due 11/9/05

Overview: Recall that solving physics problems is not (just) about solving differential equations. Use physical reasoning to help solve the following exercises and be certain to show your work. It is also important that you practice completely solving these exercises, checking for errors as you go along.

Delayed from last week –

1) Fetter & Walecka – 4.1 Here we expand our study of small oscillations to include the full normal mode formalism.

New

2) Fetter & Walecka – 4.3 The double pendulum problem is a classic normal mode study and we should solve it.

3) Fetter & Walecka – 4.4 Here is a chance to return to a system we have already analyzed and apply the normal mode formalism to it.

4) Fetter & Walecka – 4.13 This is an exercise in the transition to systems with large numbers of normal modes.

5) Fetter & Walecka – 4.16 Here we get the opportunity to consider what happens to normal modes in 2 spatial dimensions and in the continuum limit.