ADVANCED DYNAMICS — PHY 4241/5227 HOME AND CLASS WORK – SET 7

(February 21, 2011)

Read Landau-Lifshitz §23. Due February 23.

(21a) Derive the results of problem 4 §21 of Landau and Lifshitz. Due February 23 before class (3 points).

(21b) Let $\gamma = \omega + \epsilon$. Taylor expand

$$x(t) = a \cos(\omega t + \alpha) + \frac{f \left[\cos(\gamma t + \beta) - \cos(\omega t + \beta)\right]}{m (\omega^2 - \gamma^2)}$$

to order ϵ and take the limit $\epsilon \to 0$. Due in class (3 points).

- (22) Derive the results of problem 1 §22 of Landau and Lifshitz. Due February 25 before class (4 points).
- (10b) Calculate the normal modes (eigenvalues) of the pendulum of problem 10, set 2. Due February 28 before class (4 points).

Read Landau-Lifshitz §24. Due February 25.