PHYS 251  HONOURS CLASSICAL MECHANICS  2014

Homework Set 2

READINGS: Text, pp. 51 - 70, class notes Notes on Dynamical Systems on the web.

PROBLEMS (due Sept. 12, in class):

1. Read Section 3.2 in the textbook and write a summary of the most important points in LESS than a page.
2. Problem 3.2 (textbook) (*)
3. Problem 3.6 (textbook) (*)
4. Exercise 3.30 (textbook)
5. Exercise 3.33 (textbook)
7. Assume that F1 is an inertial frame, and that the frame F2 is moving with constant velocity relative to F1. Show that F2 is also an inertial frame.
8. Given a single particle moving in one dimension under the influence of a force

\[ F(q) = -\sin(q)\cos(q), \]

construct a sketch of the phase space diagram of the flow of this dynamical system.

Note: Problems marked * do not need to be handed in.