Homework 3.

1) problem 4 in the online lecture notes on Green's function: see the home page or directly `http://www.mth.kcl.ac.uk/~jerdos/OpTh/w7.pdf`.

2) Exploration 9.5: the pendulum with the constant forcing (**only part 3!**). (Hint: show that the Poincare return map, for example, to a vertical interval $\theta = 0, \quad v \in [v_1, v_2]$, has a fixed point).

3) Compare a linearization of a system at an equilibrium with the variational equation (in your own words). Can the linearized system be thought of as a variational equation (see page 151 in HSD about the variational equation)?

4) problem 9.6 from HSD (page 212)

5) problem 10.7 from HSD (page 233)

6) problem 10.15 from HSD (page 234)