Physics 820 homework XV, due Mon Dec 8

Reading: Chapters 9.6, 10

Problems:

1. From the Aug ’02 subject exam:
   Consider a charged particle of mass $m$ moving in a constant magnetic field of magnitude $B$ in the $z$ direction. The motion can be described by a Lagrangian such as $L = \frac{1}{2} m \vec{v}^2 + e B x v_y$.
   (a) Write down the corresponding Hamiltonian for this system in terms of an appropriate set of canonical variables. (b) Write down the Hamilton-Jacobi equation for this system. (c) Outline the procedure that can be used to solve this equation.

2. Goldstein, Problem 10-5.
