221A HW #1, due Sep 3 (Fri), 4pm

1. **Quantum Mechanics in College.** Answer the following questions.

   (a) What were the subjects in quantum mechanics that left you uneasy or confused?

   (b) Did you study Dirac's bra/ket formulation?

2. **Classical Mechanics in College.** Have you studied the following subjects in classical mechanics? (yes/no)

   (a) Action principle and Euler–Lagrange equation.

   (b) Hamiltonian and Hamilton equations.

   (c) Hamilton–Jacobi equation.

   (d) Canonical or contact transformations.

   (e) Noether's theorem.

   (f) Poisson brackets.

   (g) Liouville's theorem.

   (h) Adiabatic invariants.

3. **Mathematical Methods in College.** Have you studied the following subjects in mathematical methods? (yes/no except for the last one)

   (a) Steepest descent method.

   (b) Differential forms.

   (c) What kind of mathematics that appeared in quantum mechanics did you find unfamiliar?