

## Homework 10

*This is first STAR problem. The rules are as follow:*

- (a) if you find a standard solution (for example from a good Analytical mechanics book or on a Website) – you got nominal number of points. I rely on your comment at the end of the derivation.*
- (b) If you derived your own original proof – you have 5-fold increase in the score.*

Problem 1. 15 points. Prove that

- (a) A canonical transformation is equivalent to a symplectic map (locality symplectic linear transformation);
- (b) a symplectic map (locality symplectic linear transformation) is a Canonical transformation,

Suggestion: you may ask for additional hint during next class.