

HW #1

1. Derive Liouville's theorem of classical statistical mechanics.
2. Recall that the Fokker-Planck equation in velocity space for a free particle is given by:

$$\frac{\partial W}{\partial t} = \beta \vec{\nabla}_{\vec{u}} \cdot (W \vec{u}) + \eta \nabla_{\vec{u}}^2 W.$$

Solve this equation and demonstrate that the solution $W(\vec{u}, t; \vec{u}_0)$ reproduces our earlier result (Eq. 1161) in Chandrasekhar).