Eleventh Homework  
Due 10:10 a.m., Wednesday May 1

1. Give an example of a Lie group $G$ and representations $\rho, \sigma$ such that $D\rho \sim D\sigma$, but $\rho \not\sim \sigma$. (3 points)

2. Show that the adjoint representation and the standard representation are equivalent representations of the Lie algebra $\mathfrak{so}(3)$. Deduce that the adjoint and standard representations of the Lie group $\text{SO}(3)$ are equivalent. (4 points)

3. Exercise 5.1 on page 79. (4 points)

(3 problems, 11 points altogether)