Lie Groups and Representations, Fall 2013
Problem Set 4

Due Monday, November 11

Problem 1: Kirillov Problem 4.2

Problem 2: Kirillov Problem 4.3

Problem 3: Kirillov Problem 4.9

Problem 4: Kirillov Problem 4.13

Problem 5: Prove the Frobenius reciprocity relation for induced representations (just do for finite groups): when H is a subgroup of G, (ρ, W) a representation of H, one has an induced representation

$$Ind_H^G(W)$$

and

$$Hom_G(V, Ind_H^G(W)) = Hom_H(V, W)$$

where V is an arbitrary representation of G, and on the right-hand side V refers to its restriction as a representation of H