Math 214 HW#6, due 3/12/13 at 2:10 PM

1. Grade HW#5.
2. Lee 8.13.
3. Lee 8.25.
4. Lee 9.4.
5. Lee 9.7.
6. Lee 9.16.
7. Let G be a Lie group and let $\mathfrak{g}$ be its Lie algebra. Recall that the bracket $[\cdot,\cdot] : \mathfrak{g} \times \mathfrak{g} \to \mathfrak{g}$ and the exponential map $\exp : \mathfrak{g} \to G$ are defined using left-invariant vector fields on G. Show that if one uses right-invariant vector fields instead, then the bracket switches sign, while the exponential map is unchanged. Hint: Let $f : G \to G$ denote the map sending $g \mapsto g^{-1}$. What does f do to invariant vector fields?
8. How difficult was this assignment?