Physics 418, Homework Assignment
Due in Class, Monday, April 12, 2004

1. Griffiths, Problem 7.2

2. Griffiths, Problem 7.6

3. Griffiths, Problem 7.13

4. Griffiths, Problem 7.44

5. Derive the differential cross section, $d\sigma/d\Omega$, for electron-muon scattering in the Center-of-Mass (CM) system. Average over initial spins and sum over final spins. Use only the lowest order Feynman diagram discussed in Griffiths text and in lecture. Do not make any approximations based on the magnitude of the momentum Your result should be a function of two variables: the magnitude of the CM momentum, and the CM angle between the incoming and outgoing electron. Constants, such as the masses and coupling constant will also appear.