PHYSICS 6433

Problem Set 5 – Due March 01, 2017

Problem (1): Peskin and Schroeder, Problem 2.1(b)

Problem (2): Peskin and Schroeder, Problem 2.2

Problem (3): Peskin and Schroeder, Problem 2.3

Problem (4): Derive Eq. (2.31) in Peskin and Schroeder by applying the commutation relation,

$$[a(\vec{p}), a^\dagger(\vec{q})] = (2\pi)^3 \delta^3(p-q)$$

and Gaussian representation of the Dirac $\delta-$function

$$\int e^{i(\vec{p}-\vec{q})\cdot\vec{x}}\, d^3x = (2\pi)^3 \delta^3(p-q)\,.$$