**PHYS 633: Elementary Particle Physics Fall 2012**

**Homework #5 Due Date: 11/26/12**

1. **Problem 7.3**
2. What is the expected ratio  if the pions are in (a) an  state ( rule), or (b) an  state ()?
3. **Problem 7.8**
4. The equation describing  oscillations contains a term  whereas  oscillations go as



Account for the difference. Start with equation 7.57 of Perkins (for  oscillations) and derive the form given in equation 9.16a from section 9.7 (for  oscillations).

1. Given . Then if a  is produced (e.g. in ), show

 

where

 

Start from equation 7.57 in Perkins. Find a numerical result for the ratio above, given that .

