

## Homework #6

A subatomic particle called the  $K^+$  meson at rest decays to two subatomic particles called the  $\pi^+$  and  $\pi^0$  mesons. All three particles have different non-zero masses. Using conservation of momentum and energy, find an algebraic expression for the total energy of the  $\pi^0$  in terms of the masses and  $c$ .

Look up the masses of the  $K^+$ ,  $\pi^+$  and  $\pi^0$  mesons using the particle data link on the course website or <http://pdg.lbl.gov/2009/tables/rpp2009-sum-mesons.pdf> and calculate this energy. Express the result in MeV.

Chapter 38:3,5,9,11,12,16,17,19,20

Extra Credit: 38:13