

Physics 662
Problem Set 2

Due: Monday, May 7 , 2012

Work the following problems:

1. Perkins 8.3
2. Perkins 8.4
3. Perkins 8.5
4. Perkins 8.6
5. Perkins 8.8
6. The Higgs mechanism predictions for the gauge boson masses are:

$$M_W = \frac{gv}{2} \quad M_Z = \frac{v}{2}\sqrt{g'^2 + g^2}.$$

- (a) From the measured values of M_W and $\sin^2 \theta_W$, determine the value of v .
- (b) Repeat (a) using M_Z in place for M_W .
- (c) Comment on the comparison of the results for (a) and (b).