Physics 214 **Quiz 4-2 [20 points]**

An electron is confined to a 1-dimensional infinite potential well of width L. The energy of the electron in the first excited state ($n = 2$) is 12 eV.

1. [5 points] What is the energy of the electron in its ground state (e.g., its lowest energy state)?

2. [5 points] What is the width L of the well?

3. [6 points] What is the minimum energy photon that could be absorbed so that the electron can transition from the first to the fourth ($n = 5$) excited state?

4. [4 points] If we double the width of the well what happens to the energy of the first excited state?