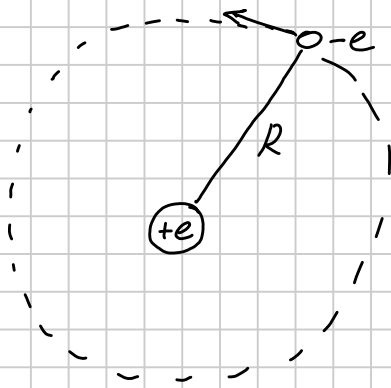


## Homework 12

Note Title

4/9/2008

Classical electrodynamics predicts that atoms are unstable. Consider a classical



planetary model of a hydrogen atom: at time  $t=0$  the electron is a distance  $R$  apart from the proton and revolving around a circular orbit. How long

will it take for the electron to fall on the proton?

What is the "lifetime" of atom if the initial radius is  $R = 1 \text{ \AA}$  ? [10 points]

Hint: make use of Eq. (11.60), page 457.