

# Homework: Week 1

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**1:**

Please discuss what would happen if the Planck constant were much larger.

**2:**

Please use the uncertainty principle from quantum mechanics to estimate the size of the hydrogen atom and its lowest energy.

**Hint:** Write down the total energy of the electron, which is the kinetic term plus the Coulomb potential, in terms of the size  $r$ , and then take the minimize value with respect to the size  $r$ .