In Class 4: Bohr Model of the Atom and Quantum Theory

Make sure you show your work and make sure all answers have units!

Use the Bohr Model of the atom to answer the following questions.

1. Assuming that an electron on H is in its ground state, what is the n value of the electron?

2. Calculate the energy of an electron in the ground state of the H atom using that n value.

3. If we were to completely remove an electron from the H atom, would that require an input of energy or give off energy?

4. What would the sign of the ΔE for that process be?

5. What would the n value of that new state be?

6. Calculate the energy of the electron in that state.

7. What is the value for ΔE of completely removing an electron from the ground state of a hydrogen atom?

8. Express that energy in kJ/mol of electrons.

9. What is the wavelength of light that could do that process?

Another way of asking the same questions (was on a previous exam): What wavelength of light is required to completely remove an electron from a mole of H atoms in the ground state?