Name _____ Date _____

Worksheet 3.2: Hydrogen emission spectrum

In a hydrogen emission spectrum, there are separate _____ representing radiations of different _____. The presence of a _____ spectrum rather than a _____ spectrum provides evidence that electrons can only possess certain allowed energies in an atom.

The emission spectrum is produced when an electron is _____ by external energy and moves from its _____ state to a _____ energy level. When the electron returns to a _____ energy level, a photon of a particular energy is released. The energy of the light is equal to the _____ between the two energy levels.

There are different _____ of lines in the hydrogen emission spectrum. The Lyman series in the UV region is produced when the _____ electron returns to the n = _____ level, where n represents the _____ energy level. The Balmer series in the visible region is produced when the _____ electron returns to the n = _____ level.

The lines in the emission spectrum get _____ at higher energy; this means the _____ _____ in an atom get closer at higher _____.