



## Modern Physics / Set 1 / Animation 5

Name \_\_\_\_\_ Class \_\_\_\_\_

&lt;Show all work on calculations. Include proper units. Explanations require complete sentences.&gt;

- 1) The Bohr model of the atom was successful because it explains why atoms emit line spectra, it predicts the frequency of emitted light in hydrogen, and it explains the absorption or dark line spectrum. Explain how the DeBroglie model helped to explain why there is a stable ground state that is quantized. Use a wave explanation.
  
  
  
  
  
  
  
  
  
  
- 2) Explain in terms of resonance why wave like electrons can't exist at orbits other than where they are found in the Bohr model.
  
  
  
  
  
  
  
  
  
  
- 3) Sketch the  $n=4$  level electron as the DeBroglie model would.
  
  
  
  
  
  
  
  
  
  
- 4) Bohr's model suggested that the electrons travel in a circular orbit, the DeBroglie model has the electrons as standing waves oscillating around the nucleus at a specific distance, wavelength and frequency. Explain the general idea behind the quantum mechanics "cloud" model that followed DeBroglie's model.