

Name: \_\_\_\_\_ Date: \_\_\_\_\_  
Chemistry

Worksheet



# Bohr Model Calculations

**DIRECTIONS:** This assignment is to be done on your own. You are not to work with anyone else. You may use your book, your handouts and your calculator. Use your class time wisely. Due when the bell rings.

**DIRECTIONS:** Solve the following problems and be sure to SHOW YOUR WORK.

\_\_\_\_\_ 1. Calculate the wavelengths (m) of radiation of the following frequencies.

\_\_\_\_\_ 2.

a)  $5.60 \times 10^{15} \text{ s}^{-1}$

b)  $2.11 \times 10^{14} \text{ s}^{-1}$

\_\_\_\_\_ 3. Calculate the frequency of radiation of the following wavelengths.

\_\_\_\_\_ 4.

a) 897.3 nm

b)  $7.52 \times 10^{-6} \text{ A}^{\circ}$

\_\_\_\_\_ 5. Calculate the energy of a photon of each of the following

\_\_\_\_\_ 6.

a)  $\nu = 5.60 \times 10^{15} \text{ s}^{-1}$

b)  $\lambda = 4.55 \times 10^{-9} \text{ cm}$

\_\_\_\_\_7. Calculate the wavelength and determine the type of radiation for a photon with following energy.

\_\_\_\_\_8.  $E_{\text{photon}} = 6.63 \times 10^{-16} \text{ J}$

**DIRECTIONS:** Read very carefully, solve and show your work.

\_\_\_\_\_9. Excited lithium ions emit radiation at a wavelength of 670.8 nm in the visible range of the light spectrum.

\_\_\_\_\_10.

\_\_\_\_\_11. a) Calculate the frequency of the radiation.  
b) Calculate the energy of a photon of this radiation.  
c) What color is this light?

**DIRECTIONS:** Read very carefully, solve and show your work.

\_\_\_\_\_12. Find the energy released when an electron that moves from  $n = 5$  to  $n = 3$ .

**DESCRIBE THE QUANTUM THEORY**

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**DESCRIBE THE BOHR MODEL OF THE ATOM**

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**“Don’t find fault, find a remedy.” –Henry Ford**