

1) If the energy required to remove the electron from an H atom in its ground state is  $2.18 \times 10^{-18}$  J, how much energy is required to remove an electron from a  $Be^{3+}$  atom?

2) When light with a wavelength of 275 nm is shone onto a metal plate, the electrons are observed as having a maximum kinetic energy of  $4.327 \times 10^{-20}$  J. What is the work function of the metal?

3) The second line of the visible series for hydrogen occurs at 486.1 nm. If the light is emitted when the electron falls to the  $n=2$  energy level, from what energy level did it originate?

5) Order the following equation from highest to lowest expected boiling points:  
 $HF$ ,  $H_2$ ,  $HCl$ ,  $F_2$

4) For  $BF_3$  and  $PCl_3$ , draw the VSEPR diagram. What is the hybridization of the central atom? What are the electronic and molecular geometries? What are the expected bond angles?