Use the following homework problems as a review to be sure you know the material in these activities.

Activity 1; Energy vs. Distance
a. ________________________ charges attract.
b. ________________________ charges repel.
c. As two opposite charges get closer together, the magnitude of the attractive energy ________________________.
d. As two like charges get closer together, the magnitude of the repulsive energy ________________________.

Activity 2; Energy vs. Charge
e. As charge increases, the magnitude of the attractive energy ________________________.
f. As charge decreases, the magnitude of the attractive energy ________________________.
g. What happens to the repulsive energy between two like charges when the charges increase?
   ______________________________________

Activity 3; Calculate E using a simplified Coulomb’s Law
h. The equation for Coulomb’s Law is______________________________.
i. Energy is negative when the charges are ________________________.
j. Energy is positive when the charges are ________________________.
k. The sign of the energy is ________________________ when the interaction is attractive.
l. The sign of the energy is ________________________ when the interaction is repulsive.
m. The sign of the Energy of interaction provides information about______________________________.
n. The absolute value of the Energy of interaction provides information about______________________________.

Activity 4; Calculate Energy vs. Distance
o. As the distance between particles gets larger, what happens to the magnitude of the energy of interaction?
Bohr Model Summary

Name_________________________

Homework

Chem 108 Section______________

Activity 4; Calculate Energy vs. Distance

p. When an interaction between oppositely charged particles is _________________, the system is more stable, and the overall energy is _________________.

q. The strongest interaction has _______________ overall energy even though the magnitude of the energy is _________________.

Activity 5; Calculate Energy for Orbits

r. As the value of n (the orbit number) increases, the magnitude of the energy ________________

s. As the value of n (the orbit number) increases, the overall interactive energy ________________

Activity 6; Simplified Energy Level Diagrams

t. What happens to the distance between the energy levels as n increases?

u. What is the relationship between n (the orbit number) and d (the distance between the electron and the nucleus)?

v. Which electron is harder to remove from its orbit; n = 1 or n = 2? How do you know this?

w. In which orbit does an electron have higher overall energy: n = 1 or n = 5?

x. What is the energy of the electron in a hydrogen atom equal to if k=hcR_H and d=n²?

Activity 7; Energy of an Electron

m. The energy of the electron in the n\textsuperscript{th} orbit is \( E = -\frac{hcR_H}{n^2} \). Describe in words what this means; what is the energy of an electron?

n. To completely remove an electron from the n = 1 orbit, do you put energy in or get energy out of the system?

Note; You should also know how to construct an energy level diagram and how to draw and describe electronic transitions between the levels.