Name _____ Period _____

ION CHARGE AND THE OCTET RULE

1. How many *valence* electrons does a lithium atom contain? _____
2. How many electrons would you have to ADD to a lithium atom in order to fulfill the octet rule? _____
3. What would be the charge on lithium if you added this number of electrons? _____
4. How many electrons would you have to TAKE AWAY from lithium in order to fulfill the octet rule? _____
5. What would be the charge on lithium if you take away this number of electrons? _____

Repeat questions 1-5 for all of the elements in period 2. Record your answers in the table below:

			Case A		Case B	
Element	**Group**	**Valence Electrons**	**How many electrons must be ADDED to fulfill the octet rule?**	**What would be the charge of the ion?**	**How many electrons must be TAKEN AWAY to fulfill the octet rule?**	**What would be the charge of the ion?**
Li						
Be						
B						
C						
N						
O						
F						
Ne						

6. For each element, determine which *case* is more likely to occur.
    a. Li _____
    b. Be _____
    c. B _____
    d. C _____
    e. N _____
    f. O _____
    g. F _____
    h. Ne _____

7. Which element(s) was/were difficult to classify? Why?

8. Based on your answers, determine the *charges of the ions* formed by the elements in period 2:

Element	Li	Be	B	C	N	O	F	Ne
Group								
Ion Charge								

9. Based on your answers, predict the charges of the ions formed by the elements in period 3:

Element	Na	Mg	Al	Si	P	S	Cl	Ar
Group								
Ion Charge								

10. For the group A elements, what is the relationship between the group number and the charge of the ion? Please be specific.

11. In general, which elements tend to form CATIONS?

12. In general, which elements tend to form ANIONS?