P D4 (pg 1 of 2) Forming the Most Common Ions

Name_____

1. Consider the atom $_{13}Al$
   a. Will this atom lose or gain electrons? How many?
   b. What charge will $_{13}Al$ most likely form when combining with some nonmetal?
   c. When it forms this ion is it called a cation or anion?

2. Consider the atom $_{37}Rb$ atom
   a. Will this atom lose or gain electrons? How many?
   b. What charge does $_{37}Rb$ most likely form when combining with some nonmetal?
   c. Cation or anion?

3. Consider the atom $_{35}Br$
   a. Will this atom lose or gain electrons? How many?
   b. What charge does $_{35}Br$ most likely form when combining with some metal?
   c. Cation or anion?

4. Consider the atom $_{10}Ne$
   a. Will this atom lose or gain electrons? How many?
   b. What charge does $_{10}Ne$ most likely form when combining with some other element?
   c. Cation or anion?

5. Consider the atom $_{34}Se$
   a. Will this atom lose or gain electrons? How many?
   b. What charge does $_{34}Se$ most likely form when combining with some metal?
   c. Cation or anion?

6. Consider the atom $_{15}P$
   a. Will this atom lose or gain electrons? How many?
   b. What charge does $_{15}P$ most likely form when combining with some nonmetal?
   c. Cation or anion?

7. Consider the atom $_{20}Ca$
   a. Will this atom lose or gain electrons? How many?
   b. What charge does $_{20}Ca$ most likely form when combining with some nonmetal?
   c. Cation or anion?

8. If calcium atoms combined with bromine atoms, how many of each atom would be needed to provide/remove the appropriate number of electrons?

9. If rubidium atoms combined with phosphorus atoms, how many of each atom would be needed to provide/remove the appropriate number of electrons?

10. If aluminum atoms combined with selenium atoms, how many of each atom would be needed to provide/remove the appropriate number of electrons?

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ANSWERS

1. Aluminum is a metal so it will lose 3e−, and become a 3+ cation
2. Rubidium is a metal so it will lose 1e−, and become a 1+ cation
3. Bromine is a is a nonmetal so it will gain 1e−, 1− anion
4. Ne doesn't lose or gain since it has the ideal amount of e−.
5. Selenium is a nonmetal so it will gain 2e−, and become a 2− anion
6. Phosphorus is a nonmetal so it will gain 3e− and become a 3− anion
7. Calcium is a metal so it will lose 2e−, and become a 2+ cation
8. two bromine ions would be combined with every calcium ion.
9. three rubidium ions would combine with every phosphorus ion
10. two aluminum ions would combine with three selenium ions