Bohr Diagram Questions

1. The sentences below contain errors or are incomplete. Write complete, correct versions.
a) Negative particles called neutrons circle the nucleus of the atom.
b) An atom with more electrons than protons will be a positive ion.
c) A molecular compound is held together with ionic bonds.
d) The chloride ion is an example of a positive ion.

2. What part of the atom is involved in making chemical bonds?

3. For the metallic elements sodium, magnesium, and aluminum, answer the following questions:
a) Draw a Bohr diagram for each element. How many electrons are in their outer orbits?
b) Do these metallic elements tend to gain or lose electrons? Give reasons for your answer.
c) What is the charge on each of the metal ions? (Include the ion symbol.)

4. For the nonmetallic elements nitrogen, oxygen, and fluorine, answer the following questions:
a) Draw a Bohr diagram for each element. How many electrons are in their outer orbits?
b) Do these nonmetallic elements tend to gain or lose electrons? Give reasons for your answer.
c) What is the charge on each of the nonmetal ions? (Include the ion symbol.)

5. If an ion is stable, what do you know about the arrangement of electrons in the outer orbit of the ion?

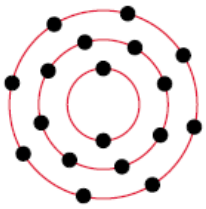
6. Predict the names and charges of the ions that cesium, barium, and bromine might form.

7. Describe, using an example, how a metal atom can form an ionic compound with a nonmetal atom.

8. Sodium and fluorine react to form an ionic compound.
a) Which element is the metal and which is the nonmetal?
b) Draw Bohr diagrams each element.
c) How many electrons must each element gain or lose to form stable ions?
d) Draw sketches to show how this compound forms by transfer of electrons.
e) State the ionic charge on each ion.
f) What is the overall charge on the compound?
g) What is the chemical formula of the compound?

9. Repeat question 8 for the compound formed by beryllium and fluorine.

(P, D) 10. The Bohr diagram below could represent the electron arrangement of a noble gas or a stable ion. Identify the chemical symbol and ionic charge if the nucleus of the atom contained each of the following numbers of protons:



a) 16 protons
b) 18 protons
c) 19 protons