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1.8 Valence Electrons and Ionic Compounds

AP Chemistry

Use a periodic table. Charges must add to zero in every formula.

1. Complete the table for each element's most common ion.

Element	Valence electrons	Common ion	Noble gas it matches
Sr			
Al			
Se			
I			
N			

2. Write the formula of the ionic compound formed from each pair. (a) aluminum and sulfur (b) potassium and nitrogen (c) magnesium and phosphorus (d) barium and oxygen

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3. Sodium and oxygen form Na_2O. Predict the formula of the compound formed by (a) potassium and sulfur and (b) lithium and selenium. Explain.

4. Element X has successive ionization energies of 496, 4,562, and 6,910 kJ/mol. Predict the formula of the compound X forms with sulfur. Justify your answer.

5. Calcium forms Ca^{2+} ions but not Ca^{3+} ions. Explain using electron configurations.

6. Which has a stronger attraction between its ions, NaCl or MgO? The ions in each compound are about the same size. Explain using Coulomb's law.

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