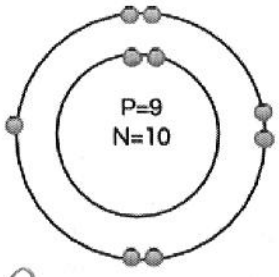
Name: Answers

Ionic Bonding and Ions Practice
Science and Technology

1. Elements can either GAIN or LOSE valence electrons to be like Noble gases. Refer to the diagram below, will this element gain or lose electrons to become more stable?



This element will Gain electrons to become more stable.

2. What are the bonding tendencies (lose or gain electrons) of the following elements?
   a. Strontium (Sr) lose
   b. Chlorine (Cl) gain
   c. Nitrogen (N) gain
   d. Boron (B) lose

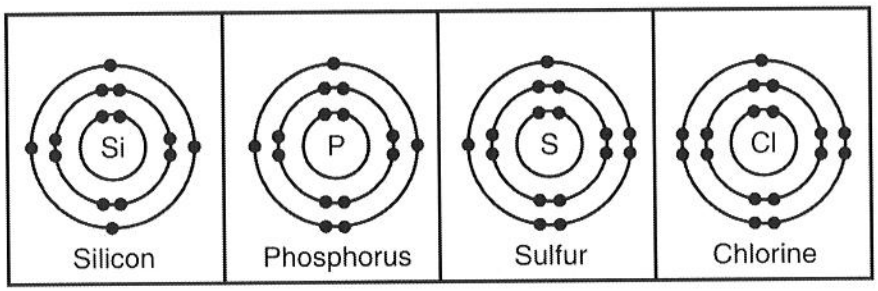
3. What charges would the following ions have?
   a. Potassium (K) +1
   b. Phosphorus (P) -3
   c. Calcium (Ca) +2
   d. Bromine (Br) -1

4. Fill in the table below with the correct answers.

Element	Group	# Valence Electrons	Bonding Tendency	Ion Charge
Argon	8	8	/	/
Iodine	7	7	Gain	-1
Cesium	1	1	lose	+1
Aluminum	3	3	lose	+3

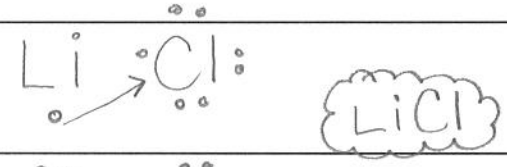
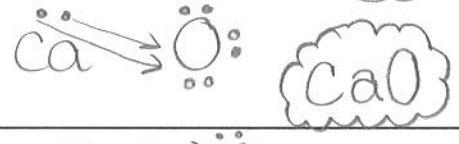
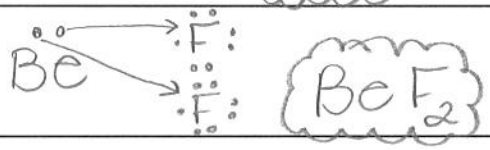
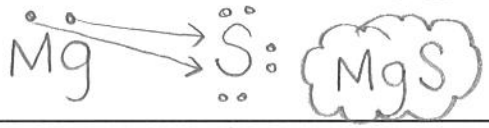
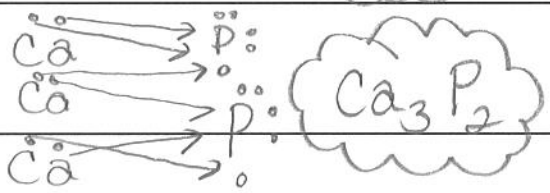
5. An ion of Sulfur is considered to be negatively charged because_____.
   a. Its number of protons is less than its number of electrons ✓
   b. Its number of protons equals its number of electrons ✗
   c. Its number of protons is greater than its number of electrons ✗
   d. Its number of neutrons equals its number of electrons.

6. Which element will gain only one electron? Use the diagram below to answer the question.



   a. Silicon
   b. Phosphorus
   c. Sulfur
   d. Chlorine

7. For each pair of elements below draw a lewis dot diagram. Draw arrows to show where the valence electrons will go during the chemical reaction. Finally, write the chemical formula of the resulting compound.

Reaction (Draw Lewis dot, show electron transfer and write chemical formula)	Atoms	Valence Electrons	Electron transfer	Ions formed
Li + Cl 	Li= 1	1	lose	+1
	Cl= 1	7	gain	-1
Ca + O 	Ca= 1	2	lose	+2
	O= 1	6	gain	-2
Be + F_2 	Be= 1	2	lose	+2
	F= 2	7	gain	-1
Mg + S 	Mg= 1	2	lose	+2
	S= 1	6	gain	-2
Ca + P 	Ca= 3	2	lose	+2
	P= 2	5	gain	-3

To figure out how many atoms of each are needed, use the criss-cross rule!

Ca 2+, P 3-

Cross the charges over: You need 3Ca and 2P to make a molecule.