Name_____

Contrast Covalent and Ionic bonds.

Covalent	Ionic
- $H\cdot + H\cdot + :\ddot{O}: \rightarrow H:\ddot{O}:H$	$Na\cdot + :\ddot{Cl}: \rightarrow [Na]^{+1}[:\ddot{Cl}:]^{-1}$ NaCl Sodium Chloride
- share e^- in pairs	- transfer e^- from metal to nonmetal
- forms between nonmetals & nonmetals	- held together by opposite charges

* FIGURE OUT IF THEY ARE IONIC OR COV. FIRST.

- cross charges to get formula: $Ca^{+2}F^{-1}$ → CaF_2

How are covalent and ionic bonds similar? Both bonds use valence e^-; Both end up with stable products; both have 2nd element end in "-ide"

Write the formula and the electron dot configuration for the results of the following reactions.

ionic 1. K + Br → $[K]^{+1}[:\ddot{Br}:]^{-1}$ Formula: KBr Potassium Bromide

cov. 2. H + H → $H:H$ H_2 Dihydrogen

ionic 3. Sr + S → $[Sr]^{+2}[:\ddot{S}:]^{-2}$ & SrS Strontium Sulfide

Ionic 4. Mg + Cl → $[Mg]^{+2}2[:\ddot{Cl}:]^{-1}$ $MgCl_2$ Magnesium Chloride

cov 5. F + F → $:\ddot{F}:\ddot{F}:$ F_2 Difluorine

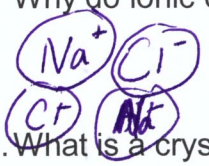
cov 6. C + O + O → $:\ddot{O}::C::\ddot{O}:$ CO_2 Carbon Dioxide

cov 7. P + Cl + Cl + Cl → $:\ddot{Cl}-\ddot{P}(-\ddot{Cl}:)-\ddot{Cl}:$ PCl_3 Phosphorous Trichloride

ION 8. Al + S → $2[Al]^{+3}3[:\ddot{S}:]^{-2}$ Al_2S_3 Aluminum sulfide

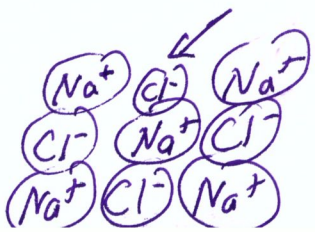
$Al_2^{+3}S_3^{-2}$ Al_2S_3

9. Why do ionic compounds typically have a higher melting poing?



The ions form crystal lattice structures so the are attracted to all oppositely charged ions near them. If they have strong attractions, they will resist being pulled apart by heating/melting

10. What is a crystal lattice structure?



The pattern ions form when they become a crystal due to opposite charges attracting

Name_____

Put an "X" to the left of the ionic compounds. Draw the electron dot models and name these compounds.

		formula	name
cov.	N + N →	N_2	Dinitrogen
ion X	Potassium + Oxygen →	K_2O	Potassium Oxide
ion X	Al + O →	Al_2O_3	Aluminum Oxide
cov.	N + N + H + H + H + H →	N_2H_4	Dinitrogen Tetrahydride
ion X	Mg + Cl →	$MgCl_2$	Magnesium Chloride
ion X	Ca + S →	CaS	Calcium Sulfide

Name the compounds:

- cov. SO_3 Silicon Trioxide
- cov. P_2O_5 Diphosphorus Pentoxide
- cov. N_2O Dinitrogen Monoxide
- ion CuO Copper Oxide
- ion $NiCl_3$ Nickel Chloride
- ion BaS Barium Sulfide

Write the formula:

- ion Sodium Bromide $NaBr$
- cov Bromine Triiodide BrI_3
- ion Aluminum Sulfide Al_2S_3
- cov Carbon Disulfide CS_2
- ion Barium Iodide BaI_2
- ion Calcium Nitride Ca_3N_2
- ion Beryllium Oxide BeO
- ion Aluminum Phosphide AlP

Find the charge of X

X_3N	+1	Na_2X	-2	AlX	-3
XCl_2	+2	BaX	-2	LiX	-1