

1. Use electronegativity values to determine bond types. Recall: ionic >1.7, polar covalent is between 0.5 and 1.7 and non-polar covalent is less than 0.5. Determine the bond type in these compound using values on p. 194:

- a. AlF_3 $1.61 - 3.98 = 2.37$ ionic b. SeO_2 $2.55 - 3.44 = .89$ polar covalent c. IBr $2.166 - 2.96 = .3$ non polar covalent

2. Elements tend to react to acquire the stable electron structure of a noble gas p. 207

3. Be prepared to name ionic compounds. Complete the following practice problems:

- p. 233 #81 a. CaI_2 d. KIO_4
 b. AgBr e. $\text{AgC}_2\text{H}_3\text{O}_2$
 c. CuCl_2

- p. 233 #82 a. potassium oxide d. sodium hypochlorite
 b. calcium chloride e. potassium nitrate
 c. magnesium nitride

#83 from page 233 (draw chart)

cation	anion	name	formula
NH_4^+	SO_4^{2-}	ammonium sulfate	$(\text{NH}_4)_2\text{SO}_4$
Pb^{2+}	F^-	lead (II) fluoride	PbF_2
Li^+	Br^-	lithium bromide	LiBr
Na^+	CO_3^{2-}	sodium carbonate	Na_2CO_3
Mg^{2+}	PO_4^{3-}	magnesium phosphate	$\text{Mg}_3(\text{PO}_4)_2$

4. Ionic compounds contain a metallic cation and a nonmetal anion p. 210

5. The charge of all ionic compounds (like CaF_2) must be neutral 0 p. 211

6. Be prepared to name covalent compounds. Complete the following practice problems:

- p. 276 #124 a. ClO c. PCl_5
 b. H_3AsO_4 d. H_2S

- p. 276 #125 a. phosphorus trichloride c. tetraphosphorus hexaoxide
 b. dichlorine heptaoxide d. nitrogen monoxide

7. Ionic compounds have high boiling points (p. 215) while covalent compounds have low boiling points compared to those of ionic substances (p. 270).

8. Covalent bonds form between atoms of nonmetallic elements. P. 241

9. Be prepared to name acids. Complete the following practice problems:

- p. 274 #92 (draw chart)
- | | |
|-------------------------|-------------------|
| HClO_2 | chlorous acid |
| H_3PO_4 | phosphoric acid |
| H_2Se | hydroselenic acid |
| HClO_3 | chloric acid |

10. Using your virtual lab notes, state the ability to the following to conduct electricity (put yes or no):

- a. ionic compounds as solids NO c. metals as solids YES
 b. ionic compounds dissolved in water YES d. covalent compounds dissolved in water NO

11. Identify the type of reaction represented in each equation below:

- a. $S + O_2 \rightarrow SO_2$ **Synthesis**
 b. $CaCO_3 + HCl \rightarrow CaCl_2 + H_2CO_3$ **double replacement**
 c. $KClO_3 \rightarrow KCl + O_2$ **decomposition**
 d. $Cu + AgNO_3 \rightarrow Ag + Cu(NO_3)_2$ **single replacement**
 e. $C_{10}H_8 + O_2 \rightarrow CO_2 + H_2O$ **combustion**

12. Be prepared to balance equations. Balance the following:

- a. $\underline{\quad} S + \underline{\quad} O_2 \rightarrow \underline{\quad} SO_2$
 b. $\underline{\quad} CaCO_3 + \underline{2} HCl \rightarrow \underline{\quad} CaCl_2 + \underline{\quad} H_2CO_3$
 c. $\underline{2} KClO_3 \rightarrow \underline{2} KCl + \underline{3} O_2$
 d. $\underline{\quad} Cu + \underline{2} AgNO_3 \rightarrow \underline{2} Ag + \underline{\quad} Cu(NO_3)_2$
 e. $\underline{\quad} C_{10}H_8 + \underline{12} O_2 \rightarrow \underline{10} CO_2 + \underline{4} H_2O$

Honors Only:

1. Place hydrogen bonds, dipole-dipole forces, covalent bonds, and London dispersion forces (aka dispersion forces) in order from weakest to strongest. P. 411-412

London dispersion forces
 Dipole-dipole forces
 hydrogen bonds
 Covalent bonds

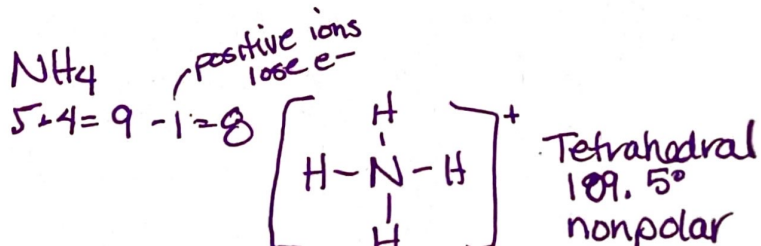
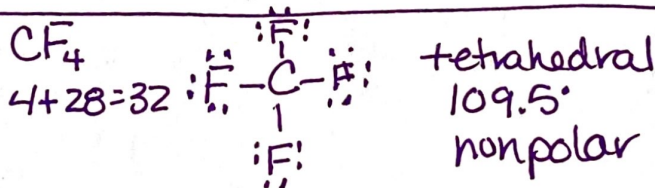
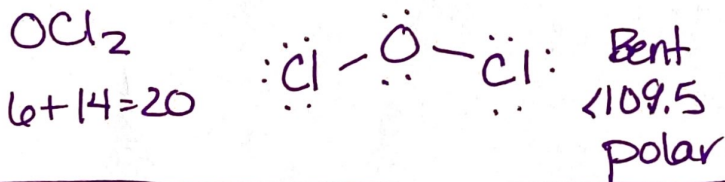
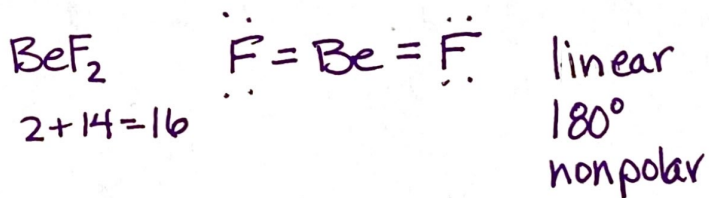
2. Draw table 3 on p. 414. Use the paragraph below it to explain why the differences in boiling points beside it

H_2O $100^\circ C$
 CH_4 -161.5°
 NH_3 -33.3°

water has a higher bp b/c it has hydrogen bonding and is more polar than NH_3 b/c it has two lone pairs of electrons.

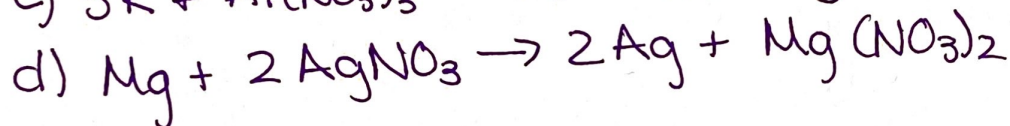
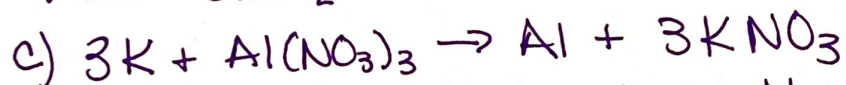
3. Identify the molecular geometry for covalent compounds. Complete the following problems (do not worry about hybrid orbitals). Note, there are several questions about this on the test:

p. 264 #56-60



4. Be prepared to predict the products of chemical reactions. Complete:

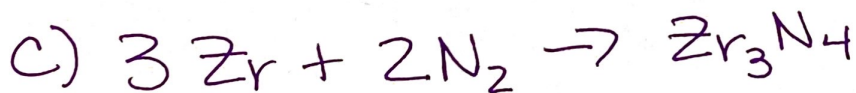
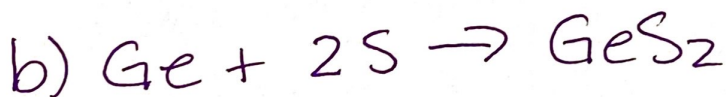
p. 313 #88 (all)



p. p. 313 #87 (a and b only)



p. 313 # 85 (a-c only)



p. 313 #86 (d only)



p. 313 #97

