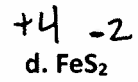
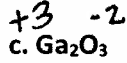
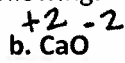
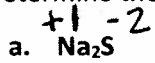


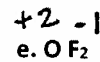
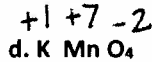
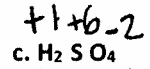
## Oxidation & Redox

1. Determine the charge for the following:



Rules for assigning Oxidation Numbers	
1	Neutral atoms & diatomic molecules = 0
2	More electronegative element # = ion charge
3	Fluorine always -1
4	Oxygen is -2 unless in peroxide then -1 or with Fluorine then +2
5	Hydrogen +1 unless combined with a metal then -1
6	Sum of # = 0 when neutral or charge of polyatomic ion

2. Determine the oxidation number/state for each atom in the compounds below:



$$2 + \text{S} - 8 = 0$$

$$\text{S} = +6$$

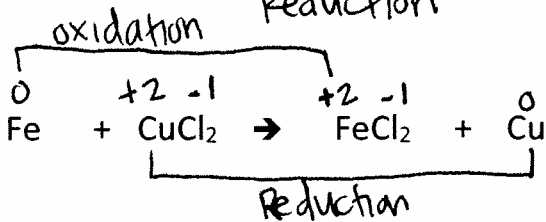
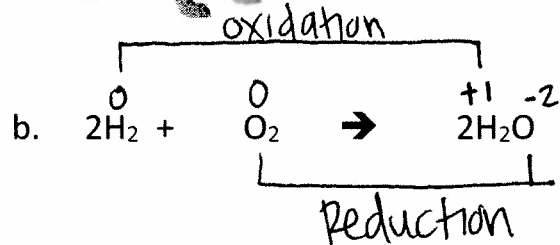
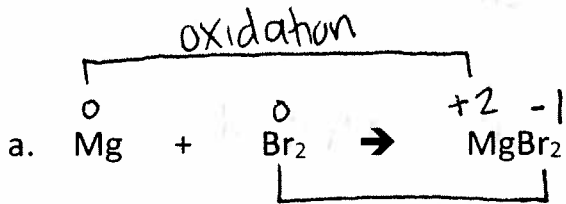
$$1 + \text{Mn} - 8 = 0$$

$$\text{Mn} = +7$$

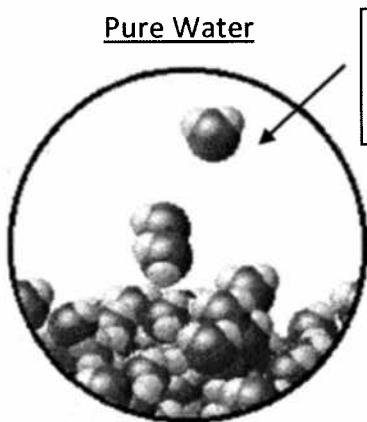


LEO the lion says GER  
or OIL RIG

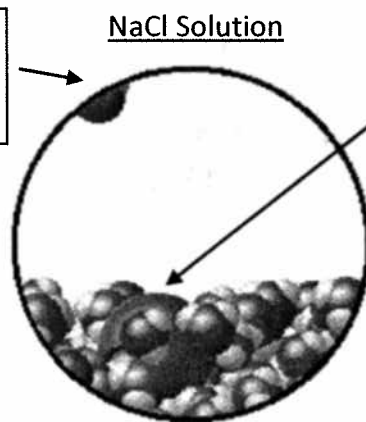
3. Redox Reactions: **Oxidation** = loss of electrons, oxidation # increases  
**Reduction** = gain of electrons, oxidation # decreases



## Colligative Properties



Gaseous H<sub>2</sub>O  
creates vapor  
pressure



NaCl causes more H<sub>2</sub>O molecules to stay in liquid state, thus vapor pressure of gaseous H<sub>2</sub>O molecules above the solution is lowered, causing a higher boiling and lower freezing point.

When a solute is added to a solvent, it can change some solvent properties like:

1. Lowering vapor pressure
2. Raising boiling point
3. Lowering freezing point

This is why salt is added to roads during the winter (lower freezing point) and why salt is added to cooking water (higher boiling point = faster cooking time).

**★ Bottom Line: more solute particles = lower freezing point and higher boiling point**

## Organic Chemistry

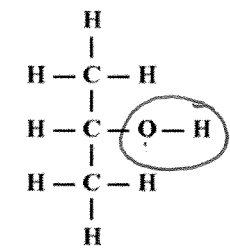
**Organic Chemistry** is the study of carbon compounds that have at least one hydrocarbon, C-H, bond. Carbon can form long chains with multiple bonds.

**Saturated Bonds:** contains maximum number of bonds (all single bonds)

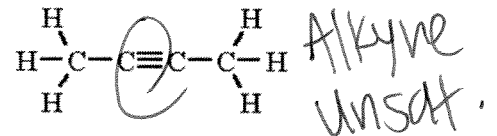
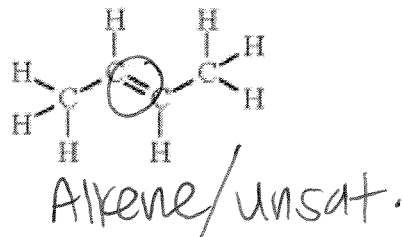
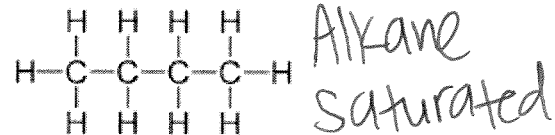
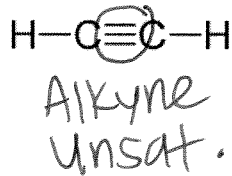
**Unsaturated Bonds:** Does not contain the maximum number of bonds (there are double and triple bonds)

Name	Type	Picture	Saturated or Unsaturated
Alkane	Only single bonds	$\begin{array}{c} \text{H} & \text{H} & \text{H} \\   &   &   \\ \text{H}-\text{C}-\text{C}-\text{C}-\text{H} \\   &   &   \\ \text{H} & \text{H} & \text{H} \end{array}$	Saturated
Alkene	At least one double bond	$\begin{array}{c} \text{H} & \text{H} & \text{H} \\   &   &   \\ \text{H}-\text{C}=\text{C}-\text{C}-\text{H} \\ & &   \\ & & \text{H} \end{array}$	unsaturated
Alkyne	At least one triple bond	$\begin{array}{c} & & \text{H} \\ & &   \\ \text{H}-\text{C}\equiv\text{C}-\text{C}-\text{H} \\ & &   \\ & & \text{H} \end{array}$	Unsaturated
Alcohol	Contains -OH at the end	$\begin{array}{c} \text{H} & \text{H} & \text{H} \\   &   &   \\ \text{H}-\text{C}-\text{C}-\text{C}-\text{O}-\text{H} \\   &   &   \\ \text{H} & \text{H} & \text{H} \end{array}$	Depends...

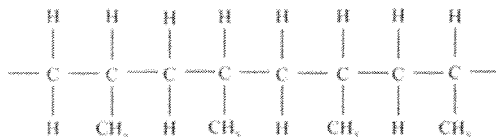
Identify the compounds below as being an alkane, alkene, alkyne, or an alcohol and if it is saturated or unsaturated.



Alcohol  
Saturated



**Polymers:** Repeating chains of molecules A-B-A-B-A-B-A-B-A-B



Natural: DNA, RNA, proteins, cellulose, glycogen

Synthetic (man-made): Kevlar, polyester, plastic, nylon, rubber