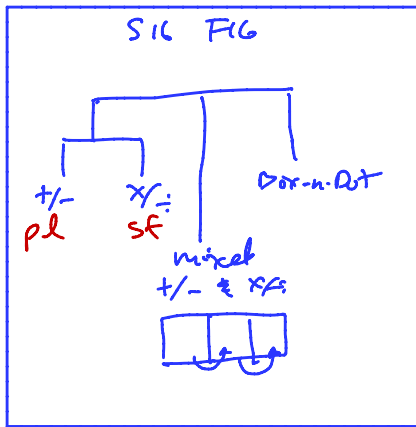
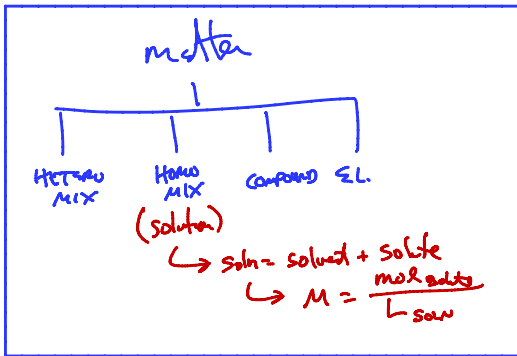


**FINAL
REVIEW**



BIGGER SMALLER
- same metric conv
- same unit



NO MENCLATURE

bromo		phos	
I. M ₁ + nM	I	per-ic	ate
II M ₂ + nM	II	ous	ite
III nm + nM	III	hypo-ous	
hydro-ic acid (oxy hydro chloric acid) HCl	henoy		

I + RO →
I + prefix →

$$\begin{matrix} \text{H}_3\text{PO}_4 & \xrightarrow{-\text{H}^+} & \text{PO}_4^{3-} \\ \text{H}_3\text{PO}_3 & \xrightarrow{-\text{H}^+} & \text{PO}_3^{3-} \end{matrix}$$

HClO₄
HClO₃
HClO₂
HClO

- MEMORIZE
- 7 metals
 - 7 SA / 8 SB
 - 5 drug solids
 - 'ic' acids
 - 6-pack (Type I metals)
 - 7 diatomic

- BCC
- ① ID = paired elect
 - ② ID = lone e⁻
 - ③ STARTS w PAIRED w largest subscript
 - ④ END w LONE elect
- "TOTT" - - - - -
- ⑤ CROSS-multiply
 - ⑥ fraction

$$D = \frac{m}{V}$$

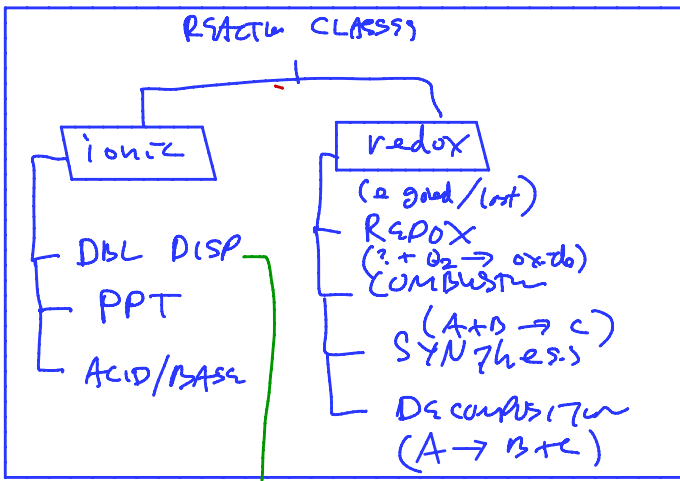
$$M = \frac{\text{mass}}{L_{\text{soln}}}$$

$$S = \frac{J}{g \cdot C}$$

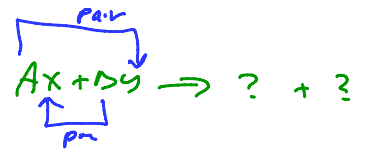
$$Q = m \cdot S \cdot \Delta T$$

% error
% diff

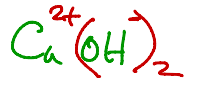
$\Delta = f - i$



ΣL ① PAIR
 ↓
 COMP ② CHG NEUTRAL
 ↓
 EQUATE ③ BCC



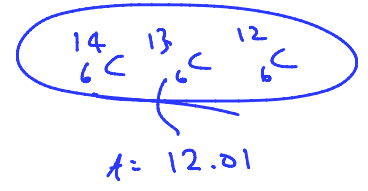
- ↓
- ① MOLECULAR EQ
 ↓ SOLUBILITY TAB / S-ALLAYS
 - ② TOTAL IONIC
 ↓ SPECTATOR IONS
 - ③ NET IONIC

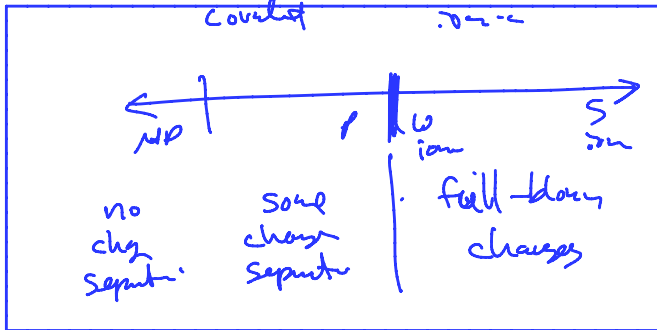
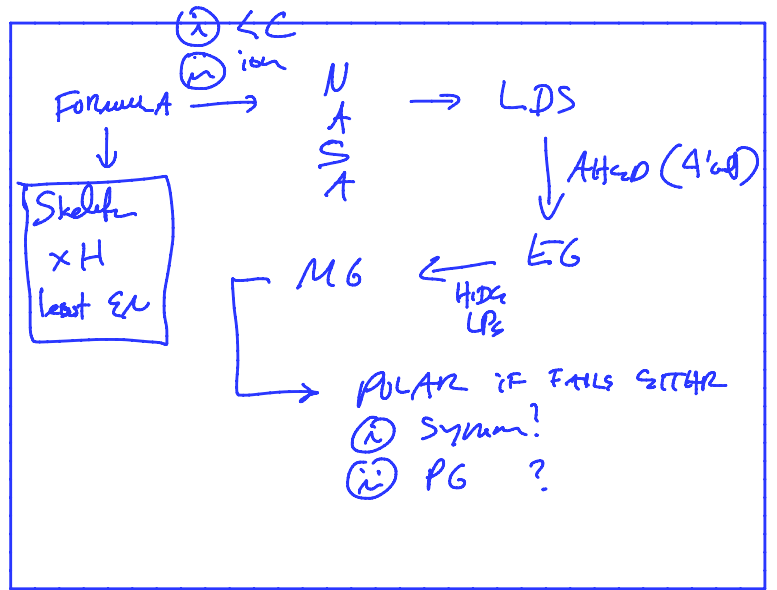
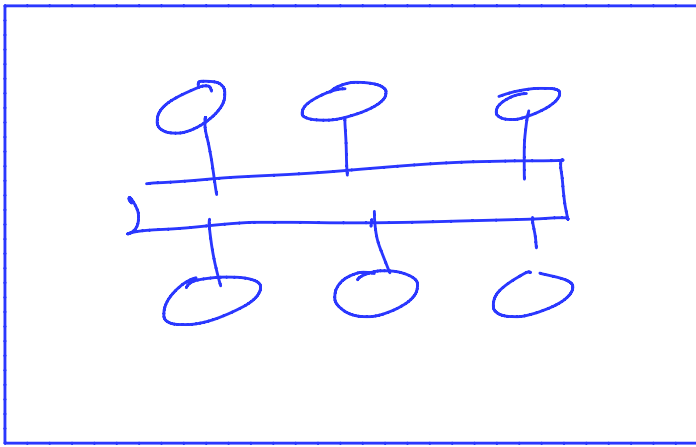


- ① ionic (M+nM)
- ② acid $H^+ A^-$
- ③ base $M^+ HO^-$

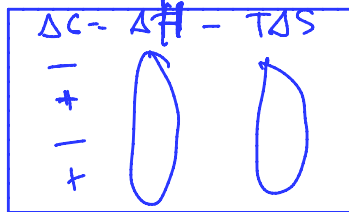
atomic mass = p+n - A CHANGE
 " number = p = z

$A = Z + \#neut$
 $\#p = \#e = CHG$





Stranded us:ly
 host as
 vident / product

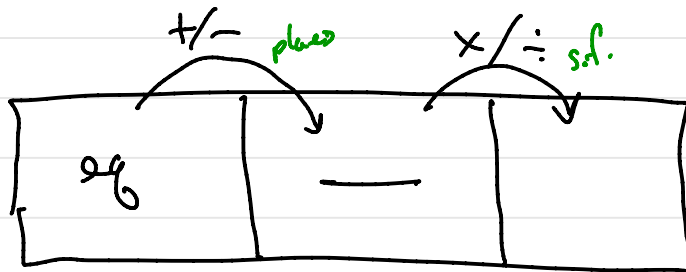


$\text{Polarity} = f(\Delta EN)$

Final Exam
Review Sheets for
Previous Semester
1

516. F16 : • because "mixed" math

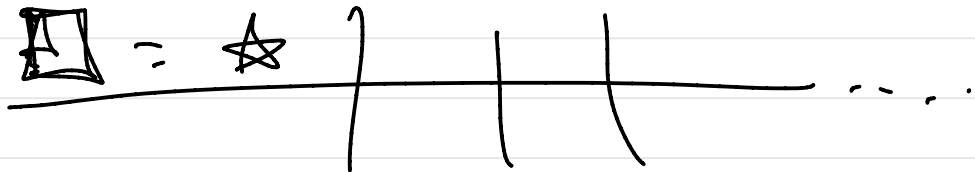
eg: %Error ~ $\frac{|Acc - exp|}{Acc} \times 100$



• Pascal: Box-and-Dot

(st) (pl)

D.A.



MEMORIZE

7 metric conversions
 5 always soluble (Na^+ , K^+ , NH_4^+ , NO_3^- , CH_3CO_2^-)

7 diatomic elements (H N F O I C B)



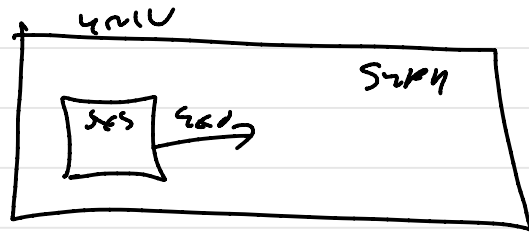
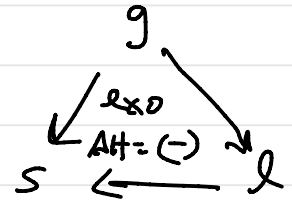
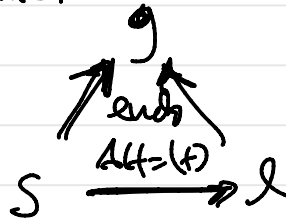
8 SB's

7 SA's

7 types of reactions

3 TEMP CONV. FORMULAS

STATES

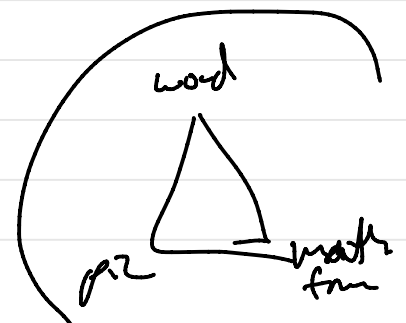


ATOMS

$$\frac{A}{Z} \text{X}^{\text{CHG}}$$

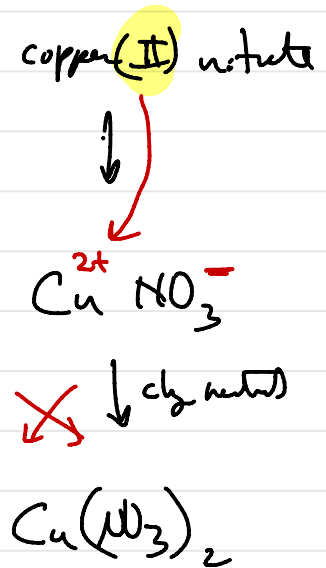
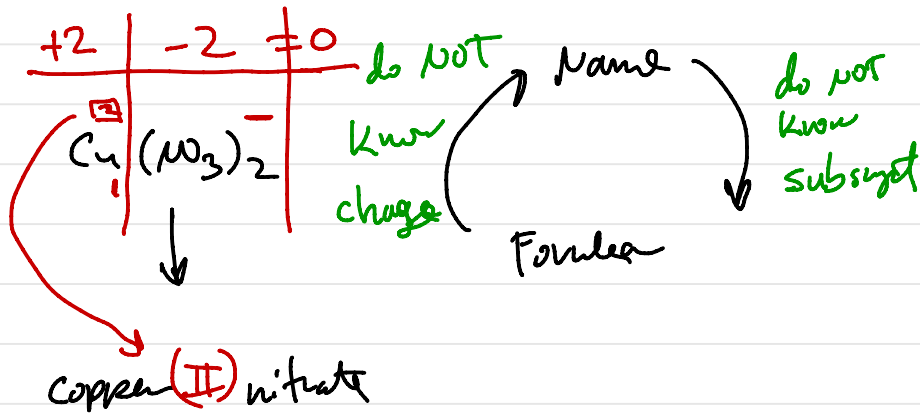
$$A - Z = \#n$$

$$Z - \#electrons = \text{CHG}$$



	br ₂	pl ₂	
non-acid	I II III	ate ite	↔
acid	eg HCl H ₂ SO ₄	ic ous	

ic → ate
|
ous — ite



name I	I	→	strip
	II	→	RN
	III	→	prefix

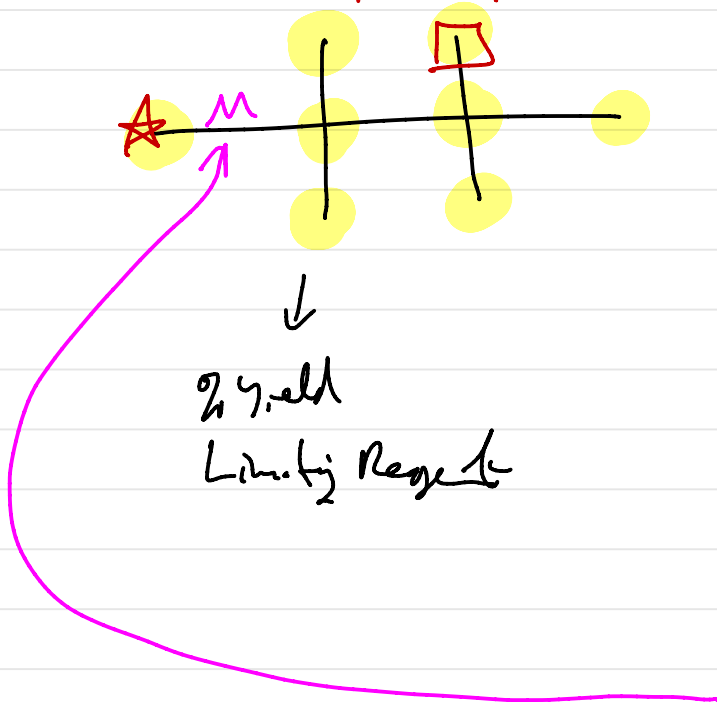
- ncg
- ① PAIR
 - ② cttc ncut
 - ③ BCG

7 TYPES OF RXN:

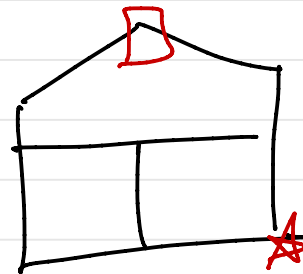
- ① dbl displ
- ② precipitate
- ③ SA/SB (\rightarrow salt + water)
- ④ redox (OIL RIG)
- ⑤ combustion ($X + O_2 \rightarrow XO_2$)
- ⑥⑦ combustion/synthesis \leftrightarrow decomposition

CHEM CALC'S

STOICHIOMETRY



% COMP



MOLARITY

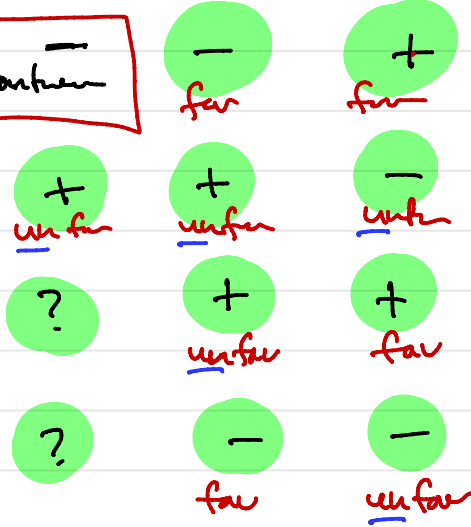
- (i) calc M
- (ii) use M as CF
- (iii) $MV = M'V'$
(conc/diltn)
only amt of solvent diss

ENERGY

TOTAL ENERGY

$$\Delta G = \Delta H - T\Delta S$$

spontaneous

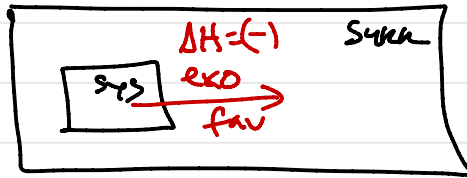


"favourable"
help make $\Delta G = (-)$
↓
 $\Delta S = (+)$
 $\Delta H = (-)$

HEAT ENERGY

$$Q = m \cdot s \cdot \Delta T$$

exo/endo



LPS

top. < C
ion

"4-coat"



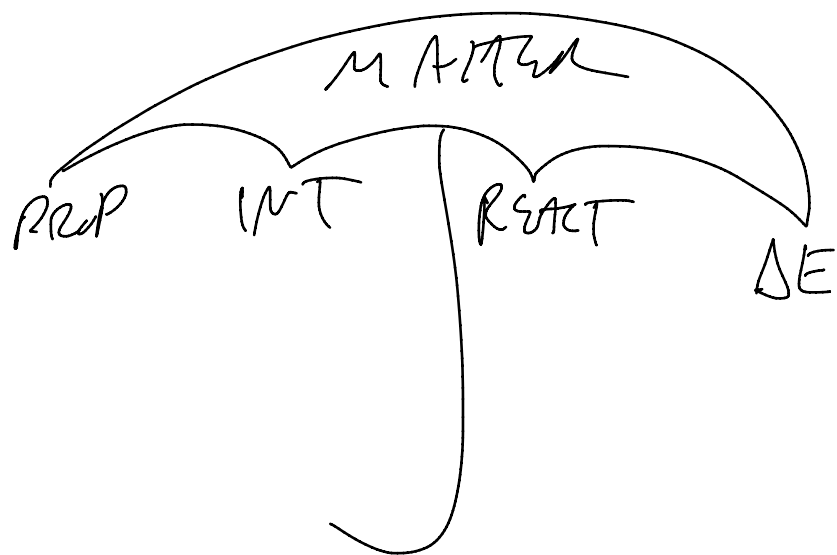
cannot copy L

Final Exam

Review Sheets for
Final Exam
Previous Semester
Review Sheet

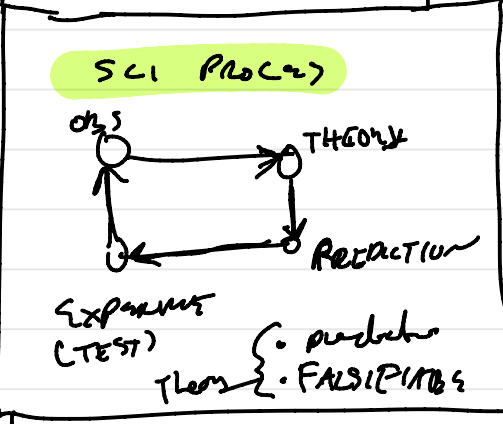
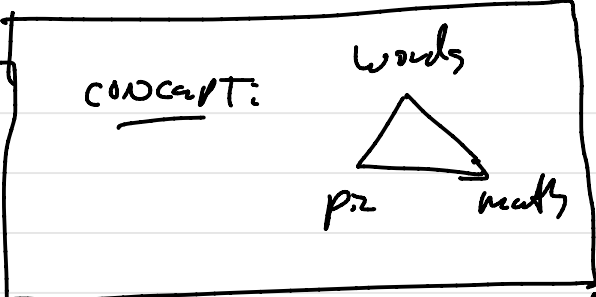
Previous Sem

2



$P - Z$ \times CH_6
 $A - Z = \# \text{ link}$
 $Z - \# e = CH_6$

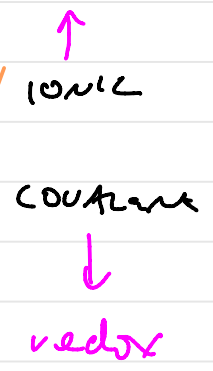
SIL FLE
 - Box & dot
 - operators $\rightarrow X/i$
 $\rightarrow +/-$
 - mixed ops



O.E.F. CHEM
 MATTER =
 PROP, INT,
 RXNS, ΔE

TEMP CONV OF
 $F = 1.8 \text{ } ^\circ C + 32$
 $K = \text{ } ^\circ C + 273.15$
 * cannot use D.A. ... has (+) sign in equation

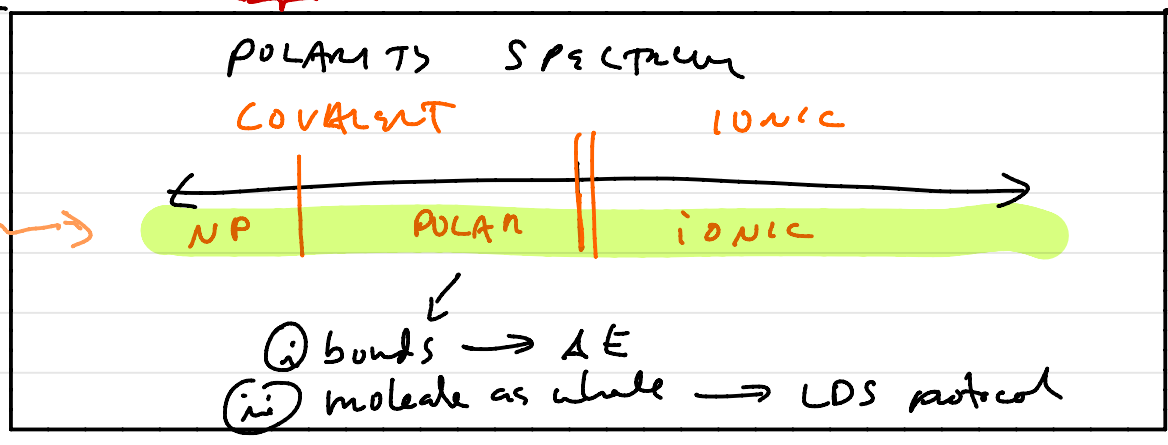
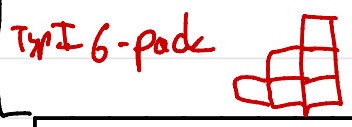
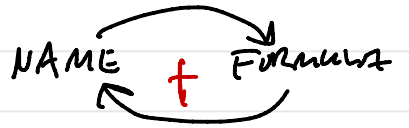
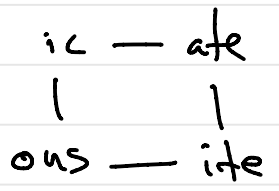
ionic rxn



NOMENCLATURE

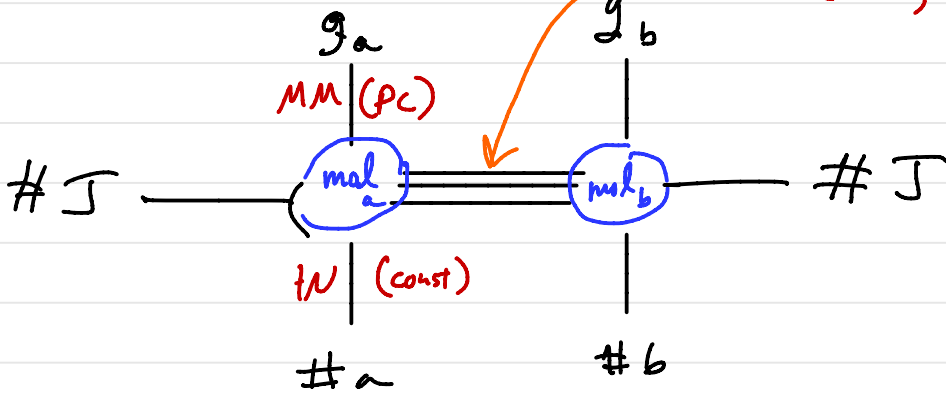
I $M^+ nM$	ate
II $M^2 + nM$	ite
III $nM + nM$	ic
"hydro -ic"	ous
	(memory)
	(love)

"FAMILY"



STOICHIOMETRY

Ratio of Coefficients or Subscripts
(BCS, formula)



"Calc. Grid"

$$6M = \left(\frac{6 \text{ mol}}{L} \right)$$

$MW = m'v'$ calc just version

- MOLARITY
- ① calc M
 - ② used M as CF
 - ③ conc / dil
- $MU = m'v'$

TOTAL VOLUMES

What is the Molarity?
(words) →

$$\frac{\square \text{ mol}}{L \text{ (total)}} =$$

What is the density?
→

$$\frac{\square \text{ g}}{mL}$$

What is the molecular weight?
→

$$\frac{\square \text{ g}}{\text{mol}} =$$

What is the specific heat?

$$\frac{\square \text{ J}}{g^\circ C} =$$

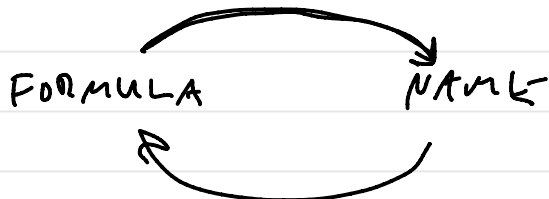
7 Types of rxn

- ① DOL DISPL
 - ② PPT
 - ③ ACID-BASE
 - ④ REDOX (OIL RIG)
 - ⑤ COMBUSTION
 - ⑥ SYNTHESIS \rightleftharpoons DECOMP ⑦
- } I, II
} III, IV

HISTORY / SCIENTIST

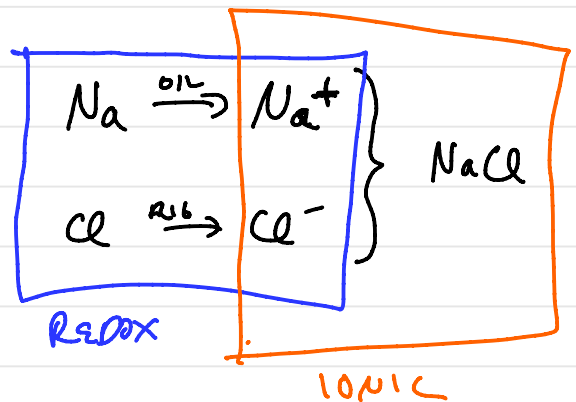
eg: Rutherford = gold - dissem
foil nucleat
(name) (exp) (not result)

NOMENCLATURE TYPES

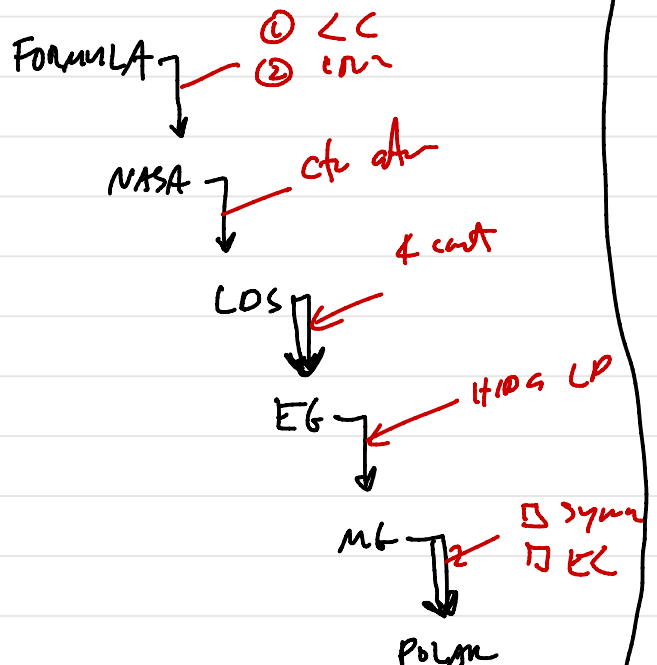


REDOX

OIL (Ox. is loss)
RIG (Red is gain)

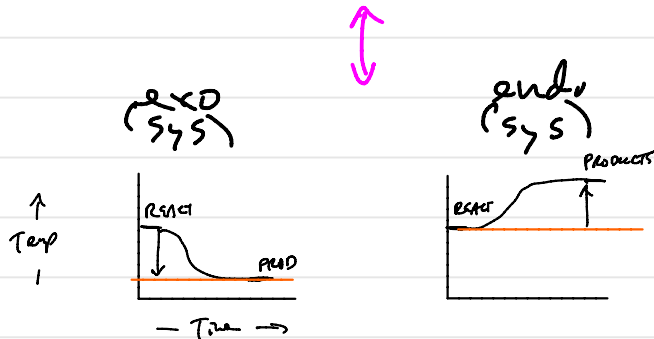
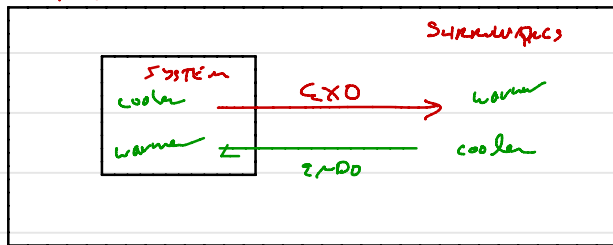


- eg
- isotope (¹²C, ¹³C, ¹⁴C)
 - allotrope (graphite vs. diamond)
 - isoelectronic (Na⁺, Ne, F⁻)



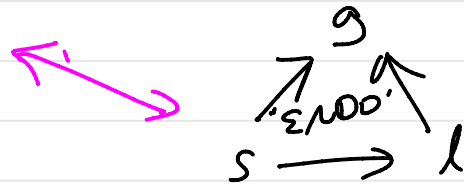
ENDO - EXO

UNIVERSE ← (1st Law of Thermodynamics lives here)



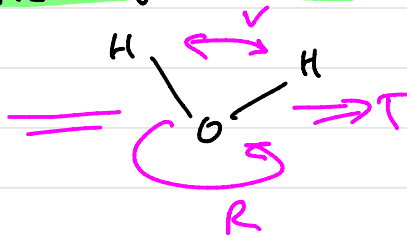
1st & 2nd LAW

- $\Delta G(\text{univ}) = 0$
- $\Delta S(\text{univ}) > 0$



$\Delta H = (+)$
"unfav"
endo

KE = "VRT"



HEAT

$$\Delta E = Q + W$$

$$Q = m \cdot s \cdot \Delta T$$

$$\frac{\square J}{g \cdot ^\circ C}$$

FREE ("GIBBS") ENERGY

$$\Delta E = Q + W$$

$$\Delta G = \Delta H - T\Delta S$$

-	-	+
+	+	-
?	-	-
?	+	+

PUNCTURE

spontaneous

$$\Delta G = (-)$$

$$\Delta H = (-)$$

$$\Delta S = (+)$$

