

Survey Exam

Dimensional Analysis = Factor Label Method

Unit to find goes ON TOP

Fractions

①  $\frac{1 \text{ pound C}}{1} \times \frac{454 \text{ g}}{1 \text{ pound}} \times \frac{1 \text{ mole C}}{12 \text{ g}} = 37.80183181 \text{ mole C}$

②  $\boxed{1.0}$

③  $\boxed{38}$

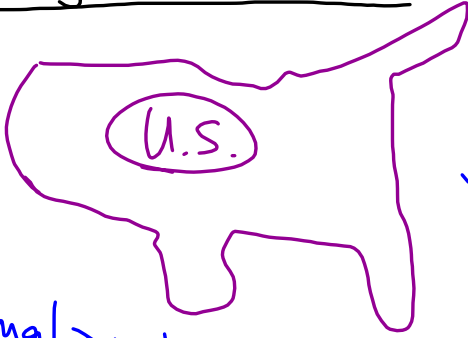
Conversion factors = 1

Sep 14-7:24 AM

Significant Digits

PACIFIC

Present decimal point



ATLANTIC

Absent decimal point.

---

① sig. digit. 500 ← Absent

③ 505 ← Present

Sep 14-8:19 AM

$\overline{P} \rightarrow 500.$  (3)

1<sup>st</sup> non zero # and count all after that

$\rightarrow 505.$  (3)

$\rightarrow 0.007$  (1)

$\rightarrow 0.007\underline{000}$  (4)

Sep 14-8:24 AM

Mult. and divide with Significant Digits

Answer has the same # sig digits as # in question with fewest sig. digits.

(2) (25) (100) = 5000

(2) (25) (45) = 2250

(2000)\*

Sep 14-8:26 AM

Add + Subt    Sig fig.

---

2. <u>75</u>	} fewest # decimal places to $\text{\textcircled{R}}$ of decimal point.
6. <u>000</u>	
15. <u>8675309</u>	
24. <u>6175309</u>	

↙

24.62

Sep 14-8:30 AM

②  $D_{Na} = \frac{0.97g Na}{1ml}$     Find ml  $\leftarrow$  TOP.

$194g Na$

$$\frac{1ml}{0.97g Na} * \frac{194g Na}{1}$$

Sep 14-8:35 AM

③  $MgCl_2$  Magnesium Chloride  
salts.

Binary Compounds

②

$+2$ $Mg$ Lose $2e^-$	$-1$ $Cl$ Gain $1e^-$ $\times 2$
-----------------------------	---

**STABLE**  
 8 valence  $e^-$   
OR  
 Full outer energy level.

Sep 14-8:39 AM

$^{12}$ $Mg$	<div style="border: 1px solid black; display: inline-block; padding: 2px;">e- configs</div> $2-8-2$ extra lose $2e^-$	$\} Cl$	$^{-1}$ $Cl$	$2-8-7$ needs $1e^-$
-----------------	--	---------	-----------------	-------------------------

Full energy level  $\rightarrow$  How many  $e^-$  is that?

$2n^2$   $n = \text{principle energy level shell}$

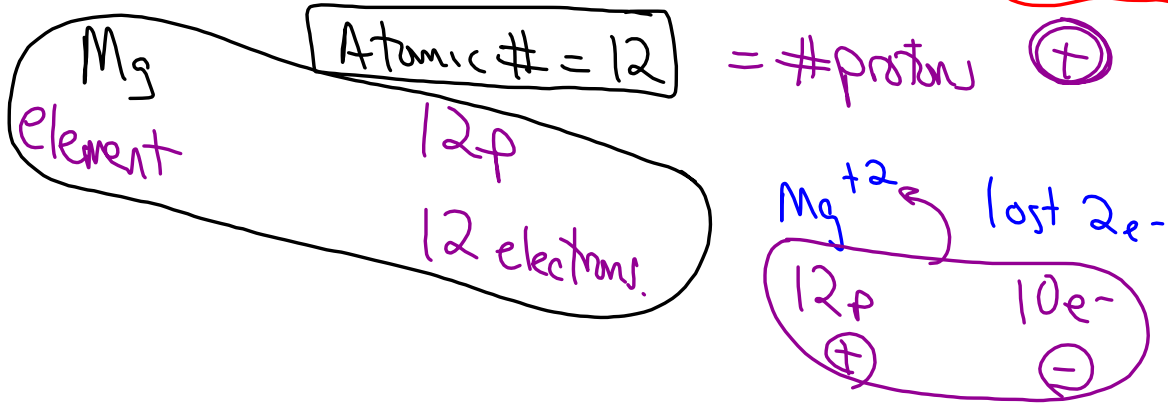
PEL	Max #e-
1	2
2	8
3	18
4	32

**STABLE** or 8 val  $e^-$

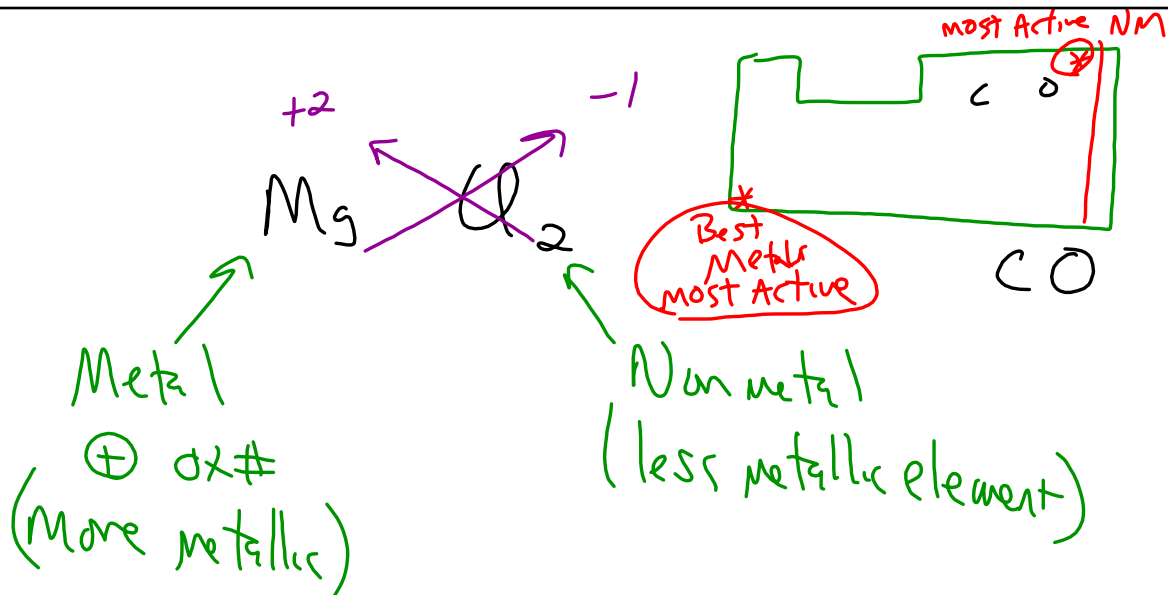
Sep 14-8:45 AM

Everything is Neutral (0 charge)

EXCEPT IONS!



Sep 14-8:52 AM



Sep 14-8:56 AM

Some Transition elements may have 1<sup>st</sup> element  
 $> 1 \oplus$  ox #

+2                      +3  
 Fe                      or Fe

~~$\overset{+2}{\text{Fe}} \overset{-1}{\text{Cl}}_2$~~                       }                       ~~$\overset{+3}{\text{Fe}} \overset{-1}{\text{Cl}}_3$~~   
 Iron (II) Chloride                      }                      Iron (III) Chloride

STOCK SYSTEM

Roman # IS The ox #

Sep 14-8:58 AM

Iron (II) oxide

~~$\overset{+2}{\text{Fe}} \overset{-2}{\text{O}}$~~

$\text{Fe}_2\text{O}_2$                       molecular - shows all.

$\text{FeO}$                       empirical  $\rightarrow$  simplified/reduced

Sep 14-9:02 AM



②  $H + \text{Polyatomic ion}$

Ate	-ic
Ite	-ous

Ending of polyatomic ion →

Acid ending for that polyatomic ion ←

Sep 14-9:17 AM

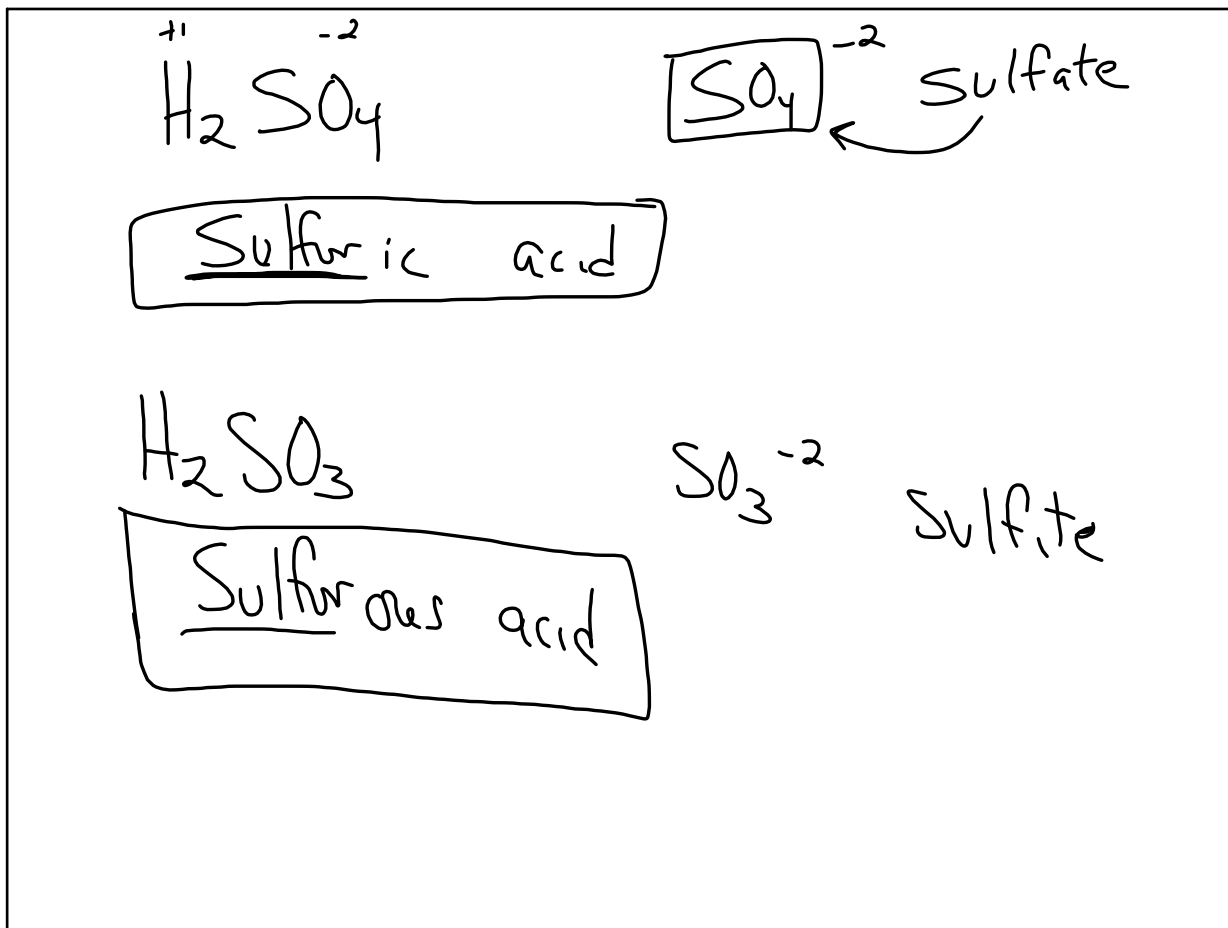
$HNO_3$   
Nitrate  
Nitric Acid

$NO_3^-$  ← -1 charge.  
Single unit  
Nitrate

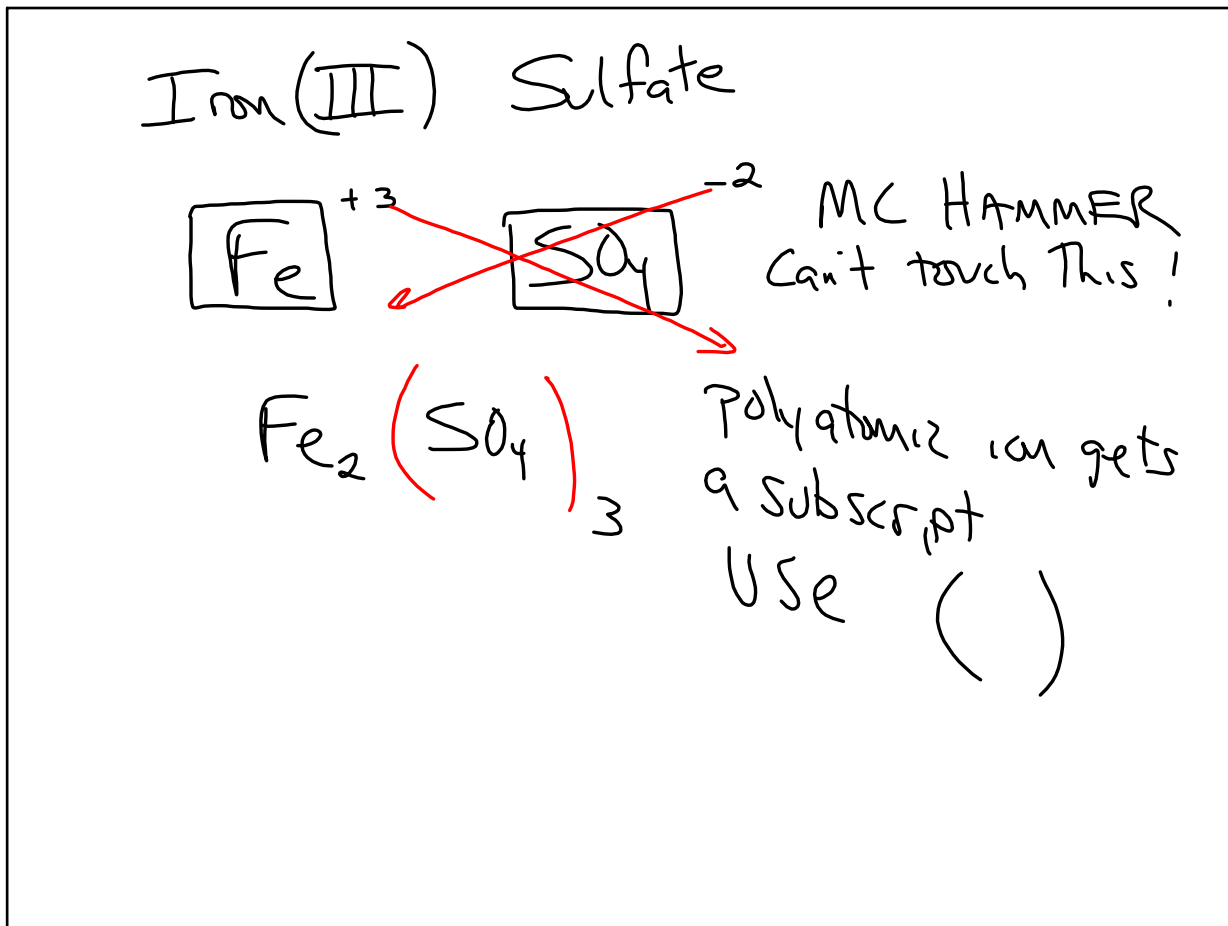
$HNO_2$   
Nitrous acid  
Nitrite

Sep 14-9:19 AM





Sep 14-9:22 AM



Sep 14-9:25 AM



Sep 14-9:30 AM