Isotopes- have the same # of protons but different # of neutrons.

They have the same atomic # but different atomic masses

Protons define the element

	%	AMU
^{35}Cl	75.53	34.96885
^{37}Cl	24.47	36.9658

AMU = atomic mass units (g)

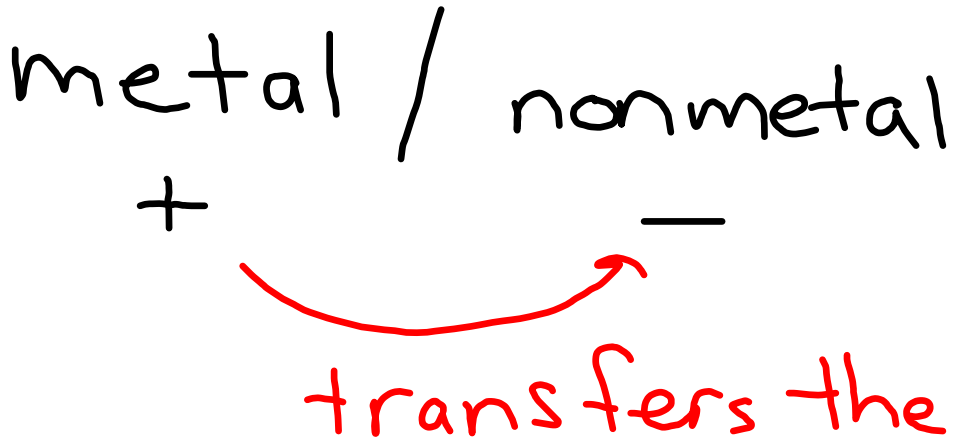
$(.7553)(34.96885) = 26.411\ g$

$(.2447)(36.9658) = 9.045\ g$

$35.456\ g$

$35.46\ g$

Ionic Bond- is when they transfer e^-s



NaCl

Na^+ Cl^-

+ and - charges must equal 0.

Sodium chloride

metal nonmetals

$$Ca^{+2} \quad F^{-1}$$

$$F^{-1}$$

$$+2 \quad -2 = 0$$

CaF_2

Calcium fluoride

Al^{+3} O^{-2}

Al^{+3} O^{-2}

O^{-2}

$+6$ $-6 = 0$

aluminum oxide

Al_2O_3

Fe^{+2} O^{-2}

FeO

iron (II) oxide

the charge of the metal

iron (III) oxide

Fe^{+3} O^{-2}

Fe^{+3} O^{-2}

O^{-2}

Fe_2O_3

lead (IV) oxide

Calcium nitride

Ni_3P_2

BaF_2

Ni^{+2} P^{-3}

Ni^{+2} P^{-3}

Ni^{+2}

$+6$ -6

$^{65}Zn^{+2}$

p 30

n: 35

e 28

V

$1s^2\ 2s^2\ 2p^6\ 3s^2$

$3p^6\ 4s^2\ 3d^3$

Polyatomic ions - more than one atom is forming an ion.

base

OH^- hydroxide

NH_4^+ ammonium

NO_3^- nitrate

CO_3^{-2} carbonate

CN^- cyanide

$C_2H_3O_2^-$ acetate

SO_4^{-2} sulfate

PO_4^{-3} phosphate

HCO_3^- bicarbonate

HSO_4^- bisulfate

Salt

Barium nitrate

Ba^{+2} NO_3^-

NO_3^-

$+2 \quad -2 = 0$

$Ba(NO_3)_2$

$Al(OH)_3$

aluminum hydroxide

base!!

salt

ammonium phosphate

NH_4^+ PO_4^{-3}

NH_4^+

NH_4^+

$+3 \quad -3 = 0$

$(NH_4)_3PO_4$

$(NH_4)_3(PO_4)$

Salt

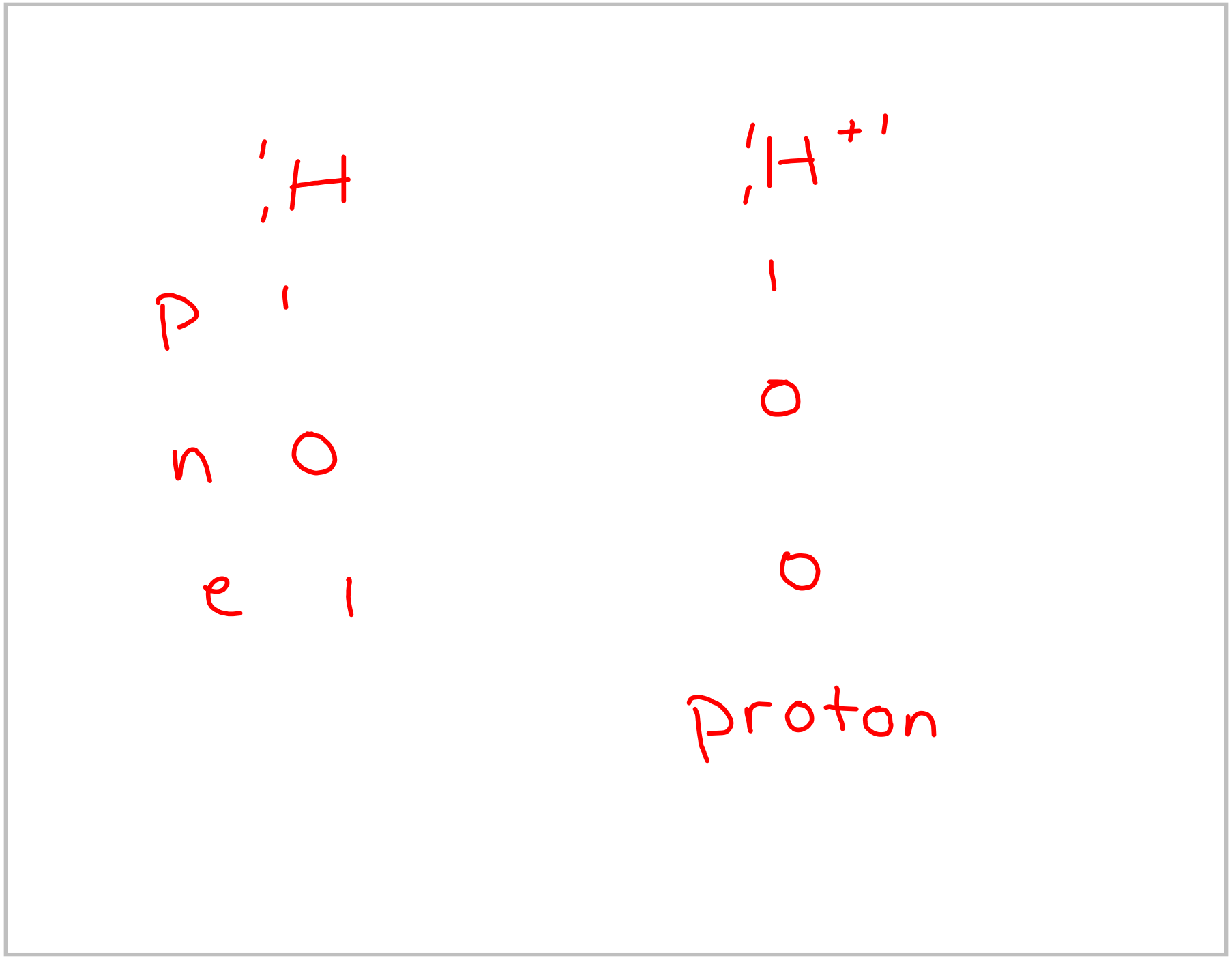
magnesium bicarbonate

Mg^{+2} HCO_3^-

HCO_3^-

+2 −2 = 0

$Mg(HCO_3)_2$


H
p
n
e
H+
proton

H_2SO_4

Sulfuric acid

H^+ SO_4^{-2}

H^+

$+2 \quad -2 = 0$

H_2SO_4

H^+ SO_4^{-2} sulfate

sulfuric acid

bianary acids- H^+ w/ halogen

HF must have the hydro before it

hydrofluoric acid

HCl

hydrochloric acid

HI hydroiodic acid

H_2SO_4

sulfuric acid

phosphoric acid

H^+ PO_4^{-3}

H^+

H^+

$+3$ -3

H_3PO_4 H_3PO_4

$^{+3}H_3P^{-3}O_4$ $^{+1}H_3P^{-3}O_4$

HCN

Cyanic acid

H^+ CN^-

lithium chloride

Li^{+1} Cl^{-}

LiCl

Pb_3N_2

lead (II) nitride

Pb^{+2} N^{-3}

Pb^{+2} N^{-3}

Pb^{+2}

$+6$ -6

Pb
Pb
Pb

N
N